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REP. CARTER (2nd):

Well, thank you very much, Mr. Speaker, you know, I did think about making a motion for a roll call vote, but I think the folks in the back row are satisfied with your answer, sir. Thank you very much.

SPEAKER SHARKEY:

Thank you very much, sir. Thank you, sir. And stay cool as always, sir.

Are there any other announcements or introductions?

Representative Pat Billie Miller. Okay. I don't -- I don't think that she's here. Representative Miller, Pat Billie Miller?

Apparently, the cookies on the desk hit the button on their own.

Thank you, Representative Miller for clarifying that.

Are there any other announcements or introductions?

If not, will the Clerk please call Calendar Number 280.

THE CLERK:

On page 9, Calendar 280, Substitute House Bill Number 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY, favorable report of the Committee on Energy and Technology.

SPEAKER SHARKEY:

The distinguished chairwoman of the Energy and Technology Committee, Representative Reed, you have the floor, madam.

REP. REED (102nd):

Good afternoon, Mr. Speaker. Thank you.

I move acceptance of the joint committee's favorable report and passage of the bill.

SPEAKER SHARKEY:

The question is on acceptance of the joint committee's favorable report and passage of the bill.

Will you remark, madam?

REP. REED (102nd):

Yes, Mr. --

SPEAKER SHARKEY:

If you may pause for just one moment, Representative Reed.

Representative Zupkus, for what reason do you rise?

REP. ZUPKUS (89th):

I rise, Speaker, to recuse myself from this vote due to a conflict of interest.

SPEAKER SHARKEY:

I see, madam. Thank you very much for --

REP. ZUPKUS (89th):

Thank you.

SPEAKER SHARKEY:

-- bringing that to my attention.

The House will stand at ease for a moment.

(Chamber at ease.)

SPEAKER SHARKEY:

The House will please come back to order. Representative Reed, you have the floor.

REP. REED (102nd):

Thank you, Mr. Speaker.

This bill implements key aspects of the Comprehensive Energy Strategy that was turned out several months ago, the Comprehensive Energy Strategy of 2013. The bill doubles the amount of money for energy efficiency programs, and it gives Connecticut consumers more choice when it comes to the fuels that are available to heat and cool their homes.

Mr. Speaker, the Clerk has in his possession an amendment, LCO 8478. I request that he be asked to call it and that I be permitted to summarize.

SPEAKER SHARKEY:

Will the Clerk please call LCO 8478, which will be designated House Amendment "A."

THE CLERK:

Yes, Mr. Speaker.

LCO Number 8478, designated House Amendment Schedule "A," offered by Representative Reed, Senator Duff, et al.

SPEAKER SHARKEY:

The chairwoman has sought leave of the Chamber to summarize.

Is there objection?

Seeing none, you may proceed with summarization, madam.

REP. REED (102nd):

Thank you, Mr. Speaker.

This amendment is a strike-all amendment that will become the bill. We all know by now that the cheapness, most affordable, most environmentally friendly energy is the energy you don't use. So this is going to create more energy efficiency than we've ever done before. It doubles the money that we're putting into energy efficiency programs allowing us to reach out to consumers from every sector, making significant savings available to many more businesses and families, schools, nonprofits, and consumers from every socioeconomic circumstance.

This amendment also facilitates an expansion for natural gas distribution in response to a growing demand for the cleanest fossil fuel that is affordable and newly

more available, and we are considering it a bridge to renewable so, again, this is demand driven.

The amendment also gives PURA, the Public Utilities Regulatory Authority, more independence and more autonomy in the job that they do. And it creates more transparency when it comes to DEEP, the Department of Energy and Environmental Protection, in terms of their policy and planning proceedings.

I move adoption.

SPEAKER SHARKEY:

The question before the Chamber is adoption.

Would you care to remark? Would you care to remark on House Amendment "A"?

Representative Scribner of the 107th -- Representative Scribner. Thank you.

Representative Hoydick of the 120th.

REP. HOYDICK (120th):

Good afternoon, Mr. Speaker.

SPEAKER SHARKEY:

Good afternoon, madam.

REP. HOYDICK (120th):

Mr. Speaker, I stand in support of this amendment. I co -- I've been generally allowed to cosponsor it with the chairs and ranking member -- other ranking members of this

committee. This -- this legislation has been a bipartisan, multifaceted negotiation with many, many stakeholders.

I'm very happy to report that it is consumer driven and consumer friendly as it focuses on the opportunity for Connecticut residents to expand into natural gas if they so choose. It also allows them the opportunity to make their homes more efficient through on-bill financing and loan programs offered through CEFIA, which is the organization this legislative body has created a few years ago.

It also allows consumers and homeowners to make more efficient their oil burners and anything that they can do to lower costs, energy costs in their homes, make it cleaner and make living better.

One of the other things on this bill, as the good chairwoman mentioned, is the virtual net metering expansion for our agriculture base, our -- and our municipalities. It's very, very important as we had started this with a pilot that DEEP has -- and the utility companies have worked very closely with us to formulate this language so it is beneficial for our farms and for our municipalities to be able to have multi-buildings that are virtually shared in any Class I renewable resource that they do to power their generation.

The on-bill financing is something of great interest

to all of us. It makes it easier for people to pay for these energy efficiency improvements. It is something we have advocated for years, and we've finally gotten there, so I credit all of us to our diligence.

Sub metering is relative new to this chamber. It is not new in the industry, we do it commercially all the time, but this affords opportunities for residential apartments or condominiums who are utilizing Class I energy generation to submitter that use, and that consumption is not -- is made knowledgeable to those owners and those residents of those apartment, thus allowing people to be more informed about the energy that they use, their consumption, how they can reduce it. Because if you don't meter it and you don't measure it, you don't know how much you're using.

There are also tree trimming provisions in this legislation that have been worked out, accommodatingly through our tree wardens, our arborists and through DEEP and the utility companies. This is in an effort to make us a stronger grid in an event of major storms and also to promote healthy agricultural lines along our DOT travelways.

Mr. Speaker, as I said, I stand in strong support of this amendment and of this legislation, and I urge my

colleagues' adoption. Thank you.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on -- on House Amendment "A"?

Representative Candelaria.

I think we had another -- Representative Candelaria, were you -- did you seek to speak on this amendment? Your button was pressed. If not, that's fine, we'll move on.

Representative Lesser of the 100th District.

REP. LESSER (100th):

Thank you, Mr. Speaker.

Mr. Speaker, I rise respectfully in opposition to this amendment. I think the intent of amendment is great. I also admire all the work from both parties and from the Executive Branch in putting together a bill that increases investment in energy efficiency and advances comprehensive energy strategy.

I think, Mr. Speaker, there are a number of areas of concern in the amendment, though, that have not yet been addressed, and I think particularly I want to highlight the -- what I think is a troubling section, section 3(m) of the amendment, which I believe, unfortunately, interferes with the independent rate making power of the Public Utility

Regulatory Authority.

Mr. Speaker, I would urge -- you know, I respect the good intent, and I think that perhaps this is something we could look at in the future. I don't necessarily believe that it was the intent of any of the proponents to interfere with that, but I do believe that that is an area of concern.

I also have concerns about section 61, 62, the limitations of the powers of the Citizens' Energy Advisory Board and section 51(d). And for those reasons, I would urge my colleagues to oppose the amendment, respectfully.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Ziobron of the 34th.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

I have a question to the proponent of the amendment please, sir, through you.

SPEAKER SHARKEY:

Please proceed, madam.

REP. ZIOBRON (34th):

Thank you.

I'm looking at the fiscal note of the amendment, and I'm looking for clarification, Mr. Speaker. In the first paragraph of the fiscal note, it states that the amendment requires the electrical distribution companies recover costs through a reconciling, nonbypassable component on their electric rates, and that this will result in an increased rate for ratepayers, including the state and municipalities, and I'm hoping that the good representative can clarify that part of the fiscal note, please.

Through you.

SPEAKER SHARKEY:

Representative Reed, do you care to answer?

REP. REED (102nd):

Thank you for that -- for that question.

So there is concern that as we create, essentially, microgrids, which is something that we're doing to give our -- our system more resiliency and the ability to withstand storms and that kind of thing that there might be some transitioning as people get off the grid of cost shift to some ratepayers who stay on it and so those are numbers that are projections. We're still working with, you know, trying to figure out exactly how this is all going to work, but the idea is that more and more people will be able to

take advantage of these programs and that the cost shift will not be the kind of thing that will be detrimental to the whole societal good.

One of the issues that, you know, I know we've all realized is when the big storms come, we're all out. So the idea of being able to have major parts of your municipalities, your police stations, your sewage treatment plants and all of those really critical facilities online, in addition to hospitals and that kind of thing, is really, really important, so this sort of overall societal good is a good -- is a really good thing and it's a balancing act. But there is a concern about a cost shift as we get people off the daily expense of paying to be hooked up to the grid.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

So to the good representative's response and I thank her for that, is the response indicating that it may be a temporary rate increase or is it, in fact, a permanent rate increase based on the microgrid? I'm still not exactly clear.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

So this is one of the reasons that we are trying to push for every aspect of efficiency and the ability to use less, you know, we don't have it in this bill but at some point we really want to do smart metering and all that kind of thing when that technology is ready for prime time. You know, we want to do things that will reduce demand and will save everybody more money. So as we move through this process, we're hoping that this will be temporary and that, ultimately, everybody will really benefit and the entire system will benefit. So that's -- you know, it's hard in the world of energy to predict -- to predict exactly how long things take, but that's the vision, and that's one of the things that the Comprehensive Energy Strategy does, is we're trying to look at the big picture in the long-term, and we're trying to create distribution of energy so that we're not so all dependent on one system, when it starts to go down, you know, we're all in the dark. I guess there's even a number one rated television show now called Revolution that's a -- a big hit, and the central theme is that the whole power of the world is lost and the world

falls into chaos. So one of the things we're trying to do is to make these mini grids all over the place so that when we're not so -- we're -- we know we're interdependent, but that will have these oases of light and power and heat and, you know, we can all take care of one another.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you.

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

And I appreciate the good representative's answers.

I'll reserve any other questions I might have, sir, for the underlying bill. Thank you.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on House Amendment "A"?

Representative Candelora of the 86th.

REP. CANDELORA (86th):

Thank you, Mr. Speaker.

Mr. Speaker, I just have a question on section 44 in the bill which deals with the wind turbines. In Regulations Review, we've had this issue come up that we've

been reviewing. And I was just wondering what the purpose is for that change where we're deleting one of the criteria?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

So thank you for that question, Representative. The only reason for this is not to in any way, you know, do an end run around Regs and Review. In fact, Regs and Review now is in -- in charge of what's going on with wind turbines. But we wanted to clarify the intent that we had when we enacted legislation, putting a moratorium on wind turbines until the Siting Council had come up with regulations on, you know, how they should be dealt with in Connecticut. And we realized that that line was causing problems because it was too proscriptive. We we're essentially saying -- we were telling them to write regs for it and, yet, we were telling them the conclusions that they should come to, that the regs should be pinned on the size of each facility when, in fact, when you talk to states, like Vermont, who have regulations, they say that it's -- every situation is so unique that it's really not a

good idea to be so proscriptive. And thus siting council asked us that, as well. You know, they want to be able to go into each situation, hear it on its merits, look at what's really being talked about in a very customized way and make their determinations with public input based on the reality at hand and not going back to, you know, what we had done originally thinking that we had made the definition of how it should all go down.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Candelora.

REP. CANDELORA (86th):

Thank you, Mr. Speaker. I appreciate that.

So I know there's still criteria enumerated here which continues to require us in the regulations to consider the setbacks, the ice throw, blade shear noise, natural resource impact, so all those other items, so the intent would be that the size and scope of these different projects would still -- all those items have to be taken into consideration on a case-by-case basis. So while we don't necessarily -- we're not necessarily looking to bifurcate regs where we have, you know, A, B, C, depending on scope of size, small, medium, large; however, the intent would be that the regulations should still be considering

the different size scope of each project as it impacts these criteria, such as ice throw, blade shear noise, so it's still the intent of this legislature to make sure that those are taken into consideration?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

Yes, indeed, and as usual, Representative Candelora, well said.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Candelora.

REP. CANDELORA (86th):

Thank you, Mr. Speaker.

I appreciate it -- I appreciate the answers. I know this bill is quite large and the chairman is certainly well prepared so thank you very much.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Fleischmann of the 18th.

REP. FLEISCHMANN (18th):

Thank you, Mr. Speaker.

Through you, Mr. Speaker, a couple of questions for clarification to the proponent of the amendment.

SPEAKER SHARKEY:

Please proceed, sir.

REP. FLEISCHMANN (18th):

So I'm -- I don't have the pleasure of sitting on the Energy Committee and don't get to develop the kind of expertise that the good chairwoman and members of the committee have, but I do my best to -- to read bills and to understand their plain language, and so section 61 of the bill appears to my untrained eye to allow for telecommunication towers to be placed in our watersheds adjacent to our reservoirs. Is that a correct understanding of what section 61 does?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

And thank you for that question. Actually, I think most people don't realize that there are already -- it's already permitted, under certain circumstances, for

telecommunication towers to go into some watershed areas, requiring a permit from the Department of Public Health and a certificate from the Siting Council. And we wanted to emphasize more before the Siting Council would even have an opportunity to even hear an application or that an application could be considered to have the Department of Public Health be the primary agency to bless the possibility of utilizing land. The Department of Public Health really is the agency that is the guardian of water purity, and we wanted to make sure that they became the ones that -- that either said, you know, okay, water would not be compromised, you may put that into the process for consideration. If they say no, then that's a no, that's a hard and fast no and don't even think about it.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Fleischmann.

REP. FLEISCHMANN (18th):

Thank you, Mr. Speaker.

And the commissioner for Environmental Quality who, as I understand it, is a watchdog for us regarding environmental protection around our watersheds and reservoirs, and so forth. Has that office weighed in on -- on this section of the section subsequent?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Through you, Mr. Speaker

To be honest, I'm not -- I'm not sure. I know that, you know, other environmental entities have, but we -- the Department of Public Health was our primary consideration, because that is the agency that is protective of the water systems, whose very, very -- and I think if anybody has ever dealt with the Department of Public Health and on water issues, you realize they are pit bulls on these issues, so there are dedicated staff members who have been there for many, many years who would not even allow you to, you know, think about taking your dog into some of these watershed areas, so we wanted to make sure that they were the lead agency on this, and so that's why we strengthened the language.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Fleischmann.

REP. FLEISCHMANN (18th):

Thank you, Mr. Speaker.

And I thank the good chairwoman for her explanation.

It's my understanding that the commissioner for Environmental Quality is actually not comfortable with the change we're making here for various reasons, which is a concern to me. You know, there -- it's -- this is a big amendment, and I'm not going to ask all the questions that come to mind, but the other big issue for me relates to our Citizens' Energy Advisory Board which had always struck me as a -- as a really good entity. It allows for appointment of members of the public who can weigh in on -- on critical energy issues for our state's future. And as I understand it the powers and authority of that board, which were set up by this General Assembly in an effort to really make sure we had good citizen input, are going to be curtailed under this amendment. And I -- I guess I wanted to pose it as an open question to the good chairwoman why we would seek that curtailment.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker

This board was created -- and thank you for this question because this is -- this is an important issue -- this board, the CEAB was created when we had a very balkanized system for dealing with energy issues. And so

we had the CMB, the CEAB, OPM, you know, several other acronyms involved in making energy policy, and it was very fragmented, and there were lots of silos. So in the process of pulling together, creating an energy agency and pulling together the various components to make it function, you know, more effectively and to really develop policy and to really be, you know, to sort of fast-track some of things we needed to do, we brought a lot of these people into the process as well. And we found that the CEAB, while, I mean, it's got incredible people on it, but they evidently don't meet that often anymore and it -- it felt as if, you know, some of the things that were being addressed were being addressed by other entities, and it just seemed to be a natural evolution as we professionalize the approach to energy. There are many, many public and private people involved in the processes that we have and -- and that -- so that's why we made that decision.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Fleischmann.

REP. FLEISCHMANN (18th):

Thank you, Mr. Speaker.

I thank the good chairwoman for her -- her thoughtful response. In my heart of hearts I just can't agree that it

makes sense in streamlining to -- to so neuter the Citizens' Energy Advisory Board. This is a board that has provided some profoundly important guidance to the General Assembly in years past. I can remember one instance where there was a proposal to -- to reorganize how we were handling energy assistance that would have severely limited the number of families that could receive that assistance and it was the Citizens' Energy Advisory Board that helped us to figure out a way to not do that and to keep families protected. They've really done an outstanding job, so curtailing their -- their authority is something that, while I understand the good chairwoman's answer and I understand the desire for streamlining, in good conscience, I don't believe I can support that, but I appreciate the gentle chairlady's time and your indulgence, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Williams of the 68th.

REP. Williams (68th):

Thank you, Mr. Speaker, and good evening.

SPEAKER SHARKEY:

Good evening, sir.

REP. Williams (68th):

Mr. Speaker, ladies and gentlemen, you know, as I listen to this debate, I think about years past in the Energy Committee, and I think about an adage that somebody taught me outside of here -- outside of this chamber one time that oftentimes we try to eat a really big sandwich in one bite on the Energy Committee rather than eating it in -- in multiple bites. And whether it's that analogy or whether it's the analogy of the Energy Committee trying to do aircraft carrier bills every year. And at the end of the session the aircraft carrier either carried the day or sank and, all too often, unfortunately, that bill sank.

And I think about the debate that's happening here today on this bill and I think that we could all recognize that if we wanted to pick one thing out of a bill, out of any bill -- or two things -- and use that as our justification for voting against an otherwise form -- formidable bill and a bill that may be beneficial to the ratepayers of Connecticut in this instance that we -- we could do that.

Are there things in this bill that I don't like and that others don't like on this side of the aisle, and I'm sure on the other side of the aisle? Of course there are, there's things that we don't like, but that's part of the

art of compromise. And I do think that this bill represents a true compromise. I think about the way that the natural gas expansion proposal started at the beginning of this session, and there was wild opposition on the part of home heating oil dealers and others, and I'm sure that when we go home and write the story about this bill those same people are going to say, we don't love this bill. But through the art of compromise, our ranking member and our chair, both here in the House and in the Senate, has decided that we weren't going to take a $500 tax credit and use taxpayer funds to subsidize the vast expansion of natural gas here in this state and use that to create a competitive market advantage for natural gas over home heating oil and recognize that there are other ways that we can create some choices in that arena rather than to use taxpayer resources to sort of beat the other industry over the head into submission, and we're not doing that here today, and I'm appreciative of that.

As far as not eating the sandwich in just one bite, we've seen this year some other bills come out of this committee that have been very favorable -- out of this chamber, rather, that have been very favorable. Of course, they had some opposition as well, but our Renewable Energy Bill that we did, 1138, was a completely different concept

than what we're talking about here today. We recognize that there are going to be people who agree to disagree on that issue, voted on that bill separately, and now here we are today moving another bill on Connecticut's energy future out that, I think, on the whole will be good for -- for ratepayers.

One thing that many of us have been talking about for years, one of the former chairs of this committee, Senator Fonfara and I have been talking about for years, is the issue of on-bill financing, allowing people to use their utility bill, their meter, as the mechanism to finance renewable energy or other efficiencies that they can use to lower their electric bill on a long-term basis and financed that cost on their electric bill.

One thing I'm very appreciative of Commissioner Esty for doing is trying to move us from a subsidy-based system of increasing our renewables and our energy efficiency programs to a financed-based model. I think there's a recognition in this bill and in other bills that if we continue to just keep throwing ratepayer money every year at programs, the cost of these technologies and the cost of these programs does not come down. The programs and technologies continue to rely on government subsidies, and there's no market incentive for those prices to come down.

I think that this bill is a further recognition of that fact. I think on the whole, Mr. Speaker, ladies and gentlemen, this is a good bill. I would urge support for the amendment and for the underlying bill.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Willis of the 64th.

REP. WILLIS (64th):

Thank you, Mr. Speaker.

Just to make some comments regarding this. I'd like to associate my remarks with some of the comments made by Representative Lesser and Representative Fleischmann, but I have some further concerns.

Section 61 and 62 of this bill are nothing to do with energy. There -- it is a telecom bill. It has to do with cell towers. It has to do with putting cell towers, placing them in watershed, in pristine water lands, Class I and Class II. This is -- should be of serious concern to everyone here in this chamber. While this bill has an -- it really started out, I think, to be a very good bill.

When the energy task force, the Governor's task force,

went around the state, I took advantage of going to one of the hearings that was held in Torrington and I spoke about the virtues of virtual net metering and how important that was, and I am very thrilled to see that that stayed and was placed in the legislation.

I also was extremely supportive and worked with the Connecticut Farm Bureau to ensure the agricultural piece on virtual net metering from them, that will really help many of our farmers who are really struggling, particularly, on our dairy farms here in Connecticut.

But this is a telecom section. This all has to do with telecom. I don't know why it was placed in this bill. It was another bill, Senate Bill 888, and somehow it ended up in this, and I think we should asking, why?

Section 44 of this bill has to do with wind turbines that, also, is a concern to me. There is less protective regulations in this amendment that concerns them.

I, also, think that there are other problematic sections of this bill that gives the DEEP commissioner unprecedented power and eliminating a lot of input and -- and the consulted role that the CEAB commission was able to -- Board -- was able to do.

I urge my colleagues to look at this bill carefully, certainly listen to the debate, but as this bill stands

right now, this amendment, I could not support it, and I urge my colleagues to defeat it.

Thank you.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on House Amendment "A"?

Representative Mushinsky of the 85th.

REP. MUSHINSKY (85th):

Thank you, Mr. Speaker.

My colleague, Representative Willis, is correct, there are some -- a couple of rats hidden in this bill that probably shouldn't be in here, last-minute additions. However, in many ways, this bill includes a whole package of reforms that will help our customers no matter what fuel they use. The bill will force rapid changes in energy use and efficiency. It will certainly help my oil customers in my town, many of whom live in old housing stock and they pay up to $4,000 a year just to heat their homes in the winter and that on a fixed income, 4,000 a year is -- is just an incredible burden on these -- on these folks.

All other household expenses, even food, are sacrificed to the heating oil bill. And it regularly shows up as the number one concern in my constituents' survey.

The bill encourages natural gas expansion and makes it easier for that to happen. And while natural gas is a fossil fuel, as is oil and coal, and does have some of the same climate change problems as oil and coal, nonetheless, it's a little improvement over those two fuels, and it will provide an immediate financial help to my constituents who have previously been oil customers.

Within the bill -- and I've lost track of the section numbers because the bill has changed so many times but, within the bill's many pages, there is a -- is the mechanism for long-overdue upfront financing for energy efficiency, the PACE Program for on-bill financing. We have needed this for a long time. You can convince a constituent to make the efficiency improvements, but then the question comes up how will I afford that with that large upfront cost, and we were not able to do that until now. We will, with this language, be able to finance upfront improvements to homes and businesses on a massive scale to make living in Connecticut more sustainable.

Also, in the bill, I think it's still in here, is promotion of microgrids which reduce the vulnerability of our state. As the utilities deal with climate change, they face increasing threats from more frequent and intense storms whether on steroids is the new reality in

Connecticut and across the United States, and the utilities have to be prepared for that. And microbe grids allows our communities to stay functioning as the conditions of climate change make utilities have to respond to more vigorous storms.

Also buried in the many pages of this bill, we have disclosure provisions, which we have needed for quite a while, and that bill's been trying to pass for several years now, it's finally in here. This disclosure to prevent -- to protect renters and homebuyers so they know how much energy this structure uses. The very fact that we will now have disclosure will allow customers to choose -- pick and choose to avoid energy wasting structures, and now that you know what you're dwelling will cost or your small business will cost to heat and cool, this will drive improvements and efficiency for those buildings. Just as when we go to select our automobiles, we look for the miles per -- per gallon and try to get the most efficient vehicle, now we'll be able to do that for buildings as well.

And finally, the bill has the additional benefit of creating thousands of jobs in energy efficiency. Green energy was considered by Program Review and Investigations as a -- in our workforce study of December 2009. It was

singled out as a growth area for Connecticut because there are jobs on every rung of the economic ladder in energy efficiency, everything from carpentry to insulation to heating and cooling to the technical fields of solar hot water and geothermal installation to construction and engineering jobs, when we bring in alternative fuels. So I, also, believe this is a jobs bill and it will help my constituents in that way as well.

I think if I was Representative Willis, I would have a hard time deciding what to do because of that extra addition to the bill at the last minute, but because I'm not dealing with the towers on waterlands. Looking at the overall benefit of the bill to my constituents and to the State of Connecticut, I would recommend approval and urge your support for the bill.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on House Amendment "A"?

Representative Yaccarino of the 87th.

REP. YACCARINO (87th):

Thank you, Mr. Speaker, and good afternoon.

One question to the proponent of this bill, Mr.

Speaker, through you.

SPEAKER SHARKEY:

Please proceed, sir.

REP. YACCARINO (87th):

Thank you, Mr. Speaker.

The online billing -- financing will that take effect for oil dealers, I mean, oil customers also? If I want to expand -- I mean, excuse me -- if I want to upgrade my furnace and I have oil and natural gas is going through my neighborhood, could I still utilize the online financing?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

So you mean the on-bill financing, Representative?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Yaccarino.

REP. YACCARINO (87th):

Yeah. If I want to -- if I need a new furnace and upgrade to a more efficient -- energy-efficient furnace, but I want to use home heating oil, not natural gas, could I apply for the online financing -- on-bill -- on-bill

financing?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

And thank you for that question. Absolutely. We actually -- the Comprehensive Energy Strategy, one of goals was to be fuel blind and to -- to help people if people want to convert to natural gas, you know, help the companies come up with a plan to make that possible. If they don't want to convert to natural gas, we still want them to be able to save energy. We want to help them buy more efficient furnaces, so we've created an on-bill financing plan, and actually Representative Hoydick had a great deal to do with this, including Representative Williams, who really sort of understood the need to help people make that investment and be able to pay for it over time.

So, absolutely, not just for fuel oil but also propane, so we want to make sure that everybody knows there's probably a plan out there for you.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Yaccarino.

REP. YACCARINO (87th):

Thank you for the good -- gentlelady.

I think such an important part of the bill -- because there are 13,000 jobs through the home heating oil industry in the state, and we need to utilize all forms of energy -- and I want to thank the good chair, both House and Senate and our good ranking members in the House and Senate. Thank you.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Larry Miller of the 122nd.

REP. MILLER (122nd):

Thank you, Mr. Speaker.

I have some comments about the amendment -- the bill. The State of Connecticut owns 3,000 buildings, and I would venture to say that 25 percent of them are in need of updates with their equipment and some of the windows need to be replaced. And a good example of one of the buildings I'm talking about is the one that -- opposite Bushnell Theater here. There's about 50 window units hanging out of casement windows, and casement windows are -- are one of

the worst type of windows for heat loss and heat gain, plus the fact that these air-conditioners are never covered, at least on the outside, I don't know, maybe inside they're covered but they're hanging out there and they let a lot of air go through there, so I would think that the State would have more -- do more of an effort to bring their equipment and buildings up to par.

It's like a shoemaker who has holes in his shoes, but he's not going to take care of it. He's going to take care of everybody else's.

Secondly, as far as the wind turbines are concerned, in Vermont, they put up two large turbines on Mount Snow in Wilmington, Vermont. And I don't know if they ever really got them working because the wind and the moisture up there, these things were breaking down all the time. So I don't know how they -- how it was finally resolved. I lost track of what was going on up there.

And it's -- a number of Vermont communities have voted down wind mills in their communities because the fact that the ratepayers are going to have to pay through their electric bills to support these wind turbines, including the utilities themselves are going to have to pitch in and the federal government. And right now the federal government is going to phase out some grants for

renewables.

At 2014 and I think 2016, grants are going to be just phased out completely so there's not going to be anymore subsidization from the federal government. So we should be careful when we espouse wind turbines in the State of Connecticut.

Secondly, when it comes to heating oil and low-sulfur fuel, the State of New York, they have one terminal right on the border of Connecticut and New York, and they do -- they did pass a law to sell low-sulfur fuel. They are refining this product -- I'm not sure they're going to be able to have a lot of product for New York, but when they do run out, they're going to go back to the regular oils so that no one would be without heat. So there's a -- a little consideration has to be given to the fact that this may take a little time for the refineries to get their equipment up and running so they can produce low-sulfur fuel. And I would just say that low-sulfur fuel, given they're using 3 to 5 percent bio in there -- is as clean as natural gas. I tried to tell that to Gina McCarthy but she wasn't interested, but that's a fact of life.

So that when you say oil is dirtier or -- and not as efficient as gas, with the new product they're selling, it will be, so there's not going to be a big difference as far

as the efficiency of the product.

One thing gas does provide is methane, which is a greenhouse gas and it's a potent gas.

Also, I would just like to talk about alternative vehicles. In Europe, 50 percent or 60 percent of their vehicles are diesel. They have this bio diesel they use in the -- they're using a bio diesel in these cars and they're -- the engines are built for this kind of diesel. They're very efficient and Europe is encouraging more diesel where they're getting 40 and 50 miles per gallon with less pollution than the gasoline automobile. They don't push the hybrids over there. They want diesel and they like to have everybody have diesel over there because it's a much cleaner fuel, and it doesn't place a lot of carbons on some of those historic buildings in Europe.

We are looking at hybrids over here, which cost a fortune. This new Tesla car, it's a good-looking car but it's a lot of money, and, you know, you can buy a Volkswagen and get 40, 50 miles a gallon and you can save a lot of money that way. And Volkswagen is pushing the new cars over here. BMW, Mercedes and a few other German manufacturers, they're all trying to get their diesels over here because they see a big market. And again, it's less polluting, more efficient, and something that we could --

we have a lot of oil in this country.

By the way, we are the colossal of fossil fuels. We have more gas because of fracking than Russia. We have more oil than Saudi Arabia, and we have tons of coal. And during the Second World War, when the German -- Germans needed oil, some scientists took coal and liquefied it, and it made a great diesel oil. So -- and fracking, also, with oil makes a terrific jet fuel. So there's a lot of things that we're not taking advantage of in this country and, particularly, in the state of Connecticut, where we should be doing more with diesel.

There was a study that came out about 10 -- 10 years ago by the University of Connecticut stating that if we went to bio diesel, we could reduce health costs by $20 million. So I don't know what's going on here, but that was from the University of Connecticut, $20 million in health costs the first year if we converted to diesel oils in the state, and that fell by the wayside. So that's pretty much what I want to say.

I think there's a lot of good things in this bill, a lot of things I don't particularly like. I don't like the fact that the State of Connecticut is going to -- is in bed with a monopoly, subsidizing to some extent. And certainly the gas company doesn't need our help. The oil -- the oil

prices are making gas a very, very great buy, and if they keep their prices up, they're going to lose a lot of business.

But the one thing, also, with the gas companies, what about the infrastructure? There's gas leaks all over the state and that's just because of the fact that we have a system that's maybe 30, 40, 50 years old. And just like our water pipes or our sewer pipes, you know, we got to -- underground, we don't see them but they deteriorating all the time.

So, Mr. Speaker, I will support the bill, but I have some reservations about it, and I thank you for your -- the time. Thank you very much.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on House Amendment "A"?

Representative Janowski of the 56th.

REP. JANOWSKI (56th):

Thank you, Mr. Speaker.

I have a couple of questions for the proponent of the bill.

SPEAKER SHARKEY:

Of the amendment, madam?

REP. JANOWSKI (56th):

The amendment, yes.

SPEAKER SHARKEY:

Please proceed, madam.

REP. JANOWSKI (56th):

Thank you, Mr. Speaker.

Section 16 doubles the conservation charge to ratepayers on electric bills from, I believe, 3 to 6 percent that will bring additional revenue, millions of dollars. And I wanted to get a better idea as to whether that will be going to existing conservation categories, or is it going to be targeted to a specific conservation effort?

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

So we are, as I said at the beginning -- and thank you for that question -- doubling the amount of money that we're putting into efficiency programs. We have -- so they are going to some that are existing, they're going to some that are evolving. We have, as we begin to develop an energy strategy and possibilities, all kinds of ways to help people deal, you know, create efficiencies.

One of the things that you'll see in the bill, as well, is that we're trying to incentivize, doing more efficiencies in things like public housing and rental properties and the -- the individuals, the folks that need help with LIHEAP for the winter months and Operation Fuel and that kind of thing. There's so many programs that need help and so many people that need help. And we realized that the more efficient we make all of these things, the more people we'll be able to help.

The less energy used, the more people you're able to bring to the -- to the energy savings party. So long-winded answer but thank you very much for the question.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Janowski.

REP. JANOWSKI (56th):

Thank you.

And in section 49, I believe that section allows water rates to be based on usage, which may result in some rate increases. Can you explain or just clarify what the difference is between the system that is currently being used to determine rates and this method of water usage? I thought they were the same.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

So one of the issues that we've experienced in the water programs is that rates are based on usage and so there is a disincentive for water companies to conserve and do the things they need to do to cut down on usage because the rates are based on usage. So we're creating a mechanism that really enables PURA to kind of reward companies to do the conservation, and to take that into account when doing rates and also take into account -- we had another bill that we talked about this kind of thing so this is the overriding philosophy -- to also take into account people who are already conserving to make sure that they're not going to be charge more as conservation gets encouraged.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Janowski.

REP. JANOWSKI (56th):

Thank you.

And my final -- this may be just a remark and not necessarily a question.

But section 3 does appear to give unprecedented power

to DEEP over PURA, which is -- or has been traditionally had greater oversight than DEEP itself, and I do have a concern with that, but I do thank the chair of the Energy Committee for her responses. They're very much appreciated. Thank you.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on House Amendment "A"?

Representative Case of the 63rd.

REP. CASE (63rd):

Thank you, Mr. Speaker.

Through you, Mr. Speaker, a couple of questions to the proponent of the amendment.

SPEAKER SHARKEY:

Please proceed, sir.

REP. CASE (63rd):

In this amendment here I just have a few companies in a small corner of Northwest to -- Connecticut here that have -- would like to hook up to natural gas. They have about 900 to 1,000 feet that they need to run pipe and it's a very expensive cost. Within this bill, does this allow them to make it easier for them to work with the utility to get hooked up.

For an example, we have a project that is a state project in the town of Winchester that's an elderly housing facility. They need 900 feet of pipe to hook up to natural gas and they were told by the gas company it was $75,000 to do so. This is a bonded project through our state, and it would save money for them. Since that had happened, they have switched to propane on a temporary basis hoping that something like this bill would come out. Would this help a project like that?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Aha, thank you.

Thank you, Mr. Speaker.

And thank you for that question. So that sounds like a project that might actually be large enough to be an anchor load, and that's one of the things that we're really -- that the gas companies are looking at when they look to expand the possibility of converting people who are eager to convert that they would -- I think it's $1 million a mile to lay a pipe for natural gas so they -- they look for receivers who are going to be using maximum load and so I -- I think that that is probably going to benefit the

facility you're talking about.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Case.

REP. CASE (63rd):

Thank you, Mr. Speaker.

And through you, as the good representative Mr. Williams said, This is a big sandwich to bite as far as this bill is -- is concerned.

The oil companies in the State of Connecticut here are very concerned about this. Being in the oil -- in the oil business in past years, how are they held harmless or how are we going to be helping these individual mom-and-pop companies from going out of business? I know we're going to be looking at the grids and where we're going to be putting these gas lines and try to capture the largest amount of -- of customers, as possible. So am I correct in saying that it would take quite a while for the gas lines to come up so that the oil companies in our district would be pretty well safe?

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

Yes, I think it's a ten-year program. And the oil companies -- it's very interesting how many oil companies -- so they're mom-and-pop oil companies, in fact, we had one oil company tell us that I think their -- their great-grandfather started in the ice business delivering ice. And so, you know, there are these new economic models that get transitioned to as time goes on. Some of the oil companies, as you know, because I know you know this business well, are already supplying natural gas. They're into the gas game, and they're installing gas furnaces and they're very involved in that.

And the natural gas companies have actually told us, as this plan matures, that they really want the participation of the oil dealers in that program as well because those are the people who have those great relationships with customers. We have done many, many things to really help the oil dealers in terms of really showing customers the advantages of -- of fuel oil, particularly, if they don't have any other options to show that this is something -- maybe even if you did have an option, you'd preferred to stay with fuel oil. We're allowing them to handle that low sulfur fuel product, which I know you were instrumental in really explaining to us, so thank you for that.

We have supported the oil dealers' successful efforts to get rid of that proposed tax on heating oil that was sort of lurking around. We have taken that $500,000 cap off of the Home Energy Solutions Program that we used to have there for oil dealers. And the oil dealer industry has come together, they've gotten permission, actually, from the Federal Trade Commission and also from the Attorney General to create their own fund to help contribute to the HES program. We've taken off -- I think it was a $95 cap -- co-pay that individuals had to pay in order to have -- if they were oil -- fuel oil customers, in order to have a HES audit, and we're going to do it proportionately, so we're going to bring oil -- fuel oil dealers more and more and more into the home energy efficiency programs.

We -- we've also worked to -- let's see, there was one other thing I wanted to talk to you about because I know you helped us with this -- well, again, in terms of marketing really have the benefits on all of the web sites, when they talk about the fuels that you have what the advantages of -- of low-sulfur fuel and the -- and the efficiencies, you know, again, I did want to mention, again, the on-bill financing to upgrade your furnaces.

So we've done many, many things to not only

incentivize the oil dealers to -- to do better and to have more business, to transition them through whatever economic model we're dealing with now and to sort of keep them vibrant. We really appreciate the relationships they develop and the -- and the great work that they do.

SPEAKER SHARKEY:

Representative Case.

REP. REED (102nd):

Through you, Mr. Speaker.

REP. CASE (63rd):

I thank, Madam Chair, for the -- for the answers.

And in closing in my comments here, I'd just like to say in talking with one of the oil dealers, they were very excited about their business on energy efficiency, and they're very concerned because a lot of the homes and a lot of the businesses -- or a lot of the homes that we supply or help subsidized fuel for, the homes are not energy efficient so we're wasting a lot of state money. So we really need to work hard to work with these landlords, work with these different pieces of property, make them energy efficient, and we will have a savings here in the state of Connecticut.

I think we're on our -- well on our way with this document. Yes, there is a lot of things as the good

representative Roberta Willis mentioned -- I didn't catch that point on the towers in here, but we're at a start here. And I think we'll just keep moving forward in trying to make Connecticut more efficient so thank you very much, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further?

Would you care to remark for on House Amendment "A"?

If not, I'll try your minds. All those in favor of House Amendment "A," please signify by saying aye.

REPRESENTATIVES:

Aye.

SPEAKER SHARKEY:

Those opposed nay.

The ayes have it. The amendment is adopted.

Would you care to remark further on the bill as amended?

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

I've listened really intently in the debate, and I find myself with the same questions that Representative Willis, Representative Fleischmann, have talked about and I

have some additional questions and follow-up along those same lines, Mr. Speaker.

On the issue for telecommunication siting, I -- I feel the need to mention that one of my earliest friendships in politics was formed with the longest standing chairman of the Siting Council, a representative in East Haddam, Mort Gelston, and we spent a lot of time visiting when he was in his eighties and nineties, talking about his experiences as the chairman of the Siting Council, and I have some of those memories to think back on.

So one of the provisions in the bill that I'm a little concerned about and I'd like some clarification, through you, Mr. Speaker, is does this bill establish a presumption of need for a personal wireless service when they're siting a cell tower?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

Actually, the presumption of need is part of the whole Siting Council process so that's already in effect. We don't -- we're not establishing anything that -- that already exists.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

So I'm sorry, I was momentarily distracted. So are you telling me that currently that is already existing law that there is a presumption of need for a wireless service to be placed that takes that out of a consideration of the Siting Council?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Through you, Mr. Speaker, I hope I'm understanding your question correctly. One of the things that the Siting Council determines -- and actually I wrote a telecom bill that we passed -- I think it was last session in a bipartisan way -- that strengthened the ability of municipalities to participate in the whole Siting Council process. It strengthened the whole need process that you actually have to prove there is need and that the telecom site that you are proposing is the only one that can get the job done. And if municipalities decide that they have

sites that they prefer, you have to listen to those; that we have expanded the application process from 60 days to 90 days; and so we actually really hardened all of the provisions around siting telecom, and I think we've all had the experience -- I certainly have in my district which is Branford on the water, and in some areas people have great telecom and in some areas they don't -- and as time goes on and some people drop landlines and some people have dual service, you know, they -- the idea of having any kind of cell towers in our town was an anathema to people, and now they're begging me for them. And I just -- there's one now going up in Short Beach Village in our district and people who didn't want it are now saying to me, why isn't it finished yet?

So, you know, there's a whole sort of thing happening and evolution happening, and we try to balance all of that, and so I think this, on top of the law that we passed last session and the work we've done to really strengthen municipal interaction in the telecom process, I think really, really gives residents a much better sense that they really have a bigger say in where these towers go and if they go there and -- and demonstrating need is really critical.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

And I really appreciate the answer from the good representative because, in my district, we have almost 10 state parks, and at one point there was a cell tower proposed within the vista of Devil's Hopyard, and it was very much a large concern to my constituents so I'm -- I'm glad to understand that a little bit better.

I'm also looking through in section 23 and it talks about the process for the Comprehensive Energy Strategy. Does this bill eliminate the current law of a requirement on the public hearing of the strategy itself?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

I'm just trying to grab the language. There is no intent of eliminating any public hearings in any process. The Comprehensive Energy Strategy is essentially -- because it's -- we're going to have to go out for the integrated resource plan which is something that we do. It's part of the Comprehensive Energy Strategy and that is something

that we've always done and that involves an enormous amount of stakeholder input, public hearings, all kinds of remarks, comments, input and that kind of thing before that kind of thing is adopted. So this is actually sort of part of that same process and will be an integral addition to it.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

And my final question, through you, is in reading the bill I -- yes, now it's the underlying bill -- I understand that there's a cost recovery portion of that which allows for the gas ratepayers to pay for itself the expansion. But if not, the customers that are befitted must pay the shortfall.

In reading that, my question, through you, Mr. Speaker, is if that that's the case, will -- if there isn't enough money to pay for the system, including the very necessary pressurizing substations of the natural gas system itself, who -- who would end up paying for those small systems to pressurize the pipeline? Would that be, in fact, the ratepayers at that point or would it be the

company itself?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

Through you, Mr. Speaker, it's actually a combination of both. The reality is that we have extended the -- the long-term payment process that we're allowing them to go out 25 years. They -- they call it a hurdle rate -- to be able to help new gas customers pay for being hooked up over time. And so it is going to only be applied to the gas customers, but all the customer base will benefit because in the process of extending the infrastructure, they will also be upgrading it, improving it, and installing the new technology talked about. So it's sort of -- in terms of the whole population of people who are interested in natural gas, it's going to benefit everybody and only they are paying for it.

I should also say that, in Connecticut, which is very curious, we have a -- what they call a 31-percent penetration rate -- so, in Connecticut, only 31 percent of our people have access to natural gas, even though my phone rings off the hook every day with people wanting it.

Whereas in Massachusetts, it's 48, almost 58 percent; in Rhode Island almost 50 percent; in New York, I think it's 60 percent; and in -- in New Jersey it's 75 percent. So gas lines actually go through our state delivering natural gas to other people in other states, and our people, who want it, have been having a difficult time reaping the benefits of a more affordable fuel.

So I think the whole gas plan, we're very excited to have been able to really make it gas specific so that those are the people paying, but that the new people are going to pay but that the existing ratepayers that are also on the system are also going to benefit because this system will be upgraded and improved.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Ziobron.

REP. ZIOBRON (34th):

Thank you, Mr. Speaker.

And I appreciate the answer. You know, in researching this process, I -- I took a lot of time to look at the maps of the existing pipelines and I noticed, of course, my district, it's going to be very difficult to get gas through my district because of where we're located and I believe the bedrock that's also laying there, so I was a

little concerned about the idea of these substations in reference to what we talked about earlier today with placing facilities without public hearings. So I'll reserve the rest of my questions for that, and I thank the good gentlewoman for her response.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on the bill as amended?

Representative Lesser.

REP. LESSER (100th):

Thank you, Mr. Speaker.

A few questions -- actually, before I -- I ask some questions, I do want to speak -- and I want to thank the honorable chairwoman, the Energy and Technology Committee for proposing a bill that I think makes valuable investments that will create good quality jobs in Connecticut and will increase our investments in energy efficiency.

I think that these are two of the greatest priorities facing the state, and all of the folks who helped put together the Comprehensive Energy Strategy, I think were acting in good faith, and I think there is a lot in this

bill to be happy about.

I just have a question, though, about one particular section because, as we know, Connecticut is struggling with some of the highest utility rates in the country. And I'm reading in section 3(m), through you, Mr. Speaker, a question to the proponent of the bill.

SPEAKER SHARKEY:

Representative Reed.

REP. LESSER (100th):

Yes, Mr. Speaker.

Through you, in line 174 through 180, it says "notwithstanding any provision of the General Statutes, the decisions of the Public Utility Regulatory Authority, including but not limited to decisions relating to rate amendments arising from the Comprehensive Energy Strategy, the Integrated Resources Plan, the Conservation and Load Management, and policies established by the Department of Energy and Environmental Protection shall be guided by said strategy and plans and such policies."

Through you, Mr. Speaker, would that also include ratemaking cases?

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Through you, Mr. Speaker. So PURA is totally autonomous, but one of the -- the thing -- the interesting journeys we've been on is creating an energy agency and what does an energy agency do? It creates policy. And -- and it has in our -- in our agency, we have a policy division and we have a regulatory division. And at some point, we're -- it's important that the regulatory division be aware of the policy that has been created and that when some of these dockets arise that the regulatory division is really dealing with them in the context of what they're about and, you know, where they're going and what all the ingredients are.

So -- so that language is really about them being totally autonomous, but it's also saying that DEEP, additionally, as we adopt -- because we, the legislature, are voting for these things, as we begin to adopt the energy policies that are proposed that PURA take that into consideration when they're doing regulations and adjudications and that DEEP take that into considerations in terms of adhering to the policies that they proposed and we, hopefully, have adopted.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Lesser.

REP. LESSER (100th):

Thank you, Mr. Speaker.

And I thank the gentlelady for her answer to my question.

I was a strong supporter of the bill that this amends, 11-80, which set up the Department of Energy and Environmental Protection, and I'm glad that we are moving in the direction of a state energy policy.

My concern is that the language that says, "including but not limited to," includes the possibility that the independent ratemaking ability of PURA could potentially be compromised, not to suggest that's anyone's intent with this legislation but that to say that the language is -- before us, might do that. And I think as we work to lower rates, which I believe is the intent of everybody in this chamber, as well as everyone in the state government, that we look at that section, we consider whether or not that reflects where we want to go and make sure that at the end of the day, we have a regulatory authority that, in deciding rate cases, does have the full independence that I believe is the intent reflected in the honorable chairwoman's answer.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on the bill as amended?

Representative Adinolfi of the 103rd.

REP. ADINOLFI (103rd):

Thank you, Mr. Speaker.

I -- through you, I have two questions for the proponent of the bill, and I think they'll be simple to answer, too.

So to the proponent of the bill, in the energy audit portion of the bill, you say that the cost of the energy audit might be financed through this bill as so where you get the lower finance rates. My question, through you, Mr. Speaker, is the results of the audit, the things that you might have to do, also able to be financed through this program?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Through you, Mr. Speaker, so part of it is the ability to -- you pay in. There's a co-pay, as you know, Representative -- thank you for the question -- there's a co-pay and then some of the things that you might want to

do to upgrade, CEFIA or "green bank" has a lot of financial products that can help that happen so it's sort of the marriage of these two entities.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Adinolfi.

REP. ADINOLFI (103rd):

Through you, Mr. Speaker, thank you for that answer.

One of the -- my second question is, have we researched the pipelines to see how many are available for us to tap into? I know that in one of the towns in my district, there are quite a few lines going through. They follow the Farmington Canal going down -- all the way down somewhere, going through Hamden, New Haven, Cheshire. They run a long way. And I know that one of those lines are not tappable. They won't let you go into their lines. They're just running through our communities. And the only one that I'm familiar with within the area that I represent is Yankee Gas.

Now there are many other gas lines going through the state, have we looked into those or contacted those companies to see if we can also use their lines to get gas?

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Reed.

REP. REED (102nd):

Thank you, Mr. Speaker.

So a lot of those lines are big lines, federally-controlled lines that are delivering fuel all over the place, so they get a little grumpy if you tap into their lines so all of this is a process. And it's one thing that we're talking to the gas companies about, which lines to tap into, you know, I mean, that's a plan that they're going to submit to our regulatory people that needs approval, and then the federal part of it is something that, obviously, the federal -- you know, the feds, the federal oversight entities, will be involved with in terms of, perhaps, increasing capacity to our new consumers and also to the rest of New England.

Through you, Mr. Speaker.

SPEAKER SHARKEY:

Representative Adinolfi.

REP. ADINOLFI (103rd):

Thank you for the answer, but there was a few years ago we were going through public hearings in various towns where in order to provide more gas, one of the pipelines that will not allow us to go into was asking for all the planning and zoning commissions, they wanted to expand the

diameter of their pipes and they would be tearing up lot of property, and so on. So the question that's happening there is really, if we do use those lines, a lot of them might have to enlarge and there would be a lot of upset in the towns.

I have no more questions, Mr. Speaker, but I have two comments. When I first moved into Connecticut, I had an all electric house because it was an incentive to do so. We got a reduced rate, we got a medallion in front of our house. I think we got a post lamp or something to -- going in, and we had quite a bit -- or I think was approximately 25-percent reduction if you had an all-electric house.

And guess what? Two years later, DPUC allowed the utilities to change the law. And all of a sudden, we were paying a full rate. When I look at this, this is the same way with the gas lines. Where I live in Cheshire, we have, in my development, there is 124 homes, and on each end of the development, there's a gas line. But when they built the development in the late 1970s, gas prices were much higher than the oil prices. So there's nothing to say that two, three, four years from now when you haven't made back in your investment that those gas prices can't go up and be higher than the oil. And oil with the new technology is just as clean as the gas so I just want to leave that

comment then that this is a gamble. There is no guarantee that we're going to save money or help the environment in the long term.

Thank you, Mr. Speaker.

SPEAKER SHARKEY:

Thank you, sir.

Would you care to remark further on the bill as amended?

Representative Kokoruda of the 101st.

REP. KOKORUDA (101st):

Thank you, Mr. Chairman.

I just want to stand in support of this bill today. You know, last -- two years ago when we welcomed the new commissioner and we changed the Department of Environmental Protection to DEEP, he talked about the 3-D economy, and I really do feel with this bill we've -- we've addressed the energy, we've addressed the environment, and we've addressed the economy. It's not perfect, but I think the bill accomplishes a lot.

I met with my oil company, my mom-and-pop oil companies, just like so many of you did, and I think a lot of their issues are addressed in this, and it's obvious that this committee was listening.

I think this -- this bill also addresses energy

efficiencies, and I think it appeared originally that I picked a winner, but I think you did a lot to make sure that it didn't happen. I'm pleased to see us getting more progressive with submetering. I was happy to see that with apartments and condos and more from municipalities and farms.

And I think, as it was said earlier, this is consumer driven and it's consumer friendly.

And finally, I just want to say I want to thank the proponent of the bill for -- I sat here for the debate and it was a great debate and your answers were so concise. You certainly have a broad understanding of this -- of this bill and this topic, and I -- and you educated everybody in this chamber, and I thank you for that. And I do want to thank your committee and your -- I know you worked so well, Representative Reed, with your ranking member. It shows in this bill, and I'm proud to support it. Thank you.

SPEAKER SHARKEY:

Thank you, madam.

Would you care to remark further on the bill as amended? Would you care to remark further on the bill as amended?

If not, staff and guests to the well of the House. Members take your seats. The machine will be open.

THE CLERK:

The House of Representatives is voting by roll call. Members to the chamber please. The House of Representatives is voting by roll call. Members to the chamber please.

SPEAKER SHARKEY:

Have all the members voted? Have all the members voted?

Would members please check the board to make sure your vote is properly cast.

If all the members have voted, the machine will be locked and the Clerk will take a tally.

Will the Clerk please announce tally.

THE CLERK:

Yes, Mr. Speaker.

Substitute House Bill 6360, as amended by House "A"

Total Number Voting	140
Necessary for Passage	71
Those voting Yea	113
Those voting Nay	27
Those absent and not voting	10

SPEAKER SHARKEY:

The bill, as amended, passes.

The Chamber will stand at ease.

CONNECTICUT
GENERAL ASSEMBLY
SENATE

PROCEEDINGS
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VETO
SESSION

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5161 - 5482

Would the Clerk please call.

THE CLERK:

On page 14, Calendar 694, Substitute for House Bill Number 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY, favorable report of the Committee on Energy and Technology.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Mr. President. Good afternoon.

THE CHAIR:

Good afternoon.

SENATOR DUFF:

You're so much more dashing than the previous Senate President. It's nice to see you up there.

THE CHAIR:

Senator Duff, one moment please.

SENATOR DUFF:

Yes, sir.

THE CHAIR:

Senator Kissel.

SENATOR KISSEL:

Thank you very much, Mr. President.

Under Rule 15, I'd like to abstain from this vote on this particular bill. And at this point I'd like to yield to my friend and colleague, Senator Witkos.

THE CHAIR:

Thank you, Senator.

Senator Witkos.

SENATOR WITKOS:

Thank you, Mr. President.

Under Article 15 of our rules, I'd like to recuse myself from the debate and subsequent vote, and I'd also like to yield to Senator Linares.

SENATOR LINARES:

Thank you, madam -- thank you, Mr. President.

THE CHAIR:

Do you accept the yield, Senator?

SENATOR LINARES:

I accept the yield, Mr. President. Thank you. Thank you, Mr. President.

Under section 15, I would ask to recuse myself from this vote.

THE CHAIR:

Thank you, Senator.

If we have anybody left in the -- in the Circle.

Senator Duff.

SENATOR DUFF:

Thank you, Mr. President.

Mr. President, I move acceptance of the joint committee's favorable report and passage of the bill in concurrence with the House.

THE CHAIR:

The motion is on acceptance and passage.

Please proceed.

SENATOR DUFF:

Thank you, Mr. President.

Mr. President, this bill comes to us after passage in the House of Representatives on Saturday, and what it is is our Comprehensive Energy Strategy for the state of Connecticut. This came out of work that was done two years ago in Public Act 11-80 when our State took some of the largest reforms in its history. We have a dedicated team over at the Department of Energy and Environmental Protection to work through the Comprehensive Energy Strategy for a path to cheaper, cleaner, and more reliable energy future. And what this does is that puts us on that path completely.

We have a number of different pieces of this bill. We have worked very well in a bipartisan way to get us here today for final passage. We worked with the committee, with the leadership of the committee and others to put forth a series of initiatives that I think will move Connecticut into the future in a very positive way.

Very briefly if I can just go over some of those sections, I want to make sure that the members of the Circle understand some of the work that we've been trying to do. One of which we were looking at is, obviously, energy efficiency, conservation or looking at renewable energy. What's been said a lot times is the cheapest energy is the energy that's not used. We look towards that in many sections of the bill. We are looking at clean energy financing and helping to let consumers make choices, help them have better abilities to get clean energy. We have some distributed generation in our bill. We have parts of the bill, like section 10, that clarifies that PURA and DEEP shall -- their decision shall be guided by our Comprehensive Energy Strategy, the Integrated Resources Plan and the Conservation and Load Management Plan. Meaning that we're trying to move forward, not just kind of guiding ourselves in the

dark here, but guiding by real principles that we think are extremely important.

We're looking at better -- having better rules on decoupling for electric and gas. We're merging some of our conservation and load management requirements. We are clarifying how some of our -- how some of those ratepayer funds should be used. We are looking at lowering some thresholds for some of our Connecticut housing and investment funds. We are authorizing the EEB for home energy solutions and removing the cap on that so more people can be involved in that as well.

We have some parts about microgrids and virtual net metering which has really been an issue for us in the state for a while. We are adding agricultural virtual net metering in addition to our municipal and noncommercial critical facilities. So I think that is going to be very exciting.

We have submetering and we're asking PURA to establish some consumer protections for submetering as well. Again with our microgrids we are continuing to move forward on that. We were one of the first states to establish some microgrids outside of the work that we did after the storm response. And I think that we are continuing to clarify some of those rules.

We have worked with some of the oil companies -- and I'll get to that in a second -- but we think we have helped them as well. We're looking at on-bill financing, again, to -- to help consumers make some choices about how they can best get some efficient products in their homes. We were also -- have some response for tree trimming which I think is very important. As we know with those storms that we've had, a lot of trees took down power lines and we had a lot of people work together to come together and come up with some language on that that actually will, I think, be very helpful to residents of the state.

Let me just also mention two other major portions of the bill. One, is that we have a natural gas infrastructure expansion. We have some of the lowest infrastructure of gas in -- in the region, and we think that we want to give consumers better choices. We're not picking winners or losers, but we are

giving, hopefully, giving consumers some choices. And we have some ability for PURA to help us with that in having some natural gas expansion. But we also want to make sure that we are not, again, choosing winners or losers but we are helping to assist all the marketplace, meaning that we're helping some of our energy dealers, as well. So we are allowing some on-bill financing of a customer's electric bill if they want to upgrade to high-efficiency oiler -- oil burners. We're acquiring home heating oil in our states to move to an ultra low sulfur home heating oil over the next few years which will help our environment.

Now we have eliminated some pieces that may have been controversial in our earlier bills, but we're also doubling the state's investment in energy efficiency through energy -- the Energy Efficiency Fund to help oil customers and allow them to be eligible for this funding.

So, Mr. President, I think that we have, on balance, found a good bill, one that will move this state forward.

I do want to, for legislative intent, I do want to read one section here because I think it will clarify. We have section 3m of our bill. I just want to say that this should be construed to mean that in addition to any other provisions of the General Statutes pertaining to the PURA decisions, PURA also shall be guided by the Comprehensive Energy Strategy, the Integrated Resources Plan, Conservation and Load Management Plan and the policies established by DEEP, Department of Energy and Environmental Protection which I had spoke of earlier in my opening remarks.

So, again, Mr. President, I think this is a good bill. I think it is balanced. I think that it is through the efforts of a lot of work. Before I sit down, I do want to thank a few people who have helped us so much on this bill, certainly, my co-chair, Representative Lonnie Reed; ranking member, Senator Chapin; Representative Laura Hoydick who is a ranking member on the House; as well as the staff; the Department of Energy and Environmental Protection with its commissioner; and also Jessie Stratton and Katie

Dykes; and Paul Mounds from the Office of the Governor; and of course, our Governor who's laid out a very aggressive vision for Comprehensive Strategy; and then in this chamber as well, our Senate President, Don Williams; and our Majority Leader, Martin Looney; and of course, you, Mr. President as our vice chair of the committee, have really worked hard to put this to -- to this place today so that we may have final passage of the bill.

Thank you, Mr. President.

THE CHAIR:

Thank you, Senator.

Will you comment further?

Senator Chapin.

SENATOR CHAPIN:

Thank you, Mr. President. Good afternoon.

THE CHAIR:

Good afternoon, Senator.

SENATOR CHAPIN:

I have some questions to the proponent, through you, please.

THE CHAIR:

Please proceed.

SENATOR CHAPIN:

Thank you, Mr. President.

It's a very large bill and I'd like to go sequentially section by section and skipping sections I don't have questions on.

In looking at the first sections, I would say, generally, 1 through 14, it looks like we're providing

somewhat of a differentiation between responsibilities of PURA and DEEP, the Department of Energy and Environmental Protection. It looks like they're perhaps being -- I hate to use the word "decoupled," maybe made a little more autonomous, would you agree with that?

Through you, Mr. President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Mr. President.

And, through you, yes, I would agree with that. I think that that is something we had strived to work on through this whole session.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Mr. President.

And again, through you, and I would assume that would be a normal result of any sort of merger which I believe happened in Public Act 11-80. This is kind of working out some of the bumps in something that was done in prior years?

Through you, Mr. President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, thank you, Mr. President.

In working to make sure we have the best comprehensive energy policies and the best way to get those -- that

cheaper, cleaner, more reliable energy, we made some changes over the last two years. We want to continue to make sure that we look at what we're doing to make it still the best for consumers, and I think through that time you have experiences where you see how things can be adjusted and changed and that's what we're doing in this bill today.

THE CHAIR:

Thank you, Senator.

Senator Chapin.

SENATOR CHAPIN:

Thank you, Mr. President.

And again, through you, moving on to section 20, which deals with the development of an Integrated Resources Plan, can you briefly tell me what exactly an IRP is as it is being used here in this section?

Through you, Mr. President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Sure. The Integrated Resource Plan is when we have the -- everybody come together to determine what our needs are for the state from our -- from an energy standpoint from our generation distribution standpoint and how that's all going to work within the electric needs of our state. That's extremely important for us to have that information and that's how we're -- the ability to understand the manager loads that we have and how we can understand how the -- how the utility companies are going to be a part of that plan.

Through you, Mr. President.

(The President in the Chair.)

SENATOR DUFF:

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Through you, under current law, I believe DEEP is allowed to recover costs associated with developing the IRP, and I believe in this bill it specifies that these costs must be reasonable. Is that your understanding, as well?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you.

Would you repeat the question, Senator?

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Again, through you, under current law, I believe DEEP is allowed to recover costs in developing the plan, and I think there -- I read a provision in here that specifies that these costs must be reasonable. I assume that is done in an effort to show a little restraint?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President, yes, that would be correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving on to section 23, which deals with the Comprehensive Energy Strategy, itself. I believe that that's a plan that we require through statute and I think we require it every three years; is that correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

I would have to look through, but I believe you are correct, sir.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, did we -- was the most recent version of the CEF submitted and is that the -- is the result of that this part of the bill today?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

There was a draft of the Comprehensive Energy Strategy earlier, probably late last year and another version after much -- full of comment and hearings, then came forward with the final Comprehensive Energy Strategy, which then turned into the Governor's bill, which then turned into hearings and negotiations through the legislative process and -- and here we are today.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

I, again, through you, I think that draft may have come out late in the fall or in October; is that correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, I believe it was in October of last year.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving onto sections 27 and 28, it deals with energy efficiency in state buildings. Could you briefly describe what these sections are intended to do.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

What we're trying to do in this piece of the bill is to make -- make sure that for state buildings we're leading by example, that we are being energy -- as energy efficient as possible using means necessary for that so that, one, we can lower our own costs but also we can then in other -- in ways to show to the public that we are having -- lowering those costs and then using ways in which we can probably sell those -- some of those ideas to the general public.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, so the language in the bill before us only deals with assessments on state-owned buildings or I suppose those buildings that may be leased for state purposes, but it doesn't apply to commercial buildings?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Actually an earlier version was much more broad and sweeping. We have narrowed this to state buildings so Senator Chapin would be correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Again, through you, moving on to section 31 under the Home Energy Solutions Program, can you tell me, briefly, what that program involves, who funds it and who's the beneficiary of such programs?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

The Home and Energy Solutions Program is -- is -- actually, it's -- it has a -- it removes the cap so that more people would be able to participate in that so that the HESP audits can -- for all -- for oil customers as well. So right now it's electric and gas, I believe, and then we'll be able to expand it to oil customers.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Again, through you, I think it's capped at $500,000 at this point, which we're removing?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, does that -- removal of that cap would that in any way lead to an increase in electricity rates or any other utility rates?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

No.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving on to section 35, this section deals with virtual net metering, which is, I believe, something we already have in statute to help municipalities. Could you briefly describe what section 35 does in the bill before us?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Madam President, this -- as I mentioned in my opening remarks, this expands a municipal's ability -- I'm sorry -- municipality's ability to -- to net meter by allowing them to have up to five beneficial accounts and five additional critical facilities and may lease contract for -- or as well -- as well as own the generation, meaning that we also add agricultural virtual net meeting to allow agricultural host in net meter up to 10 agricultural, municipal or noncommercial critical facilities, but we do require the host to pay an increasing percentage of distribution costs for net meter energy and establish a $10 million cap on any credited amount.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, does it allow for municipalities to also enter into power purchase agreements relative to virtual net metering?

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, it does.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving on to sections 36 and 37, regarding submetering, is my understanding of submetering correct that right now I think things, like campgrounds and slips at marinas, are allowed to be submetered?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, so what would the effect be of the changes in this section to current submetering practices?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

The part here requires PURA to establish consumer protections for submeter accounts, and it establishes -- let me just look here -- it basically requires them to develop an application and approval process for implementation at facilities while protecting consumers.

So it allows submetering outside of what is already now -- it's just campgrounds and slips at marinas -- but it allows -- if I could just find the section here -- it allows for common areas of commercial and -- I'm sorry -- it does not allow for commercial and industrial common areas. It requires it for, I believe, like apartments or multifamilies or other places where you can submeter. So you may have it in, for instance, a building, in a condominium or apartment building, but you can't use it for common areas.

Through you, Madam President.

THE CHAIR:

Senator Duff -- Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And my apologies, I had an additional question or two in the virtual net metering section prior to that.

Through you, Madam President, would projects submitted into the revived Virtual Net Metering Program, under the bill, also be eligible for the existing -- what we know as the ZREC and LREC Program?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

A municipality or other customer host can apply for -- for LREC or ZREC grant and use that generation source to net meter against those accounts to -- to beneficial accounts. They have -- there's no cross inclusion of that.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, so those -- that eligibility that they would be -- that they would have, would that begin with the spring solicitation under the 2014 ZREC/LREC Program?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving onto section 39, which deals with municipal microgrids, we've heard a lot in recent years because of major power outages of about usefulness of microgrids. Can you tell me what section 39 is intended to do?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you.

Just in a -- in a nutshell, what it does is it require -- authorizes the government entities to cross a right-of-way and still independently distribute electricity if the source is connected to a microgrid.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

I -- I didn't hear the end of that answer. If he could repeat it, I'd appreciate it.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Sure.

In a nutshell, what it does is it authorizes government entities to cross a right-of-way and still independently distribute electricity if the source is connected to a micro grid.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And I thank him for repeating that answer.

Moving onto section 41, which deals with benchmarking of state buildings' energy use, I guess the way I would interpret that is -- well, let me ask the question, is the intent so we can take a look at a point in time to see the energy use of certain state buildings, I would assume, so we can gain energy efficiency in the future?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving onto section 45, which is requiring a change to the state building code, as I read this, it would seem to make sense, it looks like we want to make sure that the building code addresses the opportunity for any, I assume, homeowners in most cases, but to install whatever the necessary electrical wiring and circuits may be for electric vehicles. Is it your understanding as well?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, that is my understanding as well.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Again, through you, so we're not requiring new homes that may be built to have these things. We're just requiring that the code reflect what would be required if the builder chose to install such wiring and circuit?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving onto section 46, which deals with the sulfur content of heating oil, if I'm remembering correctly, we already have a goal in statute to lower the sulfur content, but I think it may be tied to additional states. Is that your understanding as well?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

So how does this bill change existing law? How does this section of the bill change existing law?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

What it does it just match -- it matches the Massachusetts' adoption dates for a phase-in of stricter low sulfur heating oil standards.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And as I recall from the hearing that we had there was some concern over this bill, and I think maybe in your opening comments you addressed -- you may have addressed whether or not the fuel oil industry is in agreement with this section. If I'm -- if I'm incorrect in that, would you let me know and could you confirm it if I am correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

As I had mentioned in my earlier comments, I think we worked with a number of parties to make sure that there is broad agreement on many sections in this bill, including this one.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And I -- I think that that's a very important point to focus on. I know my inbox fills up very quickly when we do something that fuel oil dealers do not approve of, and I have had conversations with the industry over recent days and it would seem that the change here is something that they're in agreement with so I appreciate your confirmation of that.

Moving onto sections 50 and 51, which deal with the Governor's proposal to bring more natural gas, which as we know is a, I guess, relative to other fuel sources, is relatively inexpensive at this point. And I know when the proposal first came forward, I did receive a lot of e-mails regarding picking winners and losers and using tax dollars to do that. Could the gentleman briefly explain these sections and how that has been eliminated in the tax dollar use in picking winners and losers?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

We worked very, very hard over the last few months to ensure that there are no winners and losers, but also recognize the fact that there could be significant gas expansion in this state. We have not, in this legislation, determined who was the winner or loser or made any kind of assumption at all.

What we have -- we're basically doing is we're saying to PURA you need to ask the gas companies to submit proposals and plans to both DEEP and to PURA; they must achieve the goals of the Comprehensive Energy Strategy; DEEP must do a preliminary review of the plan to make sure it's consistent with the Comprehensive Energy Strategy and PURA must approve or modify the plan and test the proceeding within 120 days. So we believe that, you know, there's -- there's areas here where we can help consumers in one regard and we -- we're helping them in other places -- additional places in this bill -- frankly, the whole bill is that way, but that we are taking a very -- we're letting the regulators do the job that they are assigned to do, and the Legislature is not mandating that for them.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, so the gas companies would submit a plan but it would undergo a thorough review, and somebody would actually have to approve it before the companies could move forward?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, there was talk about how would a gas company who chose to expand, how they would go about financing that. Again, I would just like confirmation that such an expansion wouldn't be paid by the taxpayer through any bond funds or an appropriation from the State of Connecticut; is that correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving on to section 53, it's my understanding that this section is intended to allow DEEP to provide grants or rebates to municipalities, academic institutions and other entities to buy or install alternative fuel vehicles or alternative fueling equipment in energy efficiency devices. Is that your understanding as well?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, that is correct.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, as I recall prior discussions, this was something that, again, I think is not part of the budget. I think it's -- if the monies available through nonappropriated sources; is that correct?

Through you.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes. This allows DEEP through nonappropriated resources to provide the grants or rebates.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Moving on to section 58, the on-bill financing, certainly any sort of a -- any sort of an investment that somebody may need to make to upgrade their furnace and become more efficient could be costly, so is it the intention of this section to allow them to actually finance that on a per-month basis on their monthly bill?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, we do view this as a very exciting piece of the bill that allows consumers to be able to pay those -- some of those charges over time. For many people who may lose a boiler or a furnace and need to upgrade or want to upgrade to something more energy efficient, it's a very large cost for them. This helps provide a way to do that.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Can the gentleman, through you, Madam President, would people who took advantage of this incur any sort of a finance charge?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that would be the case.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Was I correct that the answer was "yes"?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, that is correct, yes.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

I do see some requirements of what the program would need to include. And as I look at something, such as item 6, at least in the write up I'm looking at it, it says they'll finance the measure so that the repayment term does not exceed the improvements -- right -- the improvement's average expected life. So it would be my understanding that there -- that these plans for on-bill financing would actually have some consumer protections and safeguards built in through the legislation?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, that is my understanding as well. I mean, you don't want to have -- for example, if a boiler or a furnace has a useful life expectancy of 15 years, you're not going to have to do a 20-year refinance. You're going to have this paid off a much smaller amount of time, obviously, but we want to make sure that people aren't paying something off after it's had its useful life.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And moving onto section 60, which deals with utility tree trimming, does the bill in any way relieve a utility company who may be engaged in tree trimming from having to provide some sort of notice to the abutting property owners?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

No, the utility still has to notice people. And actually one of the -- this was a bill on its own earlier this year and there was some disagreement over how to -- how to best move this forward. So after our public hearing, we were able to have our utility companies work alongside with some of the advocates, and yourself, Senator Chapin, worked on this section of the bill, and very happy to say that we have full agreement on the tree trimming, because it can get very
Contentious.

Obviously, during a storm, people say we should chop down more trees than probably we would should; and when there's not a storm, nobody wants to touch a tree or they want to touch somebody else's tree but not their tree, so it does become pretty prickly. But thanks to the hard work of a lot of people, we've been able to come to a consensus which is reflected in this bill.

Through you, Madam President.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

And again, through you, so a notice is required under this section. If I'm the abutting property owner and the utility company knocks on my door and says they want to cut this tree down, is that notice and do I have any right to appeal that?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Yes, thank you, Madam President.

Part of the -- one of the biggest portions of this is the appeal process and the property owner may appeal the tree ordinance decision to PURA and then PURA can hold a hearing and then provide a notice of hearing; but they do have to make a decision and then PURA ultimately may authorize the pruning or removal of the tree, but there is a process in which there need -- that needs to happen if there is not an agreement about pruning or trimming a tree in question.

THE CHAIR:

Senator Chapin.

SENATOR CHAPIN:

Thank you, Madam President.

Madam President, I'd like to thank the good chairman for his responses. And I certainly didn't mean to be tedious. I hope people didn't view it that way.

I think it's important to understand the scope of the bill before us, Madam President. It's the result of hour upon hour of negotiation. The one thing I have learned about Senator Duff is he would much prefer people work out their -- their disagreements and then come back with a solution. I think that that's actually a very good way to make policy here for the State of Connecticut.

I think all of us in the Circle wonder about -- or, certainly, our goal is when we pass energy legislation is to do exactly what Senator Duff has talked about several times not only on this bill but on a prior bill as well, that we all want cheaper, cleaner and more reliable energy. As I did -- as I stated for Senate Bill 1138, I believe that that bill led us to cheaper, cleaner and more reliable energy. I would have to agree with the good senator from Norwalk that the bill before us does that as well. And for those reasons, Madam President, I would encourage my colleagues to support it.

Thank you, Madam President.

THE CHAIR:

Thank you.

Will you remark?

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you, Madam President.

I stand for the purpose of questions to the proponent of the bill.

THE CHAIR:

Please proceed, sir.

SENATOR MCLACHLAN:

Thank you, Madam President.

Senator Duff, the bill before us talks a lot about electric and gas companies and their infrastructure. And I wonder if you could share with us a little more specifically what is the -- what is the regulators looking for from the gas companies when it relates to managing their existing infrastructure while they are planning infrastructure expansion?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

I'm not sure I understand the question, but I'll give it a try.

We're looking at whether or not the State is going to -- well, not the State -- whether or not through -- the gas companies through the regulatory process if they're going to expand natural gas in areas where it can be expanded, whether or not -- how we're going to look at, from a maintenance standpoint at the same time, what we can do for consumers who may not be -- who may not have the ability to get natural gas expansion in their neighborhood who are going to -- who will be an oil customer or an electric customer or potentially even a propane customer. So we are, you know, this is a comprehensive strategy, so we want make sure we're looking at all types of energy usage not just one particular kind of energy usage.

THE CHAIR:

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you, Madam President.

Earlier this year the Governor had proposed a very dramatic expansion of natural gas used in the state of Connecticut, and the people in the industry seemed to respond that it was difficult to expand quite as much as what was being proposed, although it may be a good idea. And here's the genesis of my concern, if we are talking about regular and substantial expansion of natural gas service in the state, are we holding the gas companies accountable for maintenance and upgrades of the existing infrastructure that in some cases can approach 100 years old?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, that's a great question because we don't want to just look at expansion. We want to make sure we're maintaining the existing infrastructure we have now, which is aging. Part of the process we have through this legislation -- and I know the utility companies feel strongly about it as we do -- is you can't expand while not also maintaining your current infrastructure. We have laid out in here in our -- in this legislation and what we believe will be part of the PURA process and the DEEP process, which is to codify the fact that there is maintenance along with expansion, so that is -- it's not one or the other but it is -- works hand-in-hand together.

Through you, Madam President.

THE CHAIR:

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you, Madam President.

And thank you, Senator Duff, for your answer.

So it's my understanding then that the bill before us and the intention of further regulations that will be drawn as a result of this bill that it will be very clear what the guidelines are and what will be expected of -- of the utility companies in this regard. Would that be an accurate statement?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

That is my understanding as well.

THE CHAIR:

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you. Thank you, Senator Duff.

Thank you, Madam President.

Another topic that I'd like to ask about is telecommunications towers, and I see that it does address some additional availability of towers in public water utility properties.

There is -- one of the summaries talks about a somewhat streamlined process for tower approval by the Siting Council, and so I'm wondering are we still including the local municipalities in an -- an

efficient and effective way so that they may chime in in the application process?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Yes, the process remains the same. Actually, I think this is -- this process for -- in this section is probably a little more onerous for the companies that want to put the towers in, and I don't expect them to be very many, at all, throughout the state, but yes, the municipalities have the same role they've always had with the Siting Council.

THE CHAIR:

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you, Madam President.

Thank you, Senator Duff.

And as it relates to utility -- water utility land, off line, Senator Duff, we talked about the potential for installation of cell towers on water tanks, which are often at a high -- high ground level. And in the case of my community, we found that to be an appropriate place to -- to place a cell tower. Unfortunately, it didn't work out.

Do these new rules make it easier or at least make that a priority to consider that option for cell tower location? And the reason why I bring that up is that a cell tower on a water tank doesn't require a tower. It's only small antennas that run the circumference of the tank.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

This -- I believe that this section is -- is here almost as a last resort, and that utility companies will probably do anything they can not to go through this particular process because it is more onerous than -- than maybe another process on -- on somebody else's land. I can't say for sure that, you know, going on a tower, a water tower is the best idea or not the best idea. I guess it all depends on whether or not where the -- where the signal is or the signal strength is.

But I believe that any company, any cell company, or cell companies would be -- have the motivation to put their antennas or relays in -- in the best places possible that require the least amount of a bureaucratic kind of a process.

Through you, Madam President.

THE CHAIR:

Senator McLachlan.

SENATOR MCLACHLAN:

Thank you, Madam President.

And Senator Duff, thank you for your answer. That's exactly the point I was trying to make and you sort of did that for me with your answer.

I think what we want to be sure that we're doing is acknowledging, one, that cell towers can be controversial in neighborhoods. And municipalities and chief-elected officials are often trying to find alternative locations, in partnership with the cell tower company, so that they are less objectionable, per se, to the community or the neighborhood.

What I've discovered from personal experience is that siting a cell tower on public utility land is already onerous. And so if you're telling me that we have new rules in this bill that make it further onerous, I would -- I would ask that we take pause on that and think of ways that we can be more open to the idea.

Now I understand that a public watershed could include a beautiful reservoir and a beautiful landscape that we don't want to put a tower on. What I'm being really specific about is the idea of these water tanks, and I believe that if we can find a way to make it easier to -- to do those placements, we're going to have many fewer neighbors concerned about their sight line being interrupted by a cell tower because they're already used to seeing a water tank and we only have to add 10 feet to the height of the tank for antennas.

So, Senator Duff, I hope that the Energy and Technology Committee and the regulators will consider that as a -- as a good idea and one that we should embrace.

Another thing that I think about cell tower siting is that there is a federal law that requires that federal government property be considered as an option for a location of a cell tower. And so if the federal government is requiring that cell towers are priority, and, obviously, they are because everyone in this circle has a cell phone and everyone we know does so we need cell towers, then we must consider why aren't we doing that with some state property as well. If it's a requirement of federal property, if there is state property that there's an appropriate location, that should be an easier process for the location of a cell tower on Connecticut state property, again, not if it's in the middle of a -- a wetland or something like that, but if you have an opportunity to do that, let us not forget that that opportunity also brings income to the State of Connecticut.

So, Madam President, I hope that this brief remark about the cell towers -- and I've had an awful lot of experience dealing with constituents on this topic -- I'm hopeful that some of these ideas will be taken

seriously by the regulators in Connecticut and more importantly by the cell tower siting companies.

Thank you, Madam President.

THE CHAIR:

Thank you.

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

I'd like to thank Senator Duff for what I'm sure was a lot of hard work in putting together a very large and copious plan, and I am relying on his words in some ways and Senator Chapin's words with respect to the outcome because there is a lot in here. And I do want to thank Senator Chapin -- this is my first year sitting next to him. He had big shoes to fill with Senator Roraback sitting there, but he certainly is pulling his weight to fill those shoes, especially on this committee.

Madam President, I do have a couple of questions for the proponent of the --

THE CHAIR:

Please proceed, sir.

SENATOR WELCH:

-- amendment. Thank you Madam President.

And if I could just direct Senator Duff's attention to section 7 of the amendment, at this point in time, and I just want to make sure I understand this correctly.

Under current law, as I believe it, PURA directors and DEEP employees assigned to PURA can essentially enter utilities and electric suppliers at reasonable times. And it seems like we are changing the authority a bit in that we are modifying the right of entry to include designees of PURA, utility commissioners, rather than

DEEP employees. And I don't mean to dwell to deep into the weeds, but as we discussed giving people authority to enter property, I just want to make sure, is this -- is this semantics? Are we -- are we increasing the number of people that can -- that have this right of entry? Are we decreasing it? Perhaps, Senator Duff could help me understand that.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

I think that -- that you are correct in that I don't think it's semantics at all. But we are -- well, let me just look at this one second here -- right, so the modification of the right of entry to all -- to all designees of the -- of PURA utility commissions rather than just DEEP employees. Does that answer your question?

THE CHAIR:

Yeah.

Senator Welch.

SENATOR WELCH:

Almost, Madam President. I guess if I could just get a better understanding and perhaps this isn't -- perhaps, Senator Duff doesn't know -- but are we -- so are we talking about a larger pool of people that would have this right than currently have it now?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you.

Well, just in a larger part of this has to do with some of the changes we've done with -- with the old DPUC and then DEP to DEEP to PURA, and making some technical changes, I guess, so it's -- some of this just reflecting in some of the title changes that we're doing, but I don't think it -- I don't think it is, you know, opening the floodgates, if that's what you're asking me to -- many people having this ability.

Through you, Madam President.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And I guess I apologize for starting off with maybe one of the more obscure portions of the bill and -- and potentially least important when it comes to saving ratepayers money. I just -- when I see the ability of somebody to enter private property at -- as it were, although we're talking about utility property, I just want to make sure that we're doing the right things and -- and test that a bit here and there. But I appreciate Senator Duff's assurance that we're not going to be opening the floodgates, as it were.

If I could turn Senator Duff's attention to sections 15 and 16 of -- of the amendment, and this is where we talk about a conservation program. As I understand the program as it -- as it exists today, there is a 3 cent per kilowatt charged that ratepayers pay on their invoice which then goes into the program and then those funds can be used with respect to electric conservation. And I believe this bill is giving PURA the authority to increase that per kilowatt charge should there be a shortfall in the fund with respect to the usage of that fund in any given year; is that a correct understanding?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

We are changing this a little bit but it -- let me just clarify one thing you said Senator. It is three-tenths of a cent not 3 cents, and we are changing that to expand some of our energy conservation efforts in the state to hopefully help more consumers.

Through you, Madam President.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And I appreciate that correction. In fact, when I said 3 cents I saw Senator Chapin raise his eyebrows, but I didn't pick up on the signal at that point in time so thank you.

So essentially, they will have the right now, should the fund require it to -- to double the charge, I think; is that correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

That would be correct.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

If I may just, if Senator Duff knows, with respect to the fund as it exists now, is there a large demand on the capital that's in there? Are people taking advantage of these programs as -- or are we talking about potentially expanding the programs at some point in time, and I anticipate needing those funds.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

I'm fairly confident saying that there is a large demand for these programs. We have -- Connecticut was very bold many years ago when -- now our Deputy Commissioner was in the House member and had developed some of these funds and they have always been extremely helpful and useful in reducing our demand. And I might also add that for every dollar we invest in this, we generally save, I believe it's $4 in -- in ratepayer funds. So we were able to -- I'm sorry, in electricity -- so we're able to really make some great investments here, I believe, and help consumers save a lot of money in the long run.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

If I could now direct Senator Duff to section 31 of the amendment where we discussed Home Energy Solution Programs. Frankly, this is a program that I didn't have much familiarity with, began to learn a little bit about it with respect to this amendment, and I do have a question or two.

As I understand the program now, individuals or companies that are participating in the Home Energy Solution Program are capped at what they can charge the consumer, and that cap I think is $99. The first question I had would be what would be a typical charge to a consumer if they were -- if there were no cap?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

It could be in the hundreds of dollars, but we feel that consumers would not take advantage of the Home Energy Solutions Program if the cap was -- if they had to pay what the actual cost is, so there's a subsidy involved here and that does allow more people to take advantage of the program.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

So help me understand the program a little bit better now. There's a $99 cap and then there's additional costs. The consumer would pay, under current law, up to $99 and then the additional cost would be reimbursed by the State of Connecticut to the person performing those services; is that correct?

Through you, Mr. -- you, Madam President

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

There's -- the Energy Conservation Management Board sets the terms of that but, yes, Senator, that's correct, through our Conservation Funds.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And so what this section then is doing is it's allowing the service provider to charge the consumer more but that should have the net effect of reducing the cost of reimbursement that the State of Connecticut contributes; is that a correct understanding?

Through you, Madam President.

SENATOR DUFF:

Yes, yes.

THE CHAIR:

Senator Duff.

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

Thank you, Senator Duff, for helping me understand that.

If I may now turn to sections 50 and 51, Madam President, I know Senator Chapin asked Senator Duff a few questions with respect to that, and I believe in earlier iterations or at least when the initial concept was floated a few months back, this tended to be somewhat of -- of a provision that drew a lot of questions and a lot of controversy. I understand that things have changed considerably in that we are asking ratepayers to pay for expansion rather than taxpayers and -- and I welcome that change in this amendment.

This section talks about a 10-year customer conversion plan and schedule. And I know oftentimes when we begin to have ideas for bills and for plans and programs, they've been flushed out, at least within the agency or within the legislators' minds as to what that's going to look like. Do we have any idea as to what the expectation is, or how many ratepayers we are -- or how many homes we would be looking to convert through this 10-year plan?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

We're looking at about 300,000 residential, commercial or industrial customers over 10 years.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

Thank you, Senator Duff, for that answer.

As I understand current law when a utility expands, such as a Yankee Gas services, for instance, they have -- they -- if they can pay for the expansion within

the current rate base within 15 years, then that's how it's done. But if that expansion can't be pay for within that point in time, well, then they are allowed to recoup costs from not just the ratepayers but from, I guess, what would be the new ratepayers or those that would benefit from the expansion. I don't know if I have that right. First, let me just make sure I have that foundational statement correct.

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Are you speaking of the hurdle rate, Senator?

SENATOR WELCH:

Yes.

Yes, Madam President. Thank you.

THE CHAIR:

Senator Duff.

SENATOR WELCH:

Okay, and I got -- and just so I got the concept of hurdle rate correct; is that correct?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

That sounds about right.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you.

I'm just a layman when it comes to this so I appreciate -- appreciate your answers. And so what we're doing with this amendment is we're taking that 15-year window and we're expanding it to 25 years, and -- and I guess I haven't totally thought through the implications of that but what -- what would be the result of that?

Through -- through you -- or maybe let me ask a better question. Why are we doing that in this case?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

All one has to do really is look at other states, and their natural gas penetrations throughout their states and compare that to the hurdle rates that they have and they -- their hurdle rates are -- are much higher than our current hurdle rates.

For instance, I believe Massachusetts has a 33-year hurdle rate. We're only changing it to 25. And we believe that will actually help incent the natural gas expansion. We could change all the policy in the world, but if you don't change the hurdle rate, nothing's going to happen. So you got to -- you got to build these things together to make sure you achieve some of that goal that we're looking to do through this bill.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

I think the last section that I have a question or two on is section 53, which is funding for alternative vehicles. As I understand this provision, it's going to allow DEEP to use nonappropriated resources to provide grants and rebates to municipalities, academic institutions, et cetera. And I guess my first question is what is what do we mean by "nonappropriated resources"?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

That is money that is off budget, that is not General Fund money, that's not taxpayer money.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And I know in -- in times when we have identified nonappropriated resources, they're often through -- there are grants that are available to us from federal government. Perhaps, they might be settlement funds. Do we know -- do we have an expectation as to what these sources are today or are we just putting this in place so that when we do identify sources we have the ability to use those?

Through you, Madam President.

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

We have identified the source. Thank you.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And may I, through you, Madam President, just inquire where those funds are coming from?

THE CHAIR:

Senator Duff.

SENATOR DUFF:

Thank you.

Those -- that was through negotiations when -- with the utility companies and another utility company.

THE CHAIR:

Senator Welch.

SENATOR WELCH:

Thank you, Madam President.

And I thank Senator Duff for his patience and his understanding of these concepts and his willingness to share that information. And again, I appreciate the hard work that he's, obviously, put into the legislation that's before us.

Thank you, Madam President.

THE CHAIR:

Thank you.

Will you remark?

Senator Boucher.

SENATOR BOUCHER:

Thank you, Madam President.

Madam President, I rise in support of the fine work that has been done by the Energy Committee and certainly by the distinguished chairman of the Energy Committee and the ranking member.

I know the time and effort that it's been put into what has at times been a difficult committee to bring large pieces of legislation like this forward. There's so many complex issues and different competing interests that always seem to be there. And two elements of this that I particularly want to commend the distinguished chair, my seatmate here, Senator Bob Duff and Ranking Member Shaban -- or Clark Chapin, is that they mentioned something that is critically important and that is to allow for all of the various forms of alternative and current energy sources to allow it to flourish in the free marketplace, allowing that consumer and new technology to determine the direction that we're going to go and, hopefully, bring to us better and more efficient energy processes.

Additionally, I also wanted to thank the chairman of the Energy Committee for his really fine work on achieving a consensus by the competing interests that we all have heard from this year that have put a great deal of pressure on all of us to consider the effects of this bill on their particular businesses. And it really speaks to the ability to sit down and compromise and bring together something that we can all vote in favor of, and I do plan to do that, and I thank the chairman for his fine work.

Through you, Madam President.

THE CHAIR:

Thank you.

Will you remark?

Senator Kane.

SENATOR KANE:

Thank you, Madam President, good afternoon.

THE CHAIR:

Good afternoon, sir.

SENATOR KANE:

Thank you, Madam President.

I rise for the purpose of an amendment. I know the Clerk has in possession LCO 8919. I asked that he call the amendment, and I'd be allowed to summarize.

THE CHAIR:

Mr. Clerk.

THE CLERK:

LCO Number 8919, Senate "A," offered by Senator Kane.

THE CHAIR:

Senator Kane.

SENATOR KANE:

Thank you, Madam President.

I moved adoption.

THE CHAIR:

Motion is on adoption.

Will you remark, sir?

SENATOR KANE:

Thank you, Madam President, I will.

Yesterday or the day before and -- and I don't know what day is what anymore, but we discussed the budget, the biennium -- biennial two-year budget of the State of Connecticut. And I argued about a number of sweeps and raids of certain funds. I was going to run this amendment on the budget that day but, unfortunately, it was not ready. There was some clarification on the language, certainly some work needed to be done on the fiscal note, but it is that important, Madam President, that I bring this issue up yet again because that day when we were arguing the budget, I got an e-mail of an emergency nature from a constituent who said that the sweep of the CEFIA Fund, the Clean Energy Fund basically, which allows -- well, let me take a step back -- which is ratepayer dollars. You and I in our homes, Madam President, pay a surcharge on our electric rate for this fund. And this fund is used to power -- no pun intended -- solar programs in the state of Connecticut. Individuals cannot afford to get into these type of programs and/or technology without the help of this CEFIA Fund.

And it is my understanding and the understanding of this gentleman that -- who e-mailed me that the fund will be raided 20 percent in this fiscal year and a whopping 80 percent in the next fiscal year, basically, putting this small business out of business.

So I think that's terrible, I think it's awful. And not only do we have 8 percent unemployment, which is higher than the national average, but we have a struggling economy, a struggling business climate, and struggling businesses who are trying to stay afloat. As a small business owner myself, Madam President, I've told you this many times, in 19 years I've been in business, probably the most difficult have been the last five, and it continues to get harder and harder. All we do in this building is pass more burdens, more regulations, more mandates on small business.

When we finally come up with a program that is helpful for jobs and the economy and putting people to work

and actually being clean and friendly to the environment -- I read a article this morning in the -- in my local newspaper that this sweep of this fund was considered the most harmful thing in the last 10 years to the environment and clean energy, the most harmful thing in 10 years was the sweep of this fund.

So I do believe that the environmental community would agree with this, they certainly do not agree with sweeping this fund, and I do believe that the business community would agree with this as we will be helping small businesses who use this program to get people into clean energy but also create jobs and get the -- keep the economy going.

This company, Madam President, located in my district will be out of business, so if everybody is comfortable with that then vote no. But if you want to see this small business stay in business, you want to see other businesses strive, you want a clean environment, you want solar energy, then you should vote yes.

Madam President, the fiscal note has been satisfied in this amendment, because what we have done is removed the money from the Citizens Election Fund for the next two years, '14 and '15. I think that I would sacrifice my bumper stickers and lawn signs and little tchotchkes for this business, for these companies, for the good of our environment, for the good of the people in the State of Connecticut, and I asked for a roll call vote.

THE CHAIR:

A roll call vote will be taken.

Senator Frantz.

SENATOR FRANTZ:

Thank you, Madam President.

I stand in favor of the amendment and thank Senator Kane for introducing it. And would like to reiterate some of the points that he made, which is that, you know, we can't establish these funds and then continue

to sweep them because, essentially, that's dishonest, intellectually dishonest to the taxpayers and anybody -- the ratepayers and the people who pay the gross receipts tax and gasoline tax, it all goes into a fund.

In the case of the Transportation Fund, the -- the Special Transportation Fund and those monies are -- it -- it's an agreement that we have with the taxpayers and it's an ironclad one as far as I'm concerned that that money gets used for what its original intended purpose has been. And when we see these funds being swept, I believe it's over $500 million that's proposed in the current budget before us from a variety of different funds, the majority of which will be coming from the Special Transportation Fund, I think that number is about $91 million. And I think it's just -- I think it's morally wrong to do that. I think that -- I think that we're looking at using transportation as an example, we're looking at some serious structural problems throughout the state of Connecticut -- and we're not alone by any stretch of the imagination here, a bridge just fell down in -- in the state of Washington and there was another one earlier in the year in another state, I believe it was Minneapolis, that might've been last year -- but we're looking at crumbling infrastructure and we need to preserve those dollars in those silos, if you will, where we've created that pact with taxpayers that we were going to put that money and use it for.

A report just came out within the last four days from the U.S. DOT that points out the fact that we here, in Connecticut, have 4,200 bridges that are structurally deficient, and that's an unacceptable number. In fact, I believe it was yesterday or possibly the day before that I-95, all three lanes on the southbound side were shut down because of concerns over the -- a bridge, it was either on I-95 are going over I-95, it's still not clear to me yet, but it's an example of how our infrastructure needs a lot more attention, a lot more funding.

So in the same way that Senator Kane points out in his argument in favor of this particular amendment that the fund that is intended to encourage environmental considerations and conservation and energy usage is --

is -- it's a great point that he makes and something that we should not engage in as a practice here at the state level. And so I know two wrongs don't necessarily make a right but given all that's happened here under the dome with respect to elections and election rules and -- and finance campaign changes, I think it's a fair ask in this amendment.

If nothing else just to make the point that, you know what, we really, really have to stay true to the agreements that we have made with taxpayers to keep their money that they are paying into state coffers in those areas where those funds are going to be used for the legitimate purpose that they were originally set out to support.

With that, thank you, Madam President.

THE CHAIR:

Thank you.

Will you remark?

Senator Duff.

SENATOR DUFF:

Thank you, Madam President.

Madam President, I rise to oppose the amendment.

I, certainly, share the Senator's concerns about the CEFIA Funds and what may have been some decisions made in the budget. Obviously, when you have a budget, there are no perfect decisions and we try and certainly do the best we can with the resources we have, coupled with the needs that we have in the State of Connecticut.

I will say that there are many of us who've been working very diligently over the last few days, including staff at the Department of Energy and Environmental Protection, the Governor's Office, myself, chairs of the Finance Committee and others in leadership, to restore or fix some of the -- some of the concerns that people have with regards to the

CEFIA Funds. So because we are working diligently on solutions, I rise to oppose the legislation.

Thank you, Madam President.

THE CHAIR:

Thank you.

Will you remark? Will you remark?

Senator Kane for the second time.

SENATOR KANE:

Thank you, Madam President.

And I appreciate the indulgence. And I thank the good chairman of the Energy Committee, who I consider a friend. But when he talks about resources and needs, I would argue that the needs in the state of Connecticut that we have are jobs. We need small businesses. We need companies to grow and we need clean energy. This money isn't ours. This money was paid by the ratepayers. It's not taxpayer dollars. Indirectly, it's -- it's ratepayer dollars. Its, you know, the lights that power this building, in our homes and businesses, that's where the money comes from. It's not the State of Connecticut's money, so to speak. It's ratepayers. So the needs in the state of Connecticut are jobs, employment, the economy.

Number one, the resources come from the ratepayers. So if you want to balance the necessity, one versus the other, then I would put jobs in front of bumper stickers any day of the week.

THE CHAIR:

Thank you.

Will you remark? Will you remark?

If not, Mr. Clerk, will you call for a roll call vote and the machine will be opened.

THE CLERK:

Immediate roll call has been ordered in the Senate. Senators please return to the chamber. Immediate roll call on Senate "A" ordered in the Senate.

THE CHAIR:

I think, Mr. Clerk, we might have to call and remind people we're here.

THE CLERK:

Immediate roll call is ordered in the Senate. Senators return to the chamber. Immediate roll call on Senate Amendment Schedule "A" has been ordered in the Senate.

THE CHAIR:

Have all members voted? If all members have voted, the machine will be closed.

Mr. Clerk, will you call the tally.

THE CLERK:

Senate Amendment Schedule "A" for House Bill 6360

Total Number Voting	31
Those voting Yea	11
Those voting Nay	20
Those absent and not voting	5

THE CHAIR:

The amendment fails.

Will you remark further? Will you remark further?

If -- Senator Markley.

SENATOR MARKLEY:

Thank you, Madam President.

If I may, I'm going to make one comment on the bill itself before that --

THE CHAIR:

Please proceed.

SENATOR MARKLEY:

-- vote that takes place, which is I -- I do appreciate and I can imagine the hard work that goes into putting together such a large bill as this. I guess I would wish that so much work was not done and that so large of bill were not, in fact, presented to us. It seems to me that this is the sort of thing that would better be taken pieces at a time. And I understand the reason that -- that it's necessary sometimes to recognize the interests of the various stakeholders. There's nothing wrong with that to try to balance interests and come up with something that everybody can agree to, but I think it also leads to -- it leads to the swallowing of rats.

I was saying to one of my colleagues in the other room that if you -- if you think you're going to swallow a rat, you ought to ask yourself, metaphorically, if that's something that there is ever a justification for doing.

There's a couple of them very clearly in here from my point of view. I think have been mentioned over the course of the debate, the siting of cell towers, the elimination of what I take as -- as a rather critical regulation concerning wind turbines. There's also some very involved decisions being made here that have been the process of long negotiation but, again, come before us with very little time for review or even for direct communication back to the stakeholders at the local level, like the impact on the -- on the -- the petroleum dealers, and so forth.

With -- with the hope that was has been devised is in fact in the best interest of the State, I still will -- with respect both to the chairman and to the ranking member and for all the work that goes -- went into this, respectfully vote against it.

THE CHAIR:

Thank you.

Will you remark? Will you remark?

If not, Mr. Clerk, will you call for a roll call vote on the bill. The machine will be open.

THE CLERK:

Immediate roll call has been ordered in the Senate. Senators please return to the chamber. Immediate roll call has been ordered in the Senate.

THE CHAIR:

Senator Fasano, Senator McKinney, if you'd vote, we'll be able to close the machine. Thank you.

Thank you.

The machine -- if have all members have voted? All members have voted, the machine will be closed.

Mr. Clerk, will you please call the tally.

THE CLERK:

House Bill 6360

Total Number Voting	31
Those voting Yea	28
Those voting Nay	3
Those absent and not voting	5

THE CHAIR:

The bill passes.

We'll stand at ease now for a few moments.

JOINT
STANDING
COMMITTEE
HEARINGS

COMMERCE
PART 4
1067 - 1410

2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.
Testimony of [your organization or business / your name]
Before the Commerce Committee

In **Support** of
HOUSE BILL 6650, AN ACT CONCERNING ENERGY EFFICIENCY PROGRAMS

Submitted by
Pippa Bell Ader, Westport
March 19, 2013

Senator LeBeau, Representative Perone, and members of the Committee,

Thank you for the opportunity to comment on HB 6650, AAC Energy Efficiency Programs.

I am pleased to support this bill. I am a member of the Westport's Green Task Force, and Chair of the Westport Home Energy Challenge. And this issue is dear to me. The Westport Home Energy Challenge is part of a DOE grant to promote Home Energy Solution visits and deeper energy efficiency upgrades. Westport has been very successful at promoting the program: We've had over 700 HES visits in a little over 2 years, and well over 100 energy efficiency upgrades, including insulation and solar installations. And 5% of the visits have been to income-eligible families. We wish this number were higher, but the process to be approved is arduous and slow.

I can speak personally to the frustration of not having a stable funding source for HES visits to oil-heated homes, which is 60% of Westport's homes. Ask any of the 20 partner organizations the Westport Home Energy Challenge works with how many times I sent out ominous emails, warning them that the price of the HES visit was about to skyrocket, or worse still, be unavailable to most Westporters.

When you cry wolf over and over to an audience, they do not forget. But unfortunately, what they remember is the doomsday call that went out, not the fact that the HES program is alive and well, and the best opportunity to improve your home comfort, reduce your energy bills and identify energy efficiency opportunities, with exclusive state rebates.

I would love to be able to tell the thousands offWestporters that I am in communication with, that a bill has been passed that assures consistent financing of HES visits for oil and propane heated homes.

HB 6650 establishes an Oil Heat and Propane Energy Efficiency Fund, to be supplied by a new excise tax on fuel oil and propane.

The tax will be phased in over several years and is small enough that it will not unduly burden customers. Besides, the average customer that has a HES visit will save many times the cost of the tax in just one year. We quote that the average home saves $200 in one year, after having a HES visit. In Westport that savings is often much greater. We have plenty of homes that are older, or built poorly, that benefit greatly from simple measures such as caulking and air sealing, and updated lighting. At last count Westporters had saved close to $300,000 in electricity costs alone. That does not include the heating and hot water savings!

The new Fund will plug into existing structures; it will be administered by the Fuel Oil Conservation Board, which will disburse money to the Energy Conservation and Load Management Fund for use in Home Energy Solutions and other programs.

The bill also requires that fuel oil and propane customers who receive aid from state programs have boilers or furnaces that meet or exceed federal Energy Star standards. These measures will allow oil customers to take advantage of programs that can save them hundreds of dollars a year while generating jobs in efficiency businesses and reducing greenhouse gas emissions.

However, because fuel oil and propane customers do not pay into the efficiency fund via their heating bills, they have limited access to these programs. Last year's legislation provided a stop-gap measure, but that will soon expire.

Please don't make me have to send out yet another doomsday email. I really believe this affects people's attitudes about the HES program. And if funding does stop, what do I say to the 60% of Westporters who have oil heat? You no longer have access to one of the best programs in the country? You can't benefit from the cost-savings and pollution-cutting measures? This is particularly damaging to income-elligible families, who could use all the help they can get. There are plenty of such families in Westport.

HB 6650 offers a definitive solution by establishing a small surcharge to supply an oil efficiency fund. PLEASE VOT "YES" for HB 6650.

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45

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TESTIMONY OF ENE (ENVIRONMENT NORTHEAST)
TO THE COMMERCE COMMITTEE

Supporting: Raised House Bill No. 6650, AAC Energy Efficiency Programs

March 19, 2013

Jamie Howland, Director, ENE Climate and Energy Analysis Center

ENE (Environment Northeast) is a non-profit research and advocacy organization that focuses on energy, air quality and climate change solutions for New England and Eastern Canada. ENE has been active in Connecticut since 1999 and appreciates this opportunity to provide written testimony to the Commerce Committee on *Raised House Bill 6650, An Act Concerning Energy Efficiency Programs.*

ENE has been a member of the Energy Efficiency Board in Connecticut since its inception over a decade ago. Efficiency programs in this state are top ranked in the nation and have saved electric and natural gas customers millions of dollars over time on their utility bills. However, approximately half of our residents are left in the cold when it comes to efficiency programs because—absent 2009 federal stimulus dollars, proceeds from the Regional Greenhouse Gas Initiative and temporary access to the Energy Efficiency Fund—oil and propane heat customers have a diminished opportunity participate in our award winning programs. Investments in oil efficiency save consumers nearly seven dollars for every dollar invested. At today's oil prices, investing in all cost effective oil efficiency would save the average Connecticut family nearly $1,000 per year on their heating bill.

We believe that the creation of substantial and effective efficiency programs to reduce the consumption of heating oil and propane is vital to advancing the economic, energy and environmental well-being of the citizens of Connecticut. Currently, the state faces challenges in each of these areas. Further, economic development is threatened by relatively high energy costs.

Connecticut has very limited control over the price of most fuels in the. However, we do have control over our consumption, and by lowering consumption during winters and throughout the year, an average household can save hundreds of dollars each year on our heating bills. As has been demonstrated in the electric sector, the state can have a significant impact on the demand side of the equation by developing comprehensive programs to reduce consumption. ENE strongly recommends that the General Assembly establish strong and effective oil and propane efficiency programs that can follow this model to the benefit of the state and its citizens.

Economic Benefits

A primary reason for developing significant efficiency efforts is the economic benefits which such programs can produce. Because Connecticut has few indigenous fuel resources, it must obtain these fuels at relatively high prices from distant and often geopolitically unstable places.

Some will argue that prices are so high that we can't afford to invest in programs that will reduce consumption. ENE believes this is exactly the wrong conclusion. The only way the State can improve its situation is by taking significant steps to control the demand for these fuels by improving the efficiency of their use. A key element of any conservation program is that it must be cost-effective—that is, that the economic value of the energy savings must exceed the total program costs If the program is managed according to this principle, as the bill would require, consumers will necessarily realize economic benefits

In 2009, ENE conducted a study and issued a report, *Energy Efficiency: Engine of Economic Growth*,[1] that quantified the macroeconomic impacts of increased energy efficiency investments in New England. Annual efficiency program budgets were modeled for various fuel types, and the results demonstrated significant benefits. Not only did these investments create direct install jobs, they resulted in net savings for residents and businesses that were then spent in the local economy, thereby creating jobs in other industries, boosting the gross state product (GSP), and making the state more competitive. The economic results can be summarized as follows.

Table 1. Summary of Connecticut Economic Impacts per Dollar Invested in Oil and Propane Heating Efficiency

	Results for Unregulated Fuels
Total Efficiency Program Costs ($Billions)	$ 1.6
Increase in GSP ($Billions)	$ 12
Percent of GSP increase resulting from efficiency spending	8%
Percent of GSP increase resulting from energy savings	92%
Dollars of GSP increase per $1 of efficiency program investment	7.1
Increase in Employment (Job Years)	78,000
Maximum annual employment increase (jobs)	4,600
Percent of employment increase from efficiency program investment	11%
Percent of employment increase from energy savings	89%
Job-Years per $Million of efficiency program investments	48

These results, good as they are, are based on the average price from 2003-2006 of only $1.50 per gallon. The average price of heating oil sold in Connecticut was over $4.00 per gallon last week, meaning the increase in jobs and economic activity in the state from investments in heating oil

[1] Howland, J et al. *Energy Efficiency: Engine of Economic Growth* (2009) Available at http://www.env-ne.org/resources/open/p/id/964

efficiency would be on the order of 2.5 times greater than the figures above. The economic benefits alone make the development of these programs an obvious choice for the state. A small increase in prices at the wholesale level to cover the cost of the program is completely offset by savings from reduced consumption.

Environmental Benefits

ENE's 2009 study also demonstrated that the environmental benefits from oil and propane efficiency programs are also substantial [2] The following table illustrates these savings:

Table 2: Summary of Connecticut Energy Saved and Greenhouse Gas Emissions Avoided with Oil and Propane Efficiency Programs

	Result for Unregulated Fuels
Energy Savings	**(TBTU)**
Maximum annual savings	29
Maximum savings vs. Business as usual	28%
Lifetime savings (15 years of programs)	368
Equivalent GHG Emissions Avoided	**(Millions short tons)**
Maximum annual avoided emissions	2.3
Maximum annual avoided emissions vs. 2005 total Connecticut emissions	5.2%
Lifetime avoided emissions (15 years of programs)	41

Drawing on the success of the electric and natural gas programs, Raised House Bill 6650 requires that the existing Energy Efficiency Board of which the Commissioner of the Department of Energy and Environmental Protection is the Chair (and of which I am currently the vice-Chair), with the Fuel Oil Conservation Board, oversee the planning, evaluation, and management of the efficiency programs. This would provide the greatest opportunity for the lessons learned to date in similar activities to be extended to the new programs. The bill also provides that a particular focus would be on promoting joint efforts such as those described above to ensure the most efficient delivery of services to consumers

Recommendations for Technical Modifications to Raised H.B. 6650

While ENE strongly supports this bill and urges the Committee to make a favorable joint finding, there are several modifications we would like to recommend.

First, we recommend that Section 3(a) be modified so that the unit of tax treatment for oil and propane is on a heat content, or BTU, basis The current unit of comparison by volume in gallons will not treat oil and propane equally and will disadvantage propane customers, who will need to burn more propane by volume to produce the same amount of heat as with oil. This can be corrected by adjusting the assessment to 0.66 cents per gallon of propane for every one cent per gallon on oil.

[2] *Id.*

JOINT
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HEARINGS

ENERGY AND
TECHNOLOGY
PART 2
351 - 678

2013

#15

AMERICA AND CONNECTICUT ARE A COUNTRY AND A STATE WHERE ENERGY WASTE IS THEIR MOST IMPORTANT AND PROLIFIC PRODUCT.

March 5, 2013

P.O. Box 71
Windsor, CT 06095-2205
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Co-Chairmen and Members
Energy and Technology Committee
Connecticut Legislature
Room 3900, Legislative Office Building
Hartford, CT 06106

Re: **S. B. 250, An Act Requiring Applicants of Electric Generation, Transmission and Distribution Facilities to Perform Energy Analyses.**

Dear Co-Chairmen and Committee Members:

The purpose of Senate Bill 250 is to provide an analytical tool for advancing one of the major imperatives of this young century— preservation and sustainability of global energy resources by reducing future energy waste, which consequently will reduce the future production of Greenhouse Gases ("GHGs").

The bill would require each applicant proposing to create or refurbish an electric generation facility to perform life cycle net energy and energy profit and greenhouse gas production analyses as part of the application process. Transmission and distribution systems would only require life cycle energy consumption analyses.

The economics of electricity generation are important. If the financial cost of building and operating the plant cannot profitably be recouped by selling the electricity, it is not economically viable. But as energy itself is a more fundamental unit of accounting than money, it is also essential to know which generating systems produce the best return on the energy invested in them. This comprises the essence of **Life Cycle Analysis (LCA).**

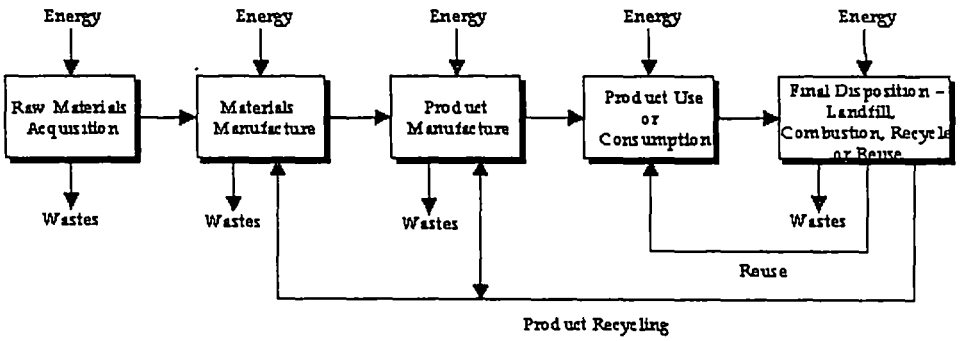
The price of fossil and nuclear fuels fluctuates according to the Law of Supply and Demand, but the heat value or energy released during transformation of the fuels does not.

Analyzing this energy balance between inputs and outputs, however, is complex because the inputs are diverse, and it is not always clear how far back the externalities should be taken in any analysis. For instance, the oil expended to move coal to a power

station, or the electricity used to enrich uranium for nuclear fuel, are generally included in the calculations. But what about the energy required to build the train or the enrichment plant? And can the electricity consumed during enrichment be compared with the fossil fuel needed for the train? Many analyses convert British Thermal Units (BTU) to kilowatt-hours (kWh), or vice versa, in which assumptions must be made about the thermal efficiency of the electricity production.

Currently such critical analyses are neither required nor performed by any applicant to the Connecticut Siting Council or even addressed in the Comprehensive Energy Strategy – see House Bill 6360, AAC Implementation of Connecticut's Comprehensive Energy Strategy. The European Union requires such analyses and has developed a computer model for the computations. Before requiring such analyses, the Legislature should first designate and task a state agency to investigate and develop a model for preparing such analyses.

In the attachment, consider all the process steps in making a simple lead pencil, in which each process requires the expenditure of energy. Next, consider all the process steps necessary to construct, operate, maintain, repair and decommission a powerplant. Each step requires energy to accomplish the process along with energy waste and GHGs.



Analyses provide a more rational and orderly basis to reduce such waste and climate-changing byproducts. At the heart of such analyses is the consideration of alternatives to lessen energy expenditures, waste and byproducts.

In Public Act 07-242, Section 54(g), the General Assembly adopted a substantive model for energy analyses. However, the legislation had a weakness, which prevented its implementation; it failed to task an agency with developing the computational specifics for the model and failed to require applicants for energy permits or determinations of environmental compatibility to prepare such analyses. Public Act 11-80 replaced P.A.

07-242 eliminating the analysis provision. Borrowing from Section 54(g), I amended the provisions to read as follows:

> When evaluating any project for the generation of electricity, the company applying to the Connecticut Siting Council or the Connecticut Public Utility Regulatory Authority shall perform a net energy analysis for each proposal. Such analysis shall include calculations of all embodied energy requirements used in the materials for initial construction of the facility over its projected useful lifetime. The analysis shall be expressed in a dimensionless unit as an energy profit ratio of energy generated by the facility to the calculated net energy expended in plant construction, maintenance and total fuel cycle energy requirements over the projected useful lifetime of the facility. The boundary for both the net energy calculations of the fuel cycle and materials for the facility construction and maintenance shall both be at the point of primary material extraction and include the energy consumed through the entire supply chain to final, but not be limited to, such subsequent steps as transportation, refinement and energy for delivery to the end consumer. The results of said net energy analysis shall be included in the results forwarded to the client. For purposes of this paragraph, "facility net energy" means the heat energy delivered by the facility contained in a fuel minus the life cycle energy used to produce the facility. "Fuel net energy" means the heat energy contained in a fuel minus the energy used to extract the fuel from the environment, refine it to a socially useful state and deliver it to consumers, and "embodied energy" means the total energy used to build and maintain a process, expressed in calorie equivalents of one type of energy.

To implement the above suggested hierarchal model, this Committee should recommend a state agency to develop the mathematical details required to determine life cycle energy and life cycle net energy expenditures, energy profit and GHG emissions.

Very truly yours,

Robert Fromer

Robert Fromer

Attachment: A pencil's point, no government panel needed to create this writing instrument

#15

A pencil's point, no government panel needed to create this writing instrument

By TOM PURCELL
CAGLE COMMENTARY

Now is a good time to revisit the 1958 essay in which Leonard Read examined how a pencil is made — how it is miraculous that a pencil is made at all.

The standard pencil begins when a cedar is cut down. Ropes and gear tug it onto the bed of a truck or a rail car.

Think of all the numberless people and skills involved in mining ore to produce steel and refine the steel into saws, axes and motors, wrote Read.

Think of all the people who grow hemp, then transform it, through various stages, into a strong rope.

Think of the untold thousands of people who produce the coffee the loggers drink!

The logs are shipped to a mill and cut into slats. The slats are kiln-dried, tinted, waxed, then kiln-dried again.

How many skills were needed to produce the tint and the kilns, Read wondered. What about electric power? What about the belts, motors and other parts at the mill?

The pencil slats are shipped to a factory. A complex machine cuts grooves into each. A second machine lays lead into every other slat. Glue is applied. Two slats are sealed together as one, then cut into lengths that form pencils.

The lead alone is complex, he explains. It's not really lead. To produce it, graphite is mined in Ceylon. The graphite is, packed and shipped, then mixed with clay from Mississippi. It is treated with wetting 'agents — such as sulfonated tallow, which is formed when animal fats chemically react with sulfuric acid.

The pencil receives six coats of lacquer. Lacquer has numerous ingredients,' including castor oil. Think of all the chemists needed to create the paint — think of all the castor bean growers needed to produce, refine and ship the oil.

The brass end that holds the eraser in place is a marvel. Miners need to first extract zinc and copper from the earth. Experts transform those materials into sheet brass, which is then cut, stamped and affixed to the pencil.

That brings us to the eraser. It is made from "factice," wrote Read, a rubber-like product that is produced by rapeseed oil from the Dutch East Indies reacting with sulfur chloride.

To be sure, an awe-inspiring amount of work goes into producing a pencil. Millions of people collaborate to produce it — millions ply their unique trades and skills — yet they have no idea they are collaborating.

Each is merely changing his small piece of know-how for the money he needs to buy the goods and services he wants, wrote Read.

More amazing is this: No one person is capable of making a pencil. Not even the president of the pencil company.

No one person could possibly manage the millions of people — and the millions of decisions they make — who produce the ingredients that become a pencil.

Despite the absence of a mastermind, billions of pencils are made every year. They're produced with such humdrum efficiency that every one of us takes pencils for granted.

The pencil, explained Read, is the triumph of human freedom - a triumph of creative human energies spontaneously responding to human necessity and desire.

There never was a need for a presidential commission on the production of pencils.

Without one government program, the need for pencils arose. Without any meddling from an Ivy League bureaucrat, the pencil was invented, produced and sold — the demand for pencils was met.

It is a folly for any, man, or group of men, to think of producing something as incredibly complex as a pencil. How much harder must it be to produce a car — one that consumers will want to buy, anyhow?

Read concluded his essay with this advice: The best thing our government can do is leave our creative energies uninhibited - remove the obstacles that prevent human creativity and innovation from flowing freely.

#15

Not create more obstacles by using taxpayer dough to take over a private company.

Thank goodness our government hasn't taken over any pencil companies yet. It would be that much more costly and difficult to write to our congressmen.

Tom *Purcell a humor columnist for the Pittsburgh Tribune-Review, is nationally syndicated exclusively by Cagle Cartoons newspaper syndicate. Visit Tom on the web at www.TomPurcell.com or e-mail him at Purcell@caglecartoonscom.*

JOINT
STANDING
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HEARINGS

ENERGY AND
TECHNOLOGY
PART 3
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2013

March 4, 2013

Written Testimony of Annie Harper, Yale Community Carbon Fund, Yale University Office of Sustainability,
Before the Connecticut General Assembly Energy and Technology Committee
March 4th 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

1. Energy efficiency should be the main focus of the comprehensive energy strategy.
2. While I understand the reasons for the focus of the CES on gas conversions, I strongly recommend that the primary focus should be on energy efficiency, whether or not that is part of a program encouraging gas conversions.
3. A mechanism must be established for heating oil customers to contribute to the Energy Efficiency Fund.
4. The details of any financing options must be clearly presented, and there must not be shut-off provisions included in utility-bill financing.
5. A serious effort must be made to require energy use disclosure for residential buildings to ensure that energy efficiency is considered when buying, selling and renting real estate.
6. Regarding outreach to low-income groups:
   a. For effective outreach to low-income groups, more is needed than *financing* options and *actionable information*. Financing is of little value to those who either do not qualify, or are simply not in a position, economically or psychologically, to incur debt. Actionable information is only actionable to those who are in a position to make 'good' choices. Low income people very often are not in a position to make those good choices even if they wanted to.
   b. The focus of the strategy seems to be on providing appropriate *financing mechanisms*, and ensuring that people have access to *actionable information*'. As vital as these two approaches are, I fear that they will do little to promote uptake of deeper measures among low income people.
   c. The report rightly identifies some of the key constraints to reaching out successfully to this segment of the population. One is lack of trust (even when programs are heavily subsidized or free). Another is health and safety issues that need to be

March 4, 2013

remediated such as asbestos and knob and tube wiring. I would like to have seen a little more detail on the proposed programs that might address these problems.

d. I agree that a comprehensive program to make various types of public housing more energy efficient is vital. Again, however, more detail would have been encouraging. The most challenging area will be private landlords who rent to section-8 tenants. Insights into the current ability of municipalities to enforce standards among that group will be important here.

e. Strategies to address the landlord/tenant split incentive problems are vital. Again, this is going to be a particularly hard nut to crack and it would have been encouraging to see a range of possible options rather than just one (tax credits).

f. A future strategy must be informed by complete data regarding the existing program. Unless we know to whom and with what measures the low income program is currently reaching, we will not be able to identify where the bottlenecks are and therefore what are the appropriate solutions. The 'scorecard' proposed for contractors will be useful not simply as a method for measuring contractor performance, but more fundamentally for identifying problem areas in program design.

g. I entirely agree with the statement that "this work could be coordinated with workforce development efforts to train residents in the community for skilled jobs in the trades industry". If we are concerned about low income people, increasing the number of jobs available is as important as reducing their energy consumption.

Annie Harper
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CHAIRMAN: Senator Duff

VICE CHAIMAN: Representative Reed

MEMBERS PRESENT:
SENATORS: LeBeau, Chapin

REPRESENTATIVES: Steinberg, Hoydick, Backer, Becker, Bowles, Carter, Case, Davis, Fawcett, Genga, Lesser, Megna, Morris, Miller, Piscopo, Ritter, Tong, Williams, Yaccarino

PAUL MOUNDS: ... sound and efficient heating oil by reducing sulfur content. That's for the energy strategy bill. We're also here to talk about Senate Bill 839 which is a clarifying legislation to Public Act 1180 which establishes the Department of Energy and Environmental Protection and PURA, The Public Utilities Regulatory Authority, and begin Connecticut's energy transformation. This legislation, which includes many of the changes discussed during the 2012 session through this committee and the legislature, strengthens the independence of the newly created PURA. Decision making along with clarifying the role of energy policy making as it relates to protecting the environment and fostering economic growth in Connecticut.

HB5591
HB6360

Over the past two years we have made great strides to improve our regulatory environment while ensuring fair, judicious decisions are made for whomever appears before the PURA. This legislation is essentially to further clarify the administrative, regulatory, and policy making roles at the PURA and DEEP to

the representative as it deals with on-bill financing. We see that as a very beneficial way to not only incentivize those individuals to want to make the changeover, but also make it financially feasible by making it an investment over time.

REP. HOYDICK: Thank you, Paul. I think this is for you, Liz, but I'm not sure. This is back on the House Bill 6360. And the section that is promoting energy efficiency improvements in public and private buildings through the use of energy rating systems, benchmarking to evaluate, and rate energy consumption.

Can you explain how that is laid out in the bill and exactly -- well, could you explain how that's laid out in the bill, and what I'm looking for is what kind of benchmarking measures are mandated? Thank you.

PAUL MOUNDS: Which sections specifically do you want to --

REP. HOYDICK: I'm specifically going from your testimony.

PAUL MOUNDS: Yeah.

REP. HOYDICK: It's the second page.

PAUL MOUNDS: Yup.

REP. HOYDICK: And in your bulleted items, it's the third one down.

PAUL MOUNDS: I just want to make sure I clarified your question. You just want to know what are the benchmarking related measures?

REP. HOYDICK: And are they mandatory?

PAUL MOUNDS: In terms of the benchmarking related measures, I know this is something that was discussed in terms of last year's related energy related bill that did not pass. Overall, we're going to be able to use related benchmarking measures as provided by the federal government as used as barometer as it means in terms of benchmarking. Now in terms of whether or not it's mandatory, overall we see it as a overall benefit for not only owners and tenants, in terms of whether or not it's actually mandatory is something that's not -- as it currently states within the legislation, it's not the case.

REP. HOYDICK: Thank you.

REP. REED: Thank you. Representative Ritter, and Representative Genga is next. So Representative Ritter first.

REP. RITTER: Thank you. Thank you for being here. Some of my questions have actually been addressed by Representative Hoydick, but I did want to know if you had anything for the benefit of the committee along the lines of the work that you've been able -- or the conversations you've been able to have with the fuel oil dealers, and for the record I'll say I have a few of them in my district, and I have very, very serious concerns about these small businesses.

SB839

PAUL MOUNDS: Actually, thank you for bringing that question up. We've been having a lot of discussions with them. If you notice from the change from the draft to the final report. The draft had different -- different related elements as saying how can you incentivize individuals to switch over to natural gas. One thing that this administration realizes, that natural gas is not going to be everywhere in

HB5587
HB6360
HB6532
HB6534
HB6535

COMMISSIONER DANIEL C. ESTY: Thank you very much, Madam Chair. I have submitted written testimony that covers a number of issues that the committee has asked about, and we would like to be on record.

But I would like to spend a few minutes setting the context for the issues that you have in front of you. And some of this has already come out. Clearly what we are doing, and frankly doing it with this committee's guidance and leadership is to move Connecticut from a state where energy policy was kind of haphazard and fragmented, and frankly not very strategic, and not very effective to a different place where our energy efforts are focused and where we are following the Governor's commitment to cheaper, cleaner, and more reliable energy, including electricity, but energy more broadly at the same time.

This committee, two years ago, pushed us in that direction, set up the new department, called for a Comprehensive Energy Strategy which we delivered to you a few weeks ago. And that strategy takes apart a complex set of issues, offers a vision that I think is compelling, deals with the uncertainties that are here which are real. But does so in a way that I think provides a robust strategy, one that can be flexible depending on how prices move, what technologies emerge, and I think it does so with a focus up front on what several of the representatives have mentioned today, which is that efficiency is our first, best option. Energy we don't consume is our best strategy in many, many cases. And our efficiency efforts that we are putting forward in this legislation, various bills that are in front of you, help us advance that effort, does call for a deeper push on energy efficiency and

a broader push across all sectors, including government buildings.

As you heard, Representative Miller, our Lead By Example Program is aggressively pursuing energy efficiency in all state buildings.

Prior to this new department coming into being, we didn't even have a comprehensive set of energy utility bills for the State of Connecticut. We've now assembled that, and are picking off our most inefficient buildings, one after another for efficiency efforts. And we're doing so in a way that, again, this committee provided leadership on. Representative Steinberg and Representative Becker helped put that forward as a concept that we ran with two years ago.

We are saving hundreds of thousands of dollars, soon to be millions of dollars by those invests. We are also pushing, as you heard, renewable energy, but on a basis that is not just cleaner, but cheaper. Using new incentive structures to drive down the cost of energy and are achieving in Connecticut some of the lowest costs, solar installations found anywhere in the country, and we are ramping up our deployment.

We will do this year and Bryan Garcia and the team from our green bank, our clean energy finance and investment authority can give you the details, but I anticipate we'll be doing about ten times the number of solar installations this year as was done three years ago before your bill began to put us on the right track. And again, it's not just that we're achieving greater numbers of installations, but that scale and the incentive structures put in place, and the way the green bank has carried that out has lowered costs --

lowered costs for those who want to acquire those installations, but also lower the cost to the Connecticut ratepayer.

So I think we are seeing that we have got here a focus on not picking winners, you heard that, on providing consumer choice.

And I think even more importantly we're recognizing in an era of limited government resources, we're using small amounts of government money to leverage private capital, and really have that market test determine what moves forward and what does not. I think all of this is allowing to us drive innovation in the clean energy arena, and frankly particularly in the flow of resources, in financing for clean energy.

So I'm excited with -- about what we're doing in our department, excited about the platform that this committee created that we're building on in terms of our green bank, our zero emissions renewable energy credits, our low emissions renewable energy credits, our push across all sectors for greater energy efficiency.

And we do have in front of you a number of bills that help us build on that base, in effect cleaning up the bill from two years ago, 1180, codifying, again as you heard, some of the procedures that are now in place, the relationship between the department and our public utility regulatory authority.

And frankly, I think what we've got in front of you is a set of requests to work together to take Connecticut to the next level. Build on our successful programs, expand those, tweak the ones that need some adjustments, and make sure that we are getting the platform we need

for taking Connecticut to the next level in terms of leadership. And we are leading. You heard that already. We are leading the country.

Governor Cuomo in his State of the State speech two months ago, announced that he would launch a green bank modeled expressly on Connecticut's green bank. Massachusetts has started doing reverse auctions, recognizing that the strategy you all set out for us two years ago has driven down the price of renewable energy.

So I think this committee has a lot to be proud of. We're pleased to be building on it. We recognize there's more to do, and that's really what the legislation in front of you is about. We do need to make virtual net metering work more broadly and better. We need submetering to work broadly and better. We need to make sure that the all cost effective efficiency that this committee has charged the state government with carrying out is focused on and carried out. We've got a real need for greater resiliency in a state that's had periods of power outage that are unacceptable. We've seen the microgrids that are part of that package as important, and again we want to make sure that the platform is there to build out on these concepts that we together have worked on over the last several years. So with that I'll pause and take questions or your comments and thoughts and suggestions.

And I do want to say, one of the things I'm proudest of over the last several years of being Commissioner, is the work that we have done together. Executive branch and legislative branch moving issues back and forth, thinking together about the best path forward for our citizens, and to have done so, not only executive legislative cooperation, but

really on a very bipartisan basis. And do I feel that that is the foundation for progress we want, and you have my commitment and the commitment of the department to keep that process going.

REP. REED: Thank you. I know there are going to be lot of questions. I just wanted to kick it off by asking, I think what we're all asked frequently from constituents, is where -- what is it going to look like. I mean, given the fact that energy -- the more you think you know, the less you know. Something new happens. Clearly we never thought that we could harvest the shale gas and then the technology appeared, and suddenly we've got domestic product flowing like crazy. So that changes the equation.

But when we think about, at least from the short terms say to maybe 2017, 2020, what is that pie chart going to look like? How much natural gas, how much in the renewables piece of the pie? How much in terms of microgrids, you know, just sort of a sense of that so can we figure out where the puzzles fit.

COMMISSIONER DANIEL C. ESTY: So I do think, Madam Chair, you've highlighted complexity here is, in part, a function of significant uncertainties. We're dealing with a lot of moving pieces, and we're dealing in particular with energy markets that have evolved considerably in the last several years. And you correctly identify the sort of game changer of the last several years is the much greater access and availability of domestically produced shale gas. And that has, as you know, resulted in a -- in a fundamental shift in the energy pricing and marketplace such that natural gas, which for the last 40 years has moved with oil in price and has almost always

been more expensive, now is much cheaper than oil.

And we have analyzed our best guess as to what that market looks like out over the next 10-20 years. We've looked at a dozen different calculations, analyses, forecasts, predictions, and frankly we see almost no one that believes that oil will become cheaper than natural gas out over the next decade. So we are betting on the best information available. And again we're not arguing that everyone should convert, but we do believe that choice should be an available one, that is to say natural gas should be available to the largest number of people possible.

So what we do have in front of you, and what the legislation helps to move forward is a seven year strategy of trying to move from about 30 percent of the state having heating with natural gas to having about 50 percent or a little higher have the availability of natural gas. We don't anticipate that everyone will move to natural gas, but we anticipate that many who have the choice will. And frankly, it's not a function of state incentives. The fundamental driver here is the energy price in the marketplace. And that is what I think we should stay focused on, and ensure that we are creating a foundation of choice for the ratepayer and the consumer as to how they want to have their home heating done.

With regard to electricity, as you know, Madam Chair, we have just under half our power in the state coming from two big nuclear plants. Just under half the balance of that is from natural gas fired power plants. We have a very small amount of coal and oil being burned at this point, and we have a small but growing commitment and generation from renewables.

I would anticipate out over the next 5-10 years that the portion of renewables will rise, and my goal, and this strategy puts it forward and the legislation helps us with it, is to ensure that a greater percent of those renewable power resources are in-state. Right now we are buying a very significant part of our renewables out of state. And I think we would like to have a larger percent in-state, and I think this committee's leadership in setting up incentives for solar power and renewables more broadly is delivering on that. So I'm pleased that we can tell you that what your vision was two years ago, I think we're on track to deliver.

But I do believe we will need, and again this legislation, the package in front of you sets this up, we will need to be very careful in how we acquire renewables above and beyond that which we know we can do in-state. A very careful in that that the Governor's commitment, I think the ratepayers insistence is to make sure to get those renewables at the lowest possible cost, and I think we anticipate being able to do that. Some within the region, perhaps including wind power, which there are resources being built.

But it may involve, as I think all of you know, some acquisition of renewables more broadly, perhaps including Canadian hydropower.

So I think over ten years we'd expect to see a diversification of the energy resources available in the state and a broadening of the power sources we're relying on in the electricity market in particular.

REP. REED: And in terms of the Canada hydro, what's the timeline for that? Is that something that's going to happen soon?

COMMISSIONER DANIEL C. ESTY: I think there is both an opportunity to begin a process of exploring Canadian hydropower as an option for us in the relatively near future, but it would probably ramp up over some years after that as the transmission necessary to make that a larger scale option gets built.

REP. REED: And then one more quick question, and I'll throw -- I know Senator Duff has a question as well. So we're hearing a lot about now the congestion in the pipelines and the demand, the winter demand at this point, for natural gas, because it drives our power plants in our New England ISO.

So it feels as if something has to happen in order to provide more volume if we're going to be expanding the residential consumers and industrial consumers. What does that look like, and what do we have to do to help make that happen?

COMMISSIONER DANIEL C. ESTY: So, Madam Chair, as you know, the Comprehensive Energy Strategy went out in draft in October. It was finalized last month, and what you saw in the final is a much greater focus on exactly the issue you highlighted. That is to say, we need to have a very strategic approach to increasing the availability of natural gas for Connecticut consumers in the years ahead. And that will involve a structured effort to bring in more pipeline capacity, and that is a high priority in the department now, is ensuring that that capacity does expand at the earliest point in time possible.

And one of the things that you touched on a little earlier is the pipeline, the willingness of the pipeline companies to build capacity, build new pipelines or expand existing pipelines is a function of the clarity of the demand for that natural gas. And one of the reasons that we have the $500 tax credit is to sharpen and clarify what the demand for natural gas will be in the years ahead.

So this is not about subsidizing one energy cost over another. It's about clarifying the demand, both for the purposes of having the most cost effective infrastructure buildout and for ensuring that we get the pipeline capacity built that we need. There are other related issues attached to that question as well, including the number of power plants that acquire a natural gas with what's known as interruptible contract, meaning when the price -- when the demand is short -- I mean, the demand is high and the supply is short, the natural gas companies can divert the gas from the power plants. This is, I believe, not a good position for us to be in.

I would rather have some of those power plants on uninterruptible contracts so that the demand is clearer, and again the commitment will be there to build out the pipelines and the capacity we need.

REP. REED: Thank you. Senator Duff?

SENATOR DUFF: Thank you, Madam Chair. Good afternoon, Commissioner. Thank you for being here. And I recognize with the good representative's comments that there are a lot of moving parts to this legislation, with the Comprehensive Energy Strategy, and I know you've worked very hard on it.

I guess, you know, in your testimony you've talked about how other states are modeling some of the things that we have done and are doing. How do we continue to stay ahead of the curve on a lot of this stuff so that states are always following us, and we're not following them? And I guess the second part of my question would be how do we look at this from an economic standpoint? How many -- besides cheaper, cleaner energy, how do you view this as an economic model as well from a job standpoint?

COMMISSIONER DANIEL C. ESTY: Thank you Chairman Duff. I -- I think what we have seen is that the Governor's fundamental commitment to cheaper, cleaner, and more reliable energy resonates broadly with the public.

I would say that the history of energy in this country is a whole world of people are focused on clean energy, but we're inattentive to the need to keep energy cheap. And there are a lot of people focused on cheap energy who are inattentive to the need to make energy cleaner over time. And I think what this Governor has done, and I've been proud to lead the department to try to execute on his vision is to focus on cleaner and cheaper together, and I believe that is how we actually set out a future where Connecticut will be leading the way and others will follow.

And I think we're setting up in the legislation here a number of the elements necessary to maintain that leadership. We are sharpening incentives and recognizing that harnessing market forces is our best strategy for both keeping prices down, having competition drive us to technologies that are going to be cheaper and cleaner. Of ensuring that we recognize we can't do well in picking winners, but we'd

rather have the marketplace play out which technologies will become cheaper.

And frankly, that's the answer to your second question. By being seen as a platform where clean energy ideas are being deployed and built out, we are going to be at the heart of a clean energy economy that is growing all across the country, all across the world, and where Connecticut is increasingly seen as a test bed. A place that people with good ideas, and you'll hear from dozens of them, I think, over the course of the day, want to come because we have put forth a set of carefully constructed policies that use our limited government resources to leverage private capital, but create an opportunity for marketplace success.

And I think you're going to hear about a range of renewable power options that are out there. And I don't want to pick, you know, Representative Reed asked me to forecast what the world looks like in 10 or 20 years. One of the things I say is, although I spend all of my time thinking about that question, and have done so for 20 years, I'm still of the position, of the opinion that I'm not going to predict as well as the market will deliver over that ten year period. So I'm trying to create a platform with your help and guidance that allows us to have lots of ideas played out, harness the spirit of innovation that this state and this country is so good at, and let the market determine where those technology breakthroughs will occur, where the cheaper, cleaner options will emerge.

But I think there is, in the process of getting there, an enormous amount of economic activity that will be related to it, lots of jobs, and a great potential going forward for Connecticut to be a leader in that new area of economic

activity.

SENATOR DUFF: Thank you, Commissioner. Thank you, Madam Chair.

REP. REED: 'Thank you. Representative Steinberg.

REP. STEINBERG: Thank you, Madam Chair. Thank you, Commissioner for being here today. But far more importantly, thank you and your staff and the staff at CEFIA for all that we've accomplished in the past two years. It wasn't all that long ago that we were just talking conceptually about a grand landmark energy bill, and as you -- as you testified today, think of all the things that we have accomplished that have already given the change to calculus as to how the State of Connecticut is viewed in both its energy costs, but also its energy opportunities.

So I'm really very glad that we can be having this conversation today. And honestly, I wasn't so sure we'd get this far in two years. So congratulations to everyone.

COMMISSIONER DANIEL C. ESTY: Thank you.

REP. STEINBERG: A couple of quick questions. We've had a lot of conversation today about the natural gas and other things. But I'm always attracted back to the part of the Comprehensive Energy Strategy that relates to conservation. As you've already testified, we've made some great strides on state buildings, and now we're moving forward in the municipal sector. We now have C-PACE as incentives out there. But as I'm sure you would agree, the -- the building stock of residential and commercial in the State of Connecticut is of a certain vintage, if you will, which leaves itself very vulnerable to wasted energy. And beyond just

the financial incentives that CEFIA has put in place, and will put in place, and the leveraging very important to all of us, what else does the department intend to do in order to further promulgate, if that's the right word, the kind of conservation we're going to need if we're really going to drive down our costs and reduce our carbon footprint.

COMMISSIONER DANIEL C. ESTY: Thank you, Representative, and thank you for appreciating what has been an extraordinary two year run of repositioning where Connecticut is on these issues, and I think it's exciting together to be working on what the next phase of that will look like. And thank you as well for putting forward the question about energy efficiency. And what we're committed to is a broad set of incentives and particularly financing for the energy efficiency that we know needs to be done. Several of you have commented on the older housing stock. It means we have lots of opportunity and efficiency. We've done a lot in the last few years, but we have more to do, much more to do.

And with regard to the municipal buildings, schools, and hospitals beyond, we have an outstanding opportunity with the standard performance contract that we've created. Many of you know that there are energy services companies that will come in and help you do an energy audit, will make the changes necessary to improve efficiency. Will, in effect, even finance it by being repaid in the savings that are accrued over time. There are many municipal leaders hesitant to do that because they thought it wouldn't get a good deal. The state's standard performance contract in setting up of a list of approved contractors is a big step forward, and in broadening that flow of resources into the municipal marketplace,

schools, hospitals, and so on beyond that.

You mentioned our commercial PACE program. That is another way of getting the flow of resources going, in this case to our commercial and industrial ratepayers who need the benefit of efficiency to stay competitive, and competitiveness is one of the really critical foundations of this energy policy. But that PACE program is property assessed clean energy, as you know, and because it's repaid on the local property tax bill, the risk of default is low, and therefore the rate of interest is low. So it broadens the number of parties for whom it'S attracted to make those clean energy investments.

And frankly, that is really the key here, is getting lots of resources, lots of flow of capital into efficiency. It's why I'm excited about expanding on-bill financing of energy efficiency, and it's also the answer to a question that was raised earlier, what about the oil dealers? Yes, we do want to encourage people to think about the option of natural gas, but we are equally committed to what we call no furnace left behind.

And that is the idea -- that is the idea that we would provide financing for those who are not going to have a natural gas option, of financing for them to get the best, cheapest, most efficient oil burning furnace or propane burning furnace so that they can too be part of the movement towards lower heating bills. So we're -- we're not leaving anyone behind. We're not picking winners here. We're simply trying to ensure choice and the maximum degree of investment possible. Investment particularly of private dollars leveraged by limited government money in building out that efficiency commitment.

REP. STEINBERG: Thank you, one more quick question, if I might, Madam Chair. I'll just also comment that I'm really quite surprised that you failed to mention the creation of jobs in the state. I've heard somebody mention the DEEP has an extra E in it on occasion. We should not forget with all the contracting language, and also when you talk about helping the oil companies transition, we will hopefully be creating jobs in the state as well, I know that is very important to you.

COMMISSIONER DANIEL C. ESTY: So I did say in answer to Senator Duff's question, I think we're at the heart of the new clean energy economy that's coming. But just to put a finer point on that, we do believe about 7,000 jobs a year will be created in the buildout of this new natural gas infrastructure. That is to say, connecting houses up, laying new mains, building out the pipelines.

So there is a substantial economic uplift from that investment in Connecticut's infrastructure that provides us with a broader base of choice going forward, and frankly that choice and alternative lines of supply are also what's critical to keeping the cost of energy down.

REP. STEINBERG: Thank you, and just my one last question. I know that we're -- you've given us a lot to focus on with 6360 here, but I can't help but look ahead a little bit, because you do have testify with regard to the RPS report, which we understand is coming down the road.

Obviously you've encouraged us not to make any precipitous decisions prior to having seen that report, and I'm eager to see it.

But you made mention today of your desire to

see that we could increase domestic renewables, and I'm hoping that will be something that will be either part of the report or in subsequent recommendations, because I think that's important to many of us here.

COMMISSIONER DANIEL C. ESTY: So I think I don't want to steal the Governor's thunder on this. I think we do have a renewable portfolio standard report coming next week, which we'll be eager to work with you on to lay out the options going forward. But I think the Governor's been clear. He wants to position Connecticut as a leader on renewables. Wants to continue to expand our vision of where those renewables come from. Wants to move to the extent possible more of that production to in-state, which again, I think we've done a good job with already, again this committee has led us in that direction. And then beyond the in-state component, working very hard to ensure that we're acquiring renewables at the lowest premium to the market possible, so that we're really ensuring that the ratepayer get the very best deal. Deputy Commissioner, do you want to add anything? Jesse?

DIRECTOR JESSE STRATTON: Perhaps just one thing to the first part of your question, Representative. And it goes back to one that Senator Duff also brought up. One place that we are not leading our neighboring states in is investments in efficiency.

And Section 3 of Senate Bill -- excuse me, House Bill 6360 really tries to address that issue straight on, and ensure that we do, indeed, make those investments and all efficiency measures that are cost effective in moving forward. And there are obviously many parts of that bill, but the Governor has made it very clear to us he wants us to be number

one in efficiency, and we are not. And that section of the bill is a critical part of getting us there.

COMMISSIONER DANIEL C. ESTY: If I can just echo that, that is incredibly important, and to one other point, we have a category of fuel, and it is the fuel oil dealers who have also not contributed to efficiency in the way that they need to if we're going to be number one. So Representative Miller was very concerned that we're not picking a winner and it wasn't fuel oil dealers. Well, fuel oil dealers have not stepped up to investing in efficiency the way every other fuel has. So we need the industry to play a role alongside of the gas industry and the electric industry. So if we're talking a level playing field, there's some work to do on the fuel oil dealers side of the equation.

REP. STEINBERG: Thank you, Madam Chair.

REP. REED: Thank you, Representative. Any more questions for Commissioner Esty? Representative Piscopo.

REP. PISCOPO: Jesse, Dan. I was just wondering, on Section 4 of 6360, it seems that when you're measuring the ambient air quality that you've eliminated those known pollutants, nitrous -- the nitrous and sulfur compounds, and now you're going to just regulate carbon dioxide. Is that how I interpret that section?

COMMISSIONER DANIEL C. ESTY: I don't think so, but I'm going to let our Policy Director, Jesse Stratton answer.

DIRECTOR JESSE STRATTON: Thank you, Representative. That section is being -- we are proposing to amend it because it was an attempt to establish a performance standard for

all generation units which we cannot legally do because it's a violation of the commerce laws. So we both recommend a change in that statute to enable us to, under RGGI, address imports and then in our testimony we have added language that would also grant the Commissioner for the entire RGGI allowance (Inaudible).

REP. PISCOPO: When you say address imports, is that a -- you will regulate the air quality of that energy that we import into the state?

COMMISSIONER DANIEL C. ESTY: So one of the things that we do put forward here is an attempt to bring our state regulations regarding our regional greenhouse gas initiative in line with the program review that was just undertaken by the RGGI states. So we're, in effect, updating our regulatory framework. One of the things we've recognized, Representative, is that we are asking the utilities to generate power within the state to buy emissions allowances equal to the amount of emissions they generate.

It is not a level playing field if those that are importing power from outside our region into the RGGI states don't bear similar emissions obligations. So we want to make sure going forward that we do have a level playing field and that power imported from outside our region bear allowances to the extent there are emissions as though that same production were inside the RGGI region.

REP. PISCOPO: Okay. And at the end of that same section it seems that you're setting up a cap and trade on carbon dioxide. I'm under the belief we already do that.

COMMISSIONER DANIEL C. ESTY: We're not setting it up, we're simply refining what we already do.

REP. PISCOPO: I see. Okay. Thank you. Section 10 with this audit rating on industrial buildings and commercial buildings, and Section 11 with an audit rating on residential buildings, where does the department plan to go with that?

COMMISSIONER DANIEL C. ESTY: We think there's an opportunity here to again harness market forces to help sharpen the focus on energy efficiency. We think that there is a real value in having those that are about to rent an apartment or buy a house have clarity about whether they're getting an energy efficient home or an energy efficient apartment.

We start out here in the commercial and industrial -- or commercial category where we think there's more traction, where there's a fairly well established track record.

But I think the principle that the public should be given information about the buying decisions or renting decisions they're making is a good one.

REP. PISCOPO: Thank you. And then if you could look at line 796 is that the sulfur -- is that the sulfur -- the sulfur requirements for next year that are due to -- in home heating oil that is due to come in in 2014.

COMMISSIONER DANIEL C. ESTY: Right.

REP. PISCOPO: You've changed 2014 to 2013. Is that sulfur content available? Is it being refined and available?

COMMISSIONER DANIEL C. ESTY: Yes, it is. The market has shifted dramatically as New York has moved to low sulfur fuel. So the base fuel in our region now is going to be, as a result of New York City's leadership, is going to be a

low sulfur content. So that is where we think the bulk of the market is going to be, and therefore there would be, in fact, a challenge if we were trying to be high sulfur at a time when the bulk of the market is low sulfur. So we're following the leadership of others here, and trying to make sure that we're capturing a market trend that we think will allow to us move to low sulfur fuel, which is much better for the environment, but in a cost effective way.

REP. PISCOPO: Thank you, Commissioner. Thank you Madam Chair.

REP. REED: Thank you Representative. Representative Miller.

REP. L. MILLER: Thank you, Madam Chair. Good afternoon Commissioner and ladies.

Regarding the submetering in the condos and apartment buildings, that will be a cost that the owner of the buildings or the condominium association will assume, I think, right?

HB5587

COMMISSIONER DANIEL C. ESTY: Yes.

REP. L. MILLER: The state will not be involved in that?

COMMISSIONER DANIEL C. ESTY: Correct.

REP. L. MILLER: Okay. And regarding renewables, we can't meet our goals presently. Whatever the dates were set up, were 2014, 2018, whatever the dates were.

HB6532

COMMISSIONER DANIEL C. ESTY: We're meeting them currently, but we see some challenges out in the years ahead.

REP. L. MILLER: Yeah. You mentioned the Governor is going to have another renewable portfolio statement. Is that going to in any way effect what we have today?

COMMISSIONER DANIEL C. ESTY: Yes, we're going to propose a strategy for refining our renewable portfolio standard that we think will keep Connecticut in a leadership position, but also perhaps give us a broader framework to work with, and a wider array of renewables that could enter our marketplace. So we're looking at that and looking at ways to continue, again, to push the clean energy opportunity in Connecticut, but do so in a way that has the lowest cost possible when it comes to what ratepayers have to bear.

REP. L. MILLER: What impact does the conservation of load management credits when they disappear, what is that going to have an impact on the market?

COMMISSIONER DANIEL C. ESTY: I'm not sure I understand your question. But when I have that problem, I always ask Jesse Stratton to answer.

DIRECTOR JESSE STRATTON: Thank you, Commissioner.

COMMISSIONER DANIEL C. ESTY: I wouldn't be here without her.

DIRECTOR JESSE STRATTON: I'm not sure I understand either. Sorry.

COMMISSIONER DANIEL C. ESTY: Katie, it's your turn now.

DIRECTOR JESSE STRATTON: I guess the one thing I would say is that it's important to recognize that when we have credits for conservation under Class 3 renewables, those -- are you

trying to get at the oversupply of those right now?

REP. L. MILLER: I just want to know how it's going impact the market.

COMMISSIONER DANIEL C. ESTY: I'll try and answer.

DIRECTOR JESSE STRATTON: Okay, all right. Then it's --

REP. L. MILLER: Some of these companies have come to rely on this.

COMMISSIONER DANIEL C. ESTY: We believe that the buildout of energy efficiency is best done through a flow of conservation load management funds that allow us then to leverage particularly through our green bank and some advances like on-bill financing and our C-PACE program to expand energy efficiency as we need to, both across a broader set of sectors and potential places, and also to deepen that commitment so we're not just doing what I call light energy efficiency, changing out the lightbulbs, doing some weather stripping, but really looking at whole systems, heating, lighting, air conditioning, insulation, windows, appliances, furnaces, everything including the Coke machine. So I think we do want to go there, and we think the direct financing is the way to get there. Having efficiency credited as a Class 3 renewable we think is an awkwardness that we'd like to evolve away from eventually over time.

So we want to have a robust renewable energy credit marketplace, but we think there may be some tweaks that are advisable in that regard.

REP. L. MILLER: Well any of these companies that do have cogeneration, Kimberly Clark, Sikorsky

Aircraft --

COMMISSIONER DANIEL C. ESTY: So cogeneration is a separate issue --

REP. L. MILLER: (Inaudible) financially.

COMMISSIONER DANIEL C. ESTY: Yeah, we are with you in believing that there needs a structure of support for cogeneration. You want to add --

DIRECTOR JESSE STRATTON: Yeah, I think in the CEF what we were recommending is that Class 3 includes, as the Commissioner was just saying, the CHP, the Kimberly Clarks of the world, but it also includes the credit for savings from efficiency programs. A very, very large portion of the current Class 3 RECs supplying to that are coming from utility-funded efficiency programs. And that is what is creating the very low value for availability of those for the CHP. We are recommending that we save out the applicability of credits for efficiency that are funded by ratepayers from that category.

COMMISSIONER DANIEL C. ESTY: So it really is a function of trying to make that REC marketplace work better, and right now there is a oversupply of that Class 3. And we would like -- and this is the Kimberly Clark problem. What they need is a tighter marketplace. So that's what we're proposing to do to try and tighten up and put a better balance of supply and demand into that Class 3 marketplace.

REP. L. MILLER: So now will their costs increase?

COMMISSIONER DANIEL C. ESTY: Oh, no, Kimberly Clark -- value of its RECs will increase. They will have a greater potential to sell those RECs in the market and so their costs will

decrease. That is to say, they will have a -- more value.

REP. L. MILLER: Smart meters, when do we plan to implement that program?

COMMISSIONER DANIEL C. ESTY: Our Comprehensive Energy Strategy calls for a movement toward investing in smart meters.

We come to recognize as our department dug into the details, that we want a smart smart meter program. And I think previously we hadn't appreciated fully the need for great clarity and care in what kind of smart meters we move toward, how quickly we move towards them, which segments of the marketplace we push them into first, but I do think there is an opportunity here to drive efficiency through smart meters, to have smart meters play a role in one of the other critical priorities of our energy strategy, and that is to help ensure that we have shaving our peak load.

Because Connecticut pays a terrible price for those peak load demand days when we are having to do three things that are a problem. One is to kick on our dirtiest old power plants, and that creates the highest air pollution days we have. Second, we pay a very high price for power on those peak load days. You know, sometimes 20 cents a kilowatt hour or even more. And third we have to pay those old plants so-called capacity payments to sit around waiting to produce, sometimes only 10 or 12 or 15 days a year, and in some cases 10 or 12 hours a year.

So we're paying millions of dollars in capacity payments. So if we could succeed in shaving peak load, there would be huge benefits to every ratepayer, because we all absorb those

costs for those peak days. So we are looking at smart meters, more of a smart grid that should help with that, time of use pricing, all of these things would help us shave that peak load pricing.

REP. L. MILLER: In Colorado they had a problem with smart meters. The company that installed them, I don't know whether they low-balled them or what, but the price escalated from 44 million to over 100 million. And now I guess the ratepayers are going to get caught with the bill.

COMMISSIONER DANIEL C. ESTY: Well, Representative, that's why we've been moving carefully and cautiously on the smart meter front. Because, again, we want to make sure when we go forward with something it is a smart smart meter package with the right technology, tailored to the needs of Connecticut, and rolled out in a way that makes sense across various classes of ratepayers.

REP. L. MILLER: And we're going to pay for the installation of the smart meters, is that true?

COMMISSIONER DANIEL C. ESTY: The ratepayers will, yes, that's true. But they will also save money. It's like all of these things, it's an investment up front, it pays back over time.

REP. L. MILLER: Hopefully.

COMMISSIONER DANIEL C. ESTY: I think the evidence is very strong. There are exceptions where it's not worked out well, but there are many places now where, including states you wouldn't think of as energy leaders. South Carolina, where everyone is not -- virtually everyone is on smart meters with huge benefits. So again, done right, the promise of a payoff is

substantial.

REP. L. MILLER: South Carolina, do they burn coal to make electricity?

COMMISSIONER DANIEL C. ESTY: They do. And they're still focused on using the smart meters as a way to reduce the amount that have to acquire.

REP. L. MILLER: Most states down there use coal, the southern states.

COMMISSIONER DANIEL C. ESTY: Well, they have coal, they have a lot of nuclear there as well.

REP. L. MILLER: Yeah. And lastly, the gas companies are increasing their demand because customers are coming by all the time. They're really -- without government intervention people are switching to gas, and the gas demand is growing. And we're at the end of the pipeline. I know this is a seven year program, but we're at the end of the pipeline. With the increase in demand for gas just on a normal basis, will there be any problem with supply?

COMMISSIONER DANIEL C. ESTY: So I think we talked about this a little bit earlier. By the way, we're in the future not at the end of the pipeline. The Marcellus Shale is 75 miles off our western border.

So one of the things we're working on carefully is how do we make sure our proximity to the largest of these shale gas deposits is a resource that we bring to Connecticut on a more cost effective basis. And that does require, as we were discussing earlier, require some investment in expanded pipeline capacity, whether that's a broader, bigger pipe on the existing lines or some new pipelines. But we're very focused on that. We're working with

our neighboring states, because this is probably best done as a regional procurement, as a regional effort. Along with the wholesale electric marketplace leaders, the ISO New England to ensure that we're thinking this through. And again, the key here is to get clarity around the scale of demand ramp-up so that we're building pipeline infrastructure in parallel with the growth of demand.

REP. L. MILLER: I know there's two or three pipelines that are bringing gas up or extending their pipelines to the tri-state area, and Connecticut will benefit from it. But that's going to take time before they get up here. So that's why I had a concern about supply. The shale that we're talking about, I don't know if there's a pipeline directly to Connecticut from there.

COMMISSIONER DANIEL C. ESTY: Well, there are pipelines that are in place, but there is also a lack of capacity at the Hudson River, and the recent spike in gas prices was very interesting to note that it did not occur in New York.

So we do have a bottleneck here, and we're very focused on addressing that bottleneck, and that does argue for getting new capacity built, but the key to the new capacity is clarity about the rise in demand. That's again, why the $500 tax credit is essential so that we get a clear picture on the aggregation of demand so that we will get the investment in pipelines that are necessary.

REP. L. MILLER: Lastly, New York is going to a -- I forgot, 15 or 50 parts per million? There's a wholesaler on the border of Connecticut, it's in New York. And they're going to take care of the needs of New York. And Connecticut, lower Fairfield County will have the benefit. If the

dealers pick up their oil at this wholesaler of getting a low sulfur fuel right there in their neighborhood.

COMMISSIONER DANIEL C. ESTY: Which is why we think the Connecticut standard should go to a low sulfur target so that we're in the same integrated marketplace. And Connecticut is going to pay a price if we're standing apart from what New York is doing in this regard. We'd rather be integrated and at the same standard, and therefore in a position to have the same market that New York is attracting available to the Connecticut ratepayer, in this case, gas -- oil purchaser.

REP. L. MILLER: Thank you Commissioner. Thank you, Madam Chair.

COMMISSIONER DANIEL C. ESTY: Thank you.

REP. REED: Thank you Representative. Representative Becker.

REP. BECKER: Thank you Madam Chair. Good to see you again Mr. Commissioner and Katie and Jesse. Excuse me, I have a frog in my throat. Getting over a cold. Good to see you all. I want to echo Representative Steinberg's comments. I think a great deal of progress has been made in the last two years. I also want to recognize one other member of your staff who I see in the room, Alex Kragie, who's headed up the Lead By Example Program and done a great job thus far with that. But I also love the fact that while you've done a great job, and we've worked collectively together, none of us are resting on our laurels because there's still so much to be done.

And you mentioned renewable energy, and you know, as we all know, I think one of the

holdbacks, and one of the reasons why renewable energy is not advancing perhaps as quickly as we'd like is, you know, people view it, and think of it as something we can't use as a base load, and that's because you've got solar energy, you've got wind, but there's no way to adequately assure that that energy will be available when needed. And so energy storage, obviously, is a key component to that. And I know that you mentioned that in the Comprehensive Energy Strategy.

And you know, we may get more efficient means of producing the renewable energy as well.

So a comparison I like to make is in the computer world, the first computer was named ENIAC, it filled a room this size at the University of Pennsylvania, and essentially it was able to add 2 + 2. And today we told in our hand technology that is much more powerful. Computing power that is much more powerful than that computer in the size of our hand. And so; likewise, with photovoltaics, for example now people put solar panels up on their roofs to heat their hot water, but who's to say that someday we won't hold something in our hand like this that could power a whole neighborhood.

And I understand that at the University of Connecticut right now there's a professor up there who just got a patent. There was an article that just came out, he's got a patent, he's working with nanotechnology, and it's got the theoretical possibility of converting 70 percent of the sun's power into electricity rather than the current 20 percent conversion rate of the current photovoltaics. And so it's these types of technological advancements, these next leaps forward, that you know, I'd love to see Connecticut leading the world,

frankly, in developing this. Because we'd be among those who would most benefit given our energy rates. And it's using the brain power we have in this state and putting it to good use and creating products that hopefully we could then export to the rest of the world, and make a real difference there.

So again in your Comprehensive Energy Strategy you mentioned energy storage, you mentioned renewables, and the University of Connecticut and trying to, you know, collaborate to move this forward. And I was hoping you might be able to give us a little more detail on that, a little more detailed thought on how you'd go about doing that, and the things you see in the works at this point.

COMMISSIONER DANIEL C. ESTY: So Representative, thank you for that question. One of the central thrusts of the energy strategy is to try to drive innovation, and again, we believe that innovation is partly in technologies, partly in the flow of resources and finance, partly in the policy framework in the incentives. So we're investing in innovation broadly.

But your push on technology is a good one. And it is key to success over time. And all of this strategy is really, we think, a bridge to a clean energy future where the clean energy opportunities, the renewable power, the alternative energy will come in cheaper than the fossil fuel base that we work with now. But we have to proceed on many fronts in order to get there, and one of the critical ones that would make renewables much more attractive is the ability to store the power. Because what holds back wind now is what happens when the wind doesn't blow, or solar power, what happens when the sun is not shining? So we do need

better batteries, better storage. And you're right, our energy strategy does call for exploring the launch of an advanced energy innovation hub that could be at the center of kind of driving the investment in research that could build out these technologies. And we hope to have more to say about that in the months ahead, because we think it's a very important part of the broad package of commitment to innovation.

REP. BECKER: And this Legislature has been asked to invest a great deal of money in UConn, Next Generation Connecticut, and in the Finance Committee we were speaking with faculty from UConn, President Herbst, Provost Troy, and we were asking questions about this too. And I just want to make sure that the administration is singing with one voice, and that our Commissioner of Energy is going to be pushing hard to make sure that a good deal of this investment that we're making will be going in -- I know we're talking STEM generally, but also specifically into energy, renewable energy, and energy storage advancements.

COMMISSIONER DANIEL C. ESTY: So at the time Dean Troy was a great partner as we developed this idea about clean energy or advanced energy innovation hub. Now Provost Troy I think is going to maintain that commitment, and so, you know, I am excited about the prospects. I've talked to President Herbst about it. I think they share the idea that Connecticut is in a leadership posture on some of some of these ideas, and that we should build on that base and expand it.

REP. BECKER: Thank you for that. I just want to switch back to the subsidy for a moment with the natural gas.

And I thought I heard you say a couple different things today. One was that that's not really the focus. It's really the pricing on the shale that would drive the consumers, not really the subsidies so much. And so I kind of made a note myself that maybe it's not such a key component.

COMMISSIONER DANIEL C. ESTY: Let me be clear.

REP. BECKER: Go ahead.

COMMISSIONER DANIEL C. ESTY: It's not what is the essential element of the financing of a conversion, but it's critical, absolutely critical, to the demand aggregation that allows us to do two very important things. Which is to optimize the construction strategy of where to build out gas mains and to have clarity about the scale of the ramp-up in up natural gas demand so that we can get people invested in pipelines and expanded capacity.

REP. BECKER: And can you explain why that is critical? Why that is the critical piece to that?

COMMISSIONER DANIEL C. ESTY: Because the willingness of private parties to put in billions of dollars, to build pipelines in particular, has to matched with the expectation that they will get their money back because there will be new customers. And so how do we clarify for them that there are new customers? By sharpening the focus of those that might have access to natural gas now on whether they want to take advantage of that.

So it's really to -- and what we're proposing is a $500 tax credit for those who are not on gas mains now to understand who is near a gas main that could be part of that buildout, is

interested. And it would be a credit that is time limited. You know, roughly latter half of this year, and it would be paid out only over the next seven years, so the credit would be claimed as the construction occurs. So the cost, by the way, in answer to an earlier question is quite modest, something in the order of $7 million per year in tax credits that go to the gas companies and then are flowed through as a rebate to the customers. So it is a strategy for sharpening the focus of the public on the gas choice opportunity, and so we get clarity about where those -- where that interest lies and the scale of the interest, so that we can use that as a way to both have a more clear construction program that goes after the large numbers of people first.

Where you have a whole neighborhood that's interested, they'll get prioritized, and frankly it would also be part of what we work with gas companies to take to those that are pipeline companies, and say here's the scale-up that Connecticut is going to go through. We think you'll have an opportunity, if you build out new pipeline capacity to recoup that, given this growth in demand. But we can project based on the data we've gotten from this driven by the tax credit.

REP. BECKER: So just to make sure that I understood what you just said, which is over the last half of this year, should this come to pass, anyone who wanted to claim the $500 tax credit would have to sign up within that six month credit and would only receive the credit when the work was done in the years to come, but if they missed the six month window they don't get the credit.

COMMISSIONER DANIEL C. ESTY: Right. So it's

really a strategy that is fundamentally aimed at helping us understand where the demand is. Our concern is that the public doesn't want to bear down on choices, and often doesn't do it until somebody else has figured it out. And we think there is reason to believe that there would be value in getting people to think together.

Because as several people have mentioned, if you have a street of 20 houses and 4 people sign up, they're going to bear all the costs spread across 4 people. If 15 people sign up, you spread that same cost across 15 people, and it's much better to spread that cost. And that's how we drive down the burden on any one ratepayer of doing the buildout of infrastructure.

REP. BECKER: And if someone commits in the last six months of this year, and two years down the road the work hasn't been done yet, and they decide they no longer want to do it --

COMMISSIONER DANIEL C. ESTY: They're not forced to do it. It's just that if you don't sign up for it, you wouldn't be eligible for it later. So it really is -- it's really a planning tool more than anything. Yes, it does help subsidize the transition costs at a time when that will occur. And by the way, we do think that -- and some people have mentioned the market is also causing people to transition, but there still is a big burden.

For someone who wants to move to natural gas, you have got to get a new furnace. If you really want to take good advantage of it, you need a new stove and hot water heater, and maybe a new dryer. And that can be 7000, 8000, 9000 dollars of up-front costs, and that is a big obstacle for many middle class families in

Connecticut. That's why we're focused so much on financing of these changeovers, but also financing infrastructure. And we think the opportunity here is to help people overcome the up-front costs and spread those costs over time that make it affordable for middle class families.

REP. BECKER: Thank you Mr. Chair. Last -- last question, and that has to do with the mention -- one of the changes from the first draft of the Comprehensive Energy Strategy to the last is the inclusion of cybersecurity as an issue there. And could you address that, and, you know, there's just a little bit of mention in there, but I don't know if you have any more detailed thoughts on how we would go about putting that in place.

COMMISSIONER DANIEL C. ESTY: So one of the great benefits of putting out a draft in October that drew lots of comments, almost a thousand comments after five public hearings, five technical meetings, many other opportunities for people to give us feedback of all kinds, official feedback, individual feedback, personal views, et cetera, was the fact that we had not addressed the risks of cybersecurity was made clear to us. And the intervening dialogue in the public world over the months since October have added to that. As you probably know there have been some cybersecurity issues in the news in the last few weeks of potential penetration of our computer systems by not only companies, but governments looking for vulnerabilities, and one of the biggest ones that's been identified is in the electric grid.

So we do believe there needs to be a Connecticut strategy for investment against cybersecurity risk. It will be -- we've asked

Chairman Art House of our Public Regulatory Authority to take on this challenge. He comes to Connecticut, as you know, from a career in Washington in national security, including cybersecurity. So we think we're lucky to have one of the world's greatest experts on this topic in our midst, and we do believe there will need to be an action plan developed for the state. So we're looking forward to a report back from him that we can then bring to you all that might well involve some investments in countercybersecurity strategies. So we don't know what the answers to this will be, but we know that the question is important.

REP. BECKER: Thank you. Thank you, Madam Chair.

REP. REED: Thank you Representative. Senator Duff, and then Representative Bowles.

SENATOR DUFF: Thank you. Thank you again Commissioner, and everyone for being here. I want to ask a couple questions, one of which has to do with how the process with this legislation. And before I begin, I actually want to thank everybody in the audience for their indulgence and their patience as we go through this. Based on -- we have a lot of people in the audience, which means this is a lot of important legislation. That also means the committee members have lots of questions, so we do appreciate your indulgence as we get through the first few speakers that are going to take the most time.

A couple questions. On the Comprehensive Energy Strategy and some of the other bills we have. The Legislature and the department have been working very closely to work in a way that really pushes the envelope and sets the tone as to where we as a state want to go. And we've talked about economic development and many

other things. Though a lot of this becomes what the Legislature grants the authority of the department to do, and then it's up to the department to kind of carry out that strategy and that vision.

How do we -- I guess as a Legislature, how do we ensure, and I'm sure as leadership of the department as well wants to ensure that things get out the door quickly, that we don't -- that we don't somehow pat ourselves on the back for passing great legislation, and then all of a sudden it hits a roadblock in various departments or part of the bureaucracy of the state that the state will -- the executive branch will kind of see this as the same urgency, I guess, as we all have here in this room.

And so we don't come back in a year or two years, and say, gee, you know, this was a great idea, but it got stuck in -- on somebody's desk or infighting or something like that. How can we assure that this vision moves forward?

COMMISSIONER DANIEL C. ESTY: Senator, your sense of urgency is matched and upped by our Governor.

I know of no one more eager for this to be implemented than my boss. So I believe I will not be testifying before you next year if we have not made significant progress. Because this Governor will not allow that. So I -- I will also tell you, the Deputy Commissioner Katie Dykes has spent the weeks since her return from maternity leave focused on developing implementation strategy. So let me ask her just to speak for a few minutes about how we plan to keep the various pieces of the strategy, including the ones that require legislative support moving forward over the

coming months.

DEPUTY COMMISSIONER KATIE DYKES: Thank you, and I would just say that, you know, many of the tools that we need in terms of statutory authority or clarification of statutory authority are encompassed in 6360. And particularly, I would point to the clarifications around the conservation and load management programs in the state and the direction that we think the bill provides around the need to procure all cost effective energy efficiency. We've had three conservation and load management plans that have been submitted for consideration. We have a -- the integrative resource plan which DEEP released last year. All of these documents, of course, highlighting that there are cost effective savings that are out there, and that are just waiting for action and investment by Connecticut ratepayers.

We are falling behind other states in New England in terms or our investment in energy efficiency, and this means that there will be a cost of inaction. Because we pay for investments in the regional transmission grid based on how much energy we consume, and as our neighbors are consuming less and less, we will have to pay more and more, not to mention all the benefits of investment and efficiency which I think folks are aware of.

So what we have in front of you are really the tools that we need to do some of the high priority items that were highlighted in the conservation -- or the Comprehensive Energy Strategy, and particularly those around conservation load management are essential.

I think the other important pieces, you know, relate to -- for that energy efficiency

investment, giving up authorization around labeling.

We -- you know, in order to expand the industry for home performance and for building performance in the state, we need to have building owners have an opportunity for the market to recognize the value of the energy efficiency investments that they've made the same way that the market values, investments in granite countertops, for example. So that's just another example of a tool that this legislation could provide to help us meet those goals. So I've just highlighted those two, and I'm welcome to take questions on others.

SENATOR DUFF: Okay thank you. I guess we just wanted to comfort level going forward, and I know you've worked hard on Lean and other types of efficiencies over at the department.

And this takes a lot of work. Everybody recognizes that we can pass things, but it still takes a lot of work to write regulations, get things out the door. We understand your sense of urgency, and the Governor's sense of urgency. We just want --

COMMISSIONER DANIEL C. ESTY: Mr. Chairman, just to say, we've also, with this committee worked very carefully, and I think we have come back to you where we need additional authority or need to tweak something that we thought got us where we wanted to go. So I'm very grateful for the committee's willingness to play a role with us in ensuring that implementation does occur on track and where there's problems that we together to resolve them.

SENATOR DUFF: Thank you, and my last question is on a different subject. Can you explain a little bit for the committee the hurdle rate

that is being proposed, and how that relates to what is being done in Massachusetts?

COMMISSIONER DANIEL C. ESTY: So one of the challenges, and again there was conversation earlier with Liz Donohue and Paul Mounds. One of the challenges for getting the resources committed to the natural gas buildout that we proposed, is that the gas companies are constrained by current regulatory rules, current accounting rules, you might even think of them, in how much they can do and finance on their own.

And several people expressed a desire to have the gas companies finance more of this. Well, the way we get them to finance more is to allow them to spread the payback period over which they can recover the money they've invested.

So the move from a hurdle rate, and by the way, that's an awkward term, because hurdle rates apply in many other contexts in different ways. But think of it as the payback period over which the investment in hooking people up to the gas main gets spread. If we move it from 15 years which is the standard now or 20 in the state to 25 years, it's like having the option of a 25 or 30 year mortgage as opposed to just a 15 year mortgage. You can get more done, you have more capital to invest because you can spread the payback over a greater period of time. So that's really what the change in the hurdle rate is about, allowing us to spread costs. And we simply mention Massachusetts because the standard there is 33 years. So they're spreading costs even farther. And what it does is it allows the gas company to finance more of it internally, so it reduces the burden on the public in a way that we think is attractive.

SENATOR DUFF: Thank you very much. Thank you Madam Chair.

REP. REED: Thank you Mr. Chairman. Representative Bowles.

REP. BOWLES: Thank you Madam Chair. Thank you, Commissioner, for taking time to be with us today. I commend your leadership, and I think it's very fortunate to have you in your position. I appreciate that and the Governor's leadership on energy issues as well.

I think it's long been understood that natural gas was viewed as a transitional fuel to a sustainable energy future, relying heavily on renewable energy.

There are obvious concerns and controversies, though, about the process of fracking. And clearly the buildout of gas infrastructure in the state is relying heavily on shale, as gas supplies.

I would just ask, if you could, please, share with us any environmental concerns you have about that particular process. Thank you.

COMMISSIONER DANIEL C. ESTY: Thank you, Representative. So I think our Comprehensive Energy Strategy which, as you say, does call for a ramp-up in natural gas use in the State of Connecticut, but it also does recognize the fracking concerns that you highlight. And as someone who's watched this phase carefully over time, I remain very concerned about the risk of contamination of groundwater in the course of fracking, and the fact you may not have sealing of the wells done properly.

I remain concerned about the migration of gas in the process of fracking. It could enter

homes and contaminate wells. I remain concerned about leakage, both at the time of the drilling and in the pipeline of that methane that is a very potent greenhouse gas, 23 times more radium forcing than carbon dioxide. So these are issues of real concern, and I think we have focused on them in the Comprehensive Energy Strategy, saying that we would expect the gas brought to Connecticut to be explored for, drilled for, and transported under the tightest environmental regulations possible.

There is no way to eliminate all risk, but we think strong regulatory structure can minimize the risk of environmental damage. We frankly think that some states are moving in the direction of really having quite appropriate and rigorous standards for fracking. California has recently put forward some very thoughtful, hard-nosed regulatory requirements. We think some other states need to step up their game, Pennsylvania in particular.

And at the same time we think we can play a direct role in building out new pipeline infrastructure that will be much less leaky, and that's very important to achieving environmental gain from a shiftover to natural gas. Natural gas does burn much cleaner than oil; much, much cleaner than coal, but its broad environmental gain is greater if we can ensure that we have minimal leakage in the system, and that is part of our package.

REP. BOWLES: Thank you, Commissioner, thank you, Madam Chair.

REP. REED: Thank you, Representative Bowles. Representative Morris?

REP. MORRIS: Thank you, Madam Chair. Thank you, Commissioner, thank you for your leadership on this issue and just everything in general. You've done a fantastic job as far as I'm concerned, although I'm not your evaluator. We certainly hope you'll be here beyond next year.

COMMISSIONER DANIEL C. ESTY: I might ask the Governor to consult with you.

REP. MORRIS: Okay. Can you -- you know, this is a lot to discuss in terms of jobs to some extent. Jobs create -- I mean, certainly I'm impressed, the majority of my constituents would certainly say whatever you can do to reduce our energy costs, we're happy campers, and if you're doing something to address that need, and it sounds like this is something that does do that. It provides them an option and a way to finance that option. Because typically constituents in my communities, and those who are in the urban communities, that would be the greatest difficulty, if they would want to make the conversion, they wouldn't have the ability.

But I am impressed with the fact that you have also coupled another idea with this that we're hearing in terms of jobs. And for the last few years, jobs, jobs, jobs has also been a major concern, how we do that. And you discussed earlier, that certainly with the changeout for those that are concerned about the oil distributors, whatever, there's still an opportunity for maintenance and installation. I think it was with Representative Becker, you also talked about the whole pieces -- there's also water heaters and other things that can be done. My question would be in terms of your overall strategy in how we can really connect this to an economic strategy as well.

What type of consideration has been given to

see to it that it's somehow all inclusive. When I say all-inclusive, I'm talking in terms of what kind of participation opportunities this would create for small women and minority businesses, which are then able to take those same dollars, and fuel them within these communities. What kind of opportunities are there even in terms of unemployment for those who are unemployed, because there's always been this piece that you've done a fantastic job, and this committee has in the past, in terms of green jobs. So if you can make those connections for me, I'd appreciate it. Thank You.

COMMISSIONER DANIEL C. ESTY: So Representative Morris, first, let me say thank you. I've appreciated our conversations over the last few years, that you've made clear to me that the low-income community in particular needed to have access to the financing that would allow every citizen of Connecticut to have the opportunity to invest in greater energy efficiency or renewables, and I think we have made special efforts, and I hope the testimony from our green bank leaders this afternoon will help bring some of that to the fore.

But we have created some very special targeted programs to insure that every homeowner, and frankly every apartment dweller over time gets the benefit of these efficiency programs. And we do think the buildout of energy efficiency, to scale up our commitment to renewables is creating hundreds of jobs throughout the state.

And one of the things, you know, the Governor launched just two weeks ago was our Small Business Energy Efficiency Strike Force. It was an idea that former Chair Fonfarra had, and one that we're pleased to have now carried out. There will be teams of folks spreading out

across particularly our urban areas to help those small businesses that wouldn't think to pick up the phone and call to get help, but help make sure that they're aware of those energy efficiency opportunities, help clarify for them what could be done, and how to finance it.

So we're very pleased to help particularly what I think will be a number of small businesses, including women-owned or minority-owned businesses to ensure that they are getting the benefit, along with everyone else, of a lower cost structure, improved competitiveness, and frankly greater prosperity and the opportunity to grow jobs within their business. And then second of all beyond that we do think that the whole clean energy arena is a job creator, and we in the state have benefited already to the tune of hundreds of jobs.

We do think there's a need for more training. I have been working with our Department of Labor on a green jobs task force that is trying to ensure that we're developing the curriculum for training. And I have visited some of the vocational schools that are out there now preparing their students for this new arena. And the folks that do heating and air conditioning are now looking at how to ensure that their curriculum is adjusted for the gas furnaces, adjusted for the high efficiency furnaces. And to understand that there's a way to pipe a house that's going to be more efficient versus less.

So I think the idea that there is a green jobs component here is starting to take root, and frankly the key to success for us is not to do that, but rather to embed it in all these other places, whether it's community colleges or vocational schools, and also to ensure that we

are getting the full range of citizens aware of these opportunities is something we know we need to do more on.

REP. MORRIS: Thank you very much, Commissioner. And again your leadership, and it's evidenced by what you're saying now and in conversations we've previously had. I think if you look at this strategy, we think that just in terms of the energy, but I appreciate the fact that it looks -- it appears to be a lot more comprehensive than that. And that should save us dollars, social service dollars and other dollars by infusing capital into areas that typically and historically have not been done.

COMMISSIONER DANIEL C. ESTY: Representative, one other thing that you and I have talked about is the federal support for LIHEAP in particular, the Low Income Heating Assistance Program, that money is going away, and I fear that the federal budget crisis is going to even make that even go away more quickly.

So one of the best things we can do to help a low income person with those energy bills to have them get that efficiency investment made to lower the bill, not just for this year, but over time. So we're very committed to that as really our number one strategy for responding to this crisis in reduced federal funding.

REP. MORRIS: I appreciate that. There was a previous conversation in terms of, you know, the financing by way of, within the billing. And I think I heard you say earlier to another representative that you're certainly willing to have those conversations. To certainly add to that, I think in many of the urban communities, whatever we can do to facilitate and incentivize for the providers, make those incentives for them, but it certainly makes it

even more affordable and do-able for those in low and moderate income to be able pay for and finance whatever changeovers and restructuring over time is certainly advantageous.

COMMISSIONER DANIEL C. ESTY: So one of the things we're sensitive to is that some of the past programs have not provided incentives for apartment dwellers, so we're very focused on that. And some of the apartment owners have been nervous about bringing in efficiency auditors for fear that other code violations might be uncovered. So I'm going to ask Jesse just to talk about how we've gone after that problem.

DIRECTOR JESSE STRATTON: Thank you very much. I think there are a couple of components, and when CEFIA testifies I think they will go into detail about one of the loan programs that we're developing. Because as you refer to on bill financing, in order to keep those costs low, there has to be something that makes the risk low of nonpayment. And so that is a very appropriate way for many people to finance some of these options, but it isn't for everyone.

And so CEFIA is working on, just about to roll out a loan program that will be run through local credit unions that often have relationships with members of lower income communities already, and be able to incorporate loan terms that work well for different classes of customers. I think in addition, the department is really focused on trying to, for homeowners, in addition to landlords and things, addressing some of those code violations that prevent them from being able to proceed with any of the efficiency work. Because if you're doing a blower door test on a house, you don't want asbestos flying around all over the place. So we are undertaking a

specific initiative to focus on that particular problem also.

REP. MORRIS: Fantastic. And thank you for your comprehensive and yet innovative approach to energy. Thank you.

REP. REED: Thank you Representative, Representative Case.

REP. CASE: Thank you Madam Chair. Good afternoon. A couple issues I just wanted to bring up. I know I've brought them in up in the past to you. One was, I know we have a few oil dealers here in the room today. And in one of my past lives I was in the oil business. And in 2007 we mandated the 15 ppm for diesel, the 500 ppm for off-road diesel.

We were still at the 3,000 to service homes. It really put a big burden on the backs of the heating oil dealers who also serviced motor fuels, because of keeping up with the manifest, keeping up with the trucks. We didn't have the co-contamination. It was a huge expense to us in the oil business. And now we find ourselves looking, I know up my way in the Northwest corner, we won't see gas for quite a while, because to get up to the Mass border is going to take some time. But I'd just like you to keep that in mind. In 2000 -- between 5 and 7 it was a real struggle for the oil companies to stay afloat, because they had to make a decision if they were going to maintain a truck for just off-road diesel, maintain a truck to deliver to the home, and maintain a truck to deliver diesel, because it was three different -- and then you had testing once a week from the harbor, you had to bring the manifest to the truck that delivered it to your -- we at that time had over 3,000-gallons of storage.

So we had to have a manifest of sampling the oil -- or the -- that came out of the ground to make sure it was correct, and then you had to have a sample that came out of the truck, and all of those had to be done weekly for every truck you delivered for.

So we really did hamper our oil dealers in the State of Connecticut. And it was all with good intentions of putting cleaner, safer fuels out there with less emissions. And I don't know where we are today, I've been out of the business since 2008 looking to go, as Representative Miller was talking about in New York, I think they're down to 15 parts per million that is coming over. Is that what we're looking at to try and get in the household? Because, you know, obviously once we went to the 15 part per million, it increased the lubrication that we had to add into the oils that were coming.

And you had -- you had to leave a little bit of leeway because the lubrications could also add in a little bit of sulfur content, so you had to make sure you were bringing in a product that was either in the 8 or 9 or 10 level, so that in case the lubrication you were adding in had some sort of sulfur in it -- so there's a lot of things that need to be thought about with the oil dealers. And we just need to be gentle, and let them figure it out.

COMMISSIONER DANIEL C. ESTY: Representative Case, as you and I talked about, we're in an ongoing dialogue with the fuel oil dealers. I think Deputy Commissioner Dykes and I have met with them five or six times in the last year in various forms and groups. So we're very focused on helping them. As I mentioned earlier, the real challenge for the fuel oil dealers is the change in market circumstances

that they face. And we're trying to help them address that. We do think that for many, a kind of slightly modified business model will be appropriate where they evolve into home energy service agencies able to do the transitions to natural gas and to do maintenance on natural gas. And frankly, to become home energy efficiency advisors as well.

One of the things that I see is most urgently needed is a trusted energy advisor for homeowners who can really help a homeowner understand how far should they go with energy investment? Does it make sense to do the windows or insulation in the attic, as well as put in a new furnace. How much should you spend? Where should you spend it? And do I think that fuel oil dealers, many of whom are in those communities for many years, have generations of customer relationships that they could call on would be beautifully positioned to be those trusted home energy advisors, and frankly that's a broader base of kind of a business opportunity going forward.

And already, as you know, a number of fuel oil dealers do that, and have transitioned into that broader place in the market. And our package calls for help to fuel oil dealers that want to make that transition, we'd love to help them get certified as energy efficiency advisors, and to do whatever it takes to really ensure that they're part of the future, and not burdened by changing market circumstances.

REP. CASE: Okay, now we'll flip to the --

DIRECTOR JESSE STRATTON: I want to add a real quick comment. Actually changing to the 15 parts per million is going to eliminate much of that problem now, because that will be the standard --

REP. CASE: Because it'll be -- and there won't be any cross discrimination --

COMMISSIONER DANIEL C. ESTY: Yup. It creates a standard, and we think it will lower costs, improve efficiency.

REP. CASE: When we had three products out there, trust me, it was --

COMMISSIONER DANIEL C. ESTY: Yup. We understand that. And as you know, Representative, we've been very focused on trying to minimize regulatory burdens generally. And so you have our commitment to continue that focus, and really trying to ensure that we are not creating either, you know, complicated multiple layers of regulation or multiple layers of market obligation. So we're -- we're very focused on minimizing regulatory burden, especially in an industry that's facing a big transition.

REP. CASE: And I know we've talked in past hearings on the amount of storms we've had in this state. And Storm Sandy was a big one in this state. And Storm Sandy was devastating for the shore. Unfortunately, I lost a lot of trees in my yard, so with that said, I haven't turned on my furnace yet this year or last year. So I took advantage of renewable energy that was in my yard. So I'm happy, but --

COMMISSIONER DANIEL C. ESTY: We're hoping to minimize that supply going forward.

REP. CASE: My concern is, as was before, has there been a plan put together, because with Storm Sandy, there were over 60,000 customers that were without natural gas because they had to shut off, as I said, a few hearings ago, they

had to shut off the main frame of natural gas to all homes in the area to where they felt safe that they could turn it back on. In any part of this state if we have a storm in the areas, you know, I don't know, 50 mile area radius has to be shut down, I mean, these people were without natural gas that could have been living in their homes. They were without it until December 31 and the storm was in October.

So that's a real concern for me as -- if we regulate, where we put shutoff stations so that we know we're not going to leave people in the dark -- not in the dark, but in the cold.

COMMISSIONER DANIEL C. ESTY: So we are very focused as a result, not only of Storm Sandy, but of all of our catastrophic weather events in the last several years, of which we have now had five since Governor Malloy took office, where we had substantial parts of the state, more than 10 percent without power and related energy issues.

We are extremely focused on resiliency. And that's why our strategy is cheaper, cleaner, and more reliable, because we really do think the systems that allow for resiliency, that allow to us come back faster from a storm are important. I think we've made progress. I think the most recent hit has shown that we're coming back faster.

Storm Sandy, we got the electricity on much faster than New York and New Jersey, and there were only very limited numbers of places that natural gas was shut off for a prolonged period of time. Very limited. It was a much more serious problem where oil trucks couldn't get in. So we had more people having heating problems for lack of oil than lack of gas. So

both of those are issues that need to be taken seriously, and frankly resiliency is a high priority.

REP. CASE: Appreciate it. I'm sure we'll be talking some more. Thank you, Madam Chair.

REP. REED: Thank you. Oh, Representative Ritter.

REP. RITTER: Thank you, and I'll be short because I pretty much relayed most of my concerns to the previous speakers from the Governor's office. But it did strike me in the discussions that you were having, and this is sort of a broad swipe at this, that there seem to be a lot of opportunities in this whole big proposal, in the CES, to support and reward or incentivize people, and I very much want to make sure that we don't lose track of our local heating oil dealers. And -- and you've heard from lots of us about this, but I think there are probably more opportunities to help them than maybe -- we're not quite finished thinking about that yet. And so I want to encourage that among you and your staff.

COMMISSIONER DANIEL C. ESTY: Representative, I did hear your concerns. We're eager to work with you on that. I do think there's an ongoing dialogue here, and as I've been mentioning, we've been in that conversation with the fuel oil dealers. You may have been out of the room when I mentioned it. Our commitment is to helping every Connecticut citizen, every Connecticut business lower their energy bills, everyone.

So our goal here is to ensure there's programs for everyone to take advantage of. And for those who want to stay with fuel oil, we really are committed to helping finance their move to a more efficient furnace, to their broad

commitment to efficiency within their home or their business. So we do think there will be opportunities for all, and we want to make sure that there is the same capacity for incentives in the way of low cost financing there for everyone.

REP. RITTER: Thank you. And that is encouraging, because I -- well I don't want to speak too much for every -- every person in this room, but certainly there are many of us in this room with an understanding and a deep appreciation of the work and the thought that you're bringing to this problem. I mean, to think that we can all afford to stand still is foolish. And so I think, you know, at the same time I'm thanking you for this.

COMMISSIONER DANIEL C. ESTY: And you've been heard our principle --

REP. RITTER: -- we need to keep working.

COMMISSIONER DANIEL C. ESTY: Our principle is choice, let the consumer choose. And then really to help everyone lower those bills.

REP. REED: Completed Representative Ritter? Okay, I didn't want to interrupt. Senator LeBeau.

SENATOR LEBEAU: Thank you, Madam Chair. Commissioner, I apologize for not having been here. We had a major hearing with almost as much testimony as submitted here today, right down below us in the Commerce Committee. So I apologize for not being able to be here to listen to the all the testimony, because I have other responsibilities. However, having said that, you just mentioned helping every citizen and helping those who were on oil, which is a concern of mine. And I know that it's one that you share. You said about changing out

furnaces to have -- to help people with new furnaces.

But there are -- I want to ask is, is there a possibility, and does your plan include or make provision for not just changing out an entire furnace, but there are sometimes there are components and there are mechanisms that can be -- that can make a furnace more efficient. And does your plan include provisions for that? There are certain catalytic converters, for instance, that can be used in the fuel line that can -- that can increase efficiency of a furnace by up to 20 percent, depending on the size of the furnace, and what the burn is. Because you can get it hotter, and therefore if you're heating water you can lower -- get a higher burn, more calories out of it for the same amount of fuel. And so therefore you can reduce your -- the energy inputs by a significant amount.

Would your plan include that? Or does it include that and would you be willing to incorporate that into the plan?

COMMISSIONER DANIEL C. ESTY: Senator, thank you for the question. We are very focused on helping every -- every homeowner, every business achieve energy efficiency and whatever makes sense for their own circus. And that maybe you're certainly right that there are some folks for whom a whole new furnace isn't needed, but an upgrade would do the trick. So I think our commitment is to try and create a financing mechanism that allows for whatever that particular ratepayer needs to get -- or consumer needs to get that taken care of. So I will double check to make sure that the component upgrade is something that would be financeable as well as the whole new furnace as part of an energy efficiency overhaul for the

home or business.

SENATOR LEBEAU: And think we always -- I mean, the intent in government is to look at the big picture. We want to have a great vision and do everything. And I think sometimes some of the small -- the small things we can do can be very effective. And especially in a dollar -- return on investment for homeowners can do -- and businesses, can be very, very good for them.

COMMISSIONER DANIEL C. ESTY: So we agree and, Senator, you may want to invite our green bank leadership team that is here this afternoon same issue, because they're helping us build the financing that we hope will allow to us reach out to all those different Connecticut citizens.

SENATOR LEBEAU: I invite them to knock on the door, because I'm not sure who they are. But please do so. Hey, green guys. Thank you very much. It ain't easy being green.

REP. REED: Thank you. Thank you very much. Commissioner, before we let you go, and thank you, you've been on deck for quite a while, you and the team. Well you can --

COMMISSIONER DANIEL C. ESTY: Thank you, I can --

REP. REED: You can stay, and --

COMMISSIONER DANIEL C. ESTY: I'd welcome the chance.

REP. REED: Just drink it in. But I just want to -- because you may have said it, but I may have missed it, your views on fracking, I mean, obviously, clearly best practices and all of that. But we have a bill before us about

HB6533

other issues I'm more concerned about. So I wonder whether what we shouldn't do is to say that we want to monitor this, and that we are eager to have Connecticut be part of a pressure for higher standards in those states. And that maybe we should ask the states, you know, you could invite -- this Legislature could invite other states to tell us how they're going to address the issue as we wanted to help build a demand for them. So I think there are ways to get at this, and I'm not sure the waste focus is the right one or for Connecticut to try and set standards outside of a broader context is the right thing to do.

REP. STEINBERG: I think we might agree to disagree on this up to a point in the sense that if activities that take place in other states result in contaminants ending in up the State of Connecticut, then it's about Connecticut's citizens, and I'm not so sure the monitoring is a sufficient response to health risk in this state.

REP. REED: Thank you, Representative Steinberg. Thank you all for being here. And you'll be hearing from us any moment now. I'm sure we're going to have a lot of follow-up questions.

COMMISSIONER DANIEL C. ESTY: Thank you for the opportunity.

REP. REED: One moment, Representative Case has one more, one more quick question.

REP. CASE: Just real quick, this came across to me. Where do we stand as far as propane powered vehicles? We're look at that? I hear that there's a lot of towns that are moving forward --

HB6360

COMMISSIONER DANIEL C. ESTY: So that's a good

question. You heard a little earlier that transportation is a focus of our energy strategy. And what our goal is, is to provide a platform that allows individual vehicle owners or fleet owners in particular to make choices about what fuel they want to use.

So we're trying to create a foundation of adequate electric vehicle charging stations so that no one with electric vehicle need worry about running out of juice. No one should worry in the State of Connecticut about what is known as range anxiety. And I think we, likewise, want to make sure there's a platform for natural gas, both CNG and LNG. And for that matter propane. Propane is a very attractive fuel in a number of contexts, and already is being used in many of places around the world. So we're committed to infrastructure for all of that.

REP. CASE: Okay, thank you.

REP. REED: Thank you.

COMMISSIONER DANIEL C. ESTY: Thank you.

REP. REED: Run! Thank you very, very much. Thanks for everything. Next on deck is Bryan Garcia and the CEFIA team.

All right. Welcome. Welcome. Good to see you. And thank you, everybody, for your indulgence. The reason that we have allowed these first witnesses to go on so long is that these are the agencies and the entities that are really driving the legislation that we're listening to this day. So following the CEFIA testimony, we're going to start alternating between elected and public officials and

members of the general public. And we're going to put people on a three minute timer, so that we can move it along so that everybody gets an opportunity to express themselves.

Welcome Mr. Garcia.

BRYAN GARCIA: Great. It's great to be back. Good afternoon, Chairman Duff, Chairwoman Reed, Vice Chairs LeBeau and Steinberg, Ranking Members Chapin and Hoydick, and all the Distinguished Members of the Energy and Technology Committee. I'm Bryan Garcia, President and CEO of the Clean Energy Finance and Investment Authority. I am joined today by my staff, David Goldberg, Director of Government and External Relations, and Brian Farnen, our General Counsel.

Thank you for allowing us the opportunity to be here today to provide comments on proposed legislation with a focus on the Governor's Bill 6360.

HB5591

CEFIA's mission is to support the Legislature's and Governor's energy strategies to achieve cleaner, cheaper, and more reliable sources of energy while also creating jobs and supporting local economic development.

By attracting and deploying private capital to finance these clean energy goals, we will help Connecticut become the leader in energy efficiency, and support the deployment of renewable energy in our state. To that end, CEFIA supports the policies outlined in the Governor's bill, and is currently implementing various financing programs noted in the Comprehensive Energy Strategy, so we're already putting those pieces to work, including commercial property assessed clean energy, and

we are working with DEEP to support on-bill financing, and we look forward to working with members of this committee on Proposed Bill 5591 that deals with on-bill financing.

Specifically, CEFIA acknowledges the following aspects of the bill. Section 3 which deals with the conservation adjustment mechanism. With the goal of realizing energy efficiency, that is cost effective or lower cost than the acquisition of equivalent supply, CEFIA supports the institution of a conservation adjustment mechanism in the near term. The Governor and the Legislature through Public Act 1180 have expressed the need for CEFIA to focus its efforts on attracting private capital investment to support the long-term needs of the state. This will allow for the reduction of subsidies and rebates over time through the implementation of financing programs, including C-PACE, on-bill financing, and other mechanisms. Sections 8 and 9 that deal with microgrids and energy improvement districts, we support policies that work to not only support cleaner and cheaper sources of energy, but also more reliable sources as well.

Sections 10 and 11, commercial and residential building labels. Building labeling is an important method to increase in the demand and subsequent deployment of energy efficiency and renewable energy technologies as one of our go-big policy strategies for Connecticut, building labels will serve to increase in the demand for energy efficiency and renewable energy deployment.

The use of the EPA's energy star portfolio manager and the DOA's home energy score card rating tools will provide actionable information to sellers and buyers of commercial and residential buildings respectively.

Sections 13 through 15 that deal with data accessibility and benchmarking, making data more accessible will allow for better benchmarking of buildings, and help us identify where the low hanging fruit are.

Section 19 with regards to the natural gas expansion. To support the implementation of the natural gas provisions of the bill and the Comprehensive Energy Strategy, CEFIA is launching several financing programs which I will discuss in a second to support fuel cell -- excuse me, fuel conversions -- I always have fuel cells on my mind -- and equipment replacement including C-PACE for commercial and industrial properties and the Smart-E loan for residential 1-4 single family units.

Okay. So I wanted to switch gears a little bit here and address some of the areas that Commissioner Esty was highlighting so I can cover some of those areas for you. One of his comments was that we've seen a tenfold increase in terms of the number of -- the deployment of clean energy in the state as a result of Public Act 1180 which you passed in July of 2011. Through Sections 107 through 110 of that act which deal with the ZREC and LREC, or the Zero Emission Renewable Energy Credit and Low Emission Renewable Energy Credit, we have seen 35 megawatts of new projects coming into queue at a cost of 9 cents per kilowatt hour. When you compare that to other neighboring states, which we often do, the Commissioner is constantly driving us to not only to benchmark other states, but to beat other states. If you look at our, you know, states to the north, we're talking about 25 cents per kilowatt hour. If you look south to New Jersey we're talking anywhere between 30 cents and higher per kilowatt hour.

So we've seen a lot of success there in terms of 35-megawatts.

Through some of the programs that we've been implementing, Section 106 which is a requirement, a statutory requirement for CEFIA to implement a residential solar investment program, last year we deployed 7-megawatts of new residential solar projects. To give you some perspective, our best year was 3 1/2-megawatts, and that was in 2009. We did that at a lower cost. We also did it at a lower percentage of subsidy with respect to the overall percentage of the project cost.

So our goals are to drive more installation at less cost and better managing ratepayer resources. To compare against the last decade, the decade of the 2000s, we deployed $180 million of ratepayer funds to support the deployment of about 35-megawatts of renewable energy. So in one year we're doing that at a less cost than what it took us the prior decade. So that's through your leadership in terms of setting up these competitive markets, and we can go into detail on some of that if you'd like.

With regards to jobs, I can say that, you know, the Chair of our board -- Commissioner Esty is our Vice-Chair. The Chair of our board is Commissioner Catherine Smith, the Commissioner of the Department of Economic and Community Development. And I can say that not only are we focused on delivering cleaner, cheaper, and more reliable sources of energy, but you better believe that Commissioner Smith wants to see us create jobs and to support economic development as well. So that's a fundamental part of our mission as an organization as well.

And to get there what we are trying to do is to track more private investment in the state. The more private investment that comes in, in addition to the declining levels of subsidies that are going into projects, the more jobs that we are going to create. And I'll give you a couple of examples. We have a local solar PV installer, which I can't name, but I'm often -- sometimes I get excited when I'm talking about specific installers in the market, and other installers don't like when I call out certain companies. But there is one company specifically that located its new offices in the -- in our town of Rocky Hill which is where we are headquartered. They have hired at least 30 new employees who are out there installing solar PV systems on homes, as well as in commercial and industrial facilities. I can tell you that I take great pride when I look out the window, and I see that green truck driving by. The more times I see that truck, the more I know that more jobs are being created.

I was also involved in a company that just recently located a division of its business from Massachusetts that just came into Connecticut. It started its own headquarters in North Haven. They are focused on delivering not only energy efficiency to homeowners, but also renewable energy. I was there at the opening of their facility. I got to see how they train their staff, and how they're getting them ready for the market. I welcome them to our state, and talked through specifically how we view private capital to get them to go beyond the 10 percent assessment that hopefully all of us have undertaken through home energy solutions, and deliver us at least 25 percent energy savings, and hopefully 75 percent by going renewable.

Bridgeport fuel cell, we just recently provided financing for the largest fuel cell project in the U.S. Unfortunately I'm told that it will not be the largest project in the world. Fuel cell energy, which is doing a great job manufacturing fuel cells is deploying a 60-megawatt fuel cell farm in South Korea. So -- but we are looking at a 15-megawatt project in Bridgeport. 125 direct jobs from that project from not only the manufacturing of those fuel cells, but also the construction, the servicing, and all the roadwork that's going on in terms of the interconnection of those facilities.

So clean energy does deliver, and we have some metrics. You know, for every million dollars invested what are the number of direct jobs that are created from renewable energy and energy efficiency. The metrics that we looked at -- Commissioner Smith, as we constantly talk about emission reductions and energy savings, she drives us toward the job metrics, and we make sure that we build those metrics into our programs.

With respect to underserved communities, and some of the financing products that the Commissioner has been speaking about today. I wanted to talk quickly about the importance of targeted communication campaigns in distressed communities. You know, we are all -- we're all bought into this. You know, not everybody outside of this room is bought in, nor understands the opportunities that are represented by efficiency and renewable energy.

We competed as a state and won $4.2 million to support the Neighbor to Neighbor Energy Challenge which is out and about in several of those communities, our distressed communities. So it's enabling us to understand what the

challenges are to creating demand in those communities.

We also leverage ratepayer resources to attract foundation investments. We don't want to just rest on the ratepayer contributions, but we want to use the contributions that they're making to attract foundation investments as well. And we've been partnering with several foundations on a Solarize Connecticut campaign. We will be taking that campaign to several distressed communities this coming -- next month, which we're excited to see. So that will bring us out into those communities.

With regards to a couple of the products that we're working on, the financing products, we are working -- we have a partnership with the Housing Development Fund out of Stamford. We've co-created what's called The Cozy Home Loan. This is a product for the less than 80 percent of area median income. This is an organization, the Housing Development Fund that not only provides financing for first time home buyers in challenging financial situations, but they also work with those home owners to provide them with training for how to make sure they pay back their loans, and how everything works. So there's an ongoing relationship. So we want to further understand how financing can be advanced to support investments in low income or distressed, underserved communities.

We also have -- are releasing the Smart-E loan today. We are actually, right now we're before a group of HVAC contractors in Cromwell, Connecticut, to talk about this product that we will be launching next month. This is a program that reaches 640 and up FICA scores, that's more than 85 percent of single-family homes in the State of Connecticut. This is a financing product in partnership with credit

unions and community banks throughout the state. We're often asked, as an organization, why don't you guys go to Wall Street and bring in the investment banks so we're going to drive in the low cost capital. It's all well and good, and we will get there, but we'd also like to see our local banks investing in this clean energy infrastructure as well so we can double up on our jobs in the finance sector just as we're doing in the contractor sector.

That, the Smart-E loan program is a partnership with DEEP, just as The Cozy Home Loan is, where we've re-purposed federal stimulus funds. Historically we used, or the Clean Energy Fund utilized funds at a one-to-one ratio. For every dollar that went out from ratepayers, we got a dollar back from somebody else.

Through the Smart-E loan program we're going to be investing $2 1/2 million in a loan loss reserve to attract $30 million of financing from local credit unions. They will provide 5-12 year terms at not to exceed rates of between 4.49 and 6.99 percent. As we're presenting, in Cromwell today, one of the points we're raising with the HVAC contractors is that the longer we can go out, and Commissioner Esty was referring to this in the natural gas infrastructure, the longer we can go out in terms of a term of a loan, the more savings we can put in the pocket of that household today.

So in our discussions today with these contractors, you know, we're talking about equipment replacements, we're talking about weatherization. But if you actually add on top of that a solar PV system, through a 10 and 12 year loan you can actually deliver positive capital to a homeowner today by doing all of those measures. So we don't want to just focus

on specific things, we want to focus on comprehensive measures, and the Commissioner has challenged to us deliver financing products that deliver positive cash flow today. That's always been his challenge for us.

With regards to the Multifamily Energy Loan Fund, this is another program that we'll be launching in partnership with CHFA. We competed for some federal funds through HUD, through an Energy Efficiency Innovation Loan Program. We'll be working with CHFA to identify multifamily units where we're going to be testing some energy savings agreement products to deploy more efficient technologies in those homes.

And then lastly, with regards to C-PACE, and we've heard a lot of comments today with regards to commercial property assessed clean energy, the city of Bridgeport was the first city to come on board with PACE. At one of the first meetings that I attended, Mayor Finch brought together the Chamber of Commerce and all of his businesses at a theater there in Downtown Bridgeport. When we finished that event I was approached by a gentleman named Ezekiel Gonzalez. This was a gentleman who came up to me, and said, Garcia, I recognize your name, habla Español? Unfortunately I don't speak Spanish.

But one of the my personal challenges is for to us not only help support the development of a clean energy marketplace here in Connecticut, but it's to also engage underserved communities in the contractors, in being contractors, customers, so that they can engage in the clean energy economy as well. So that's one of my personal -- personal tasks, and the staff know that I'm pushing very hard to make sure that we're realizing those opportunities as well.

So with that I wanted to thank the committee for allowing us to provide some comments on the Governor's bill and cover some of the issues that Commissioner Esty had raised with us earlier.

REP. REED: Thank you. Somebody talented is doing your branding. Cozy Home, and what's the other one? Smart-E loan. These are very -- these are very intriguing.

BRYAN GARCIA: So it's very important, right? Because typically we'd call these things efficiency loans. But to reach the broad audience we really need to touch them where, you know, get them to think about things in a new way. Cozy Home Loans is evidence of that. Homeowners want to be more comfortable when it comes to efficiency. They want savings, but it's all about the comfort of the home, and making sure that it's healthy for them.

And then with regards to the Smart-E loan, I mean, this is a comprehensive financing program that covers everything from efficiency to renewables to even recharging stations, if a homeowner wants to install it at their home. So it's completely technology agnostic. It covers all of the key pieces of the Comprehensive Energy Strategy. Because what we're trying to do is to allow the contractors and the consumers to have access to capital to make their homes higher performance.

REP. REED: Thank you. Thank you for your testimony. Senator Duff.

SENATOR DUFF: Thank you. Thank you for your testimony, Bryan. I just wanted to just thank you all for taking our task last weekend, going big, and thinking big, especially as it relates to the CES, and what you're doing. So I don't

have any questions, because I think we went through all the stuff last week. But just to say thanks for following up on that, we do appreciate it.

BRYAN GARCIA: Well, I want to thank you for the invitation to go big. You know, you'll hear us talk a lot about financing. Financing isn't the panacea. We need marketing innovation to be able to drive consumers towards these products. So with your invitation last week we are organizing a group of stakeholders around the residential sector to help us think about policies that will, in effect, drive demand and our desire is to come back to you and this committee with some suggestions from a policy perspective for how to create demand in this marketplace. So I want to thank you for that invitation.

REP. REED: Thank you. Any more questions? Representative Bowles.

REP. BOWLES: Thank you Madam Chair, just very quickly. Good to see you again, Bryan. First of all, I just want to commend you on your commitment to reaching out to the underserved communities in this state. I think we tend to get a little bit elitist sometimes in -- in achieving some of these objectives, and I really encourage you to move forward with that commitment. My specific question has to do with the Bridgeport fuel cell installation. I didn't quite catch, how many megawatts was that again?

BRYAN GARCIA: 15.

REP. BOWLES: Okay. Thank you very much. That was my question. Thank you.

REP. REED: Well, and of course we know this is

because you spent quite a bit of time with us last week in an informational that was really, really instructive, and we really appreciate that. It helps a lot, and we like keeping this conversation going. So thank you, very much, for your testimony.

BRYAN GARCIA: Thank you.

REP. REED: So now we're going to begin switching off between public officials and members of the public. And we're going to go on a three minute timer. We're going to speed it up, and the reason is just to make sure we give everybody an opportunity. So Representative Kokoruda, welcome. In fact, Representative Hoydick reminds me, welcome back, you used to be on this committee. Good to see you.

REP. KOKORUDA: Good afternoon. I have to say after sitting here listening to what's going on, I can't help but miss this committee. What an exciting time to be involved. So great, great job and it was great to listen to Commissioner Esty again. But I want to get into my three minutes, so I'll be careful.

HB5587
HB6360

Honored Chairs, and Ranking Members, and Members of the Energy and Technology Committee. I'm Noreen Kokoruda, I'm the Representative for the 101st, which is Madison and Durham.

With me today is not only -- you want to move over, Joe -- is not only a constituent and a Selectman in Madison, but this is Joseph MacDougold, and he's from the UConn School of Law. And it's his work at the Center of Energy and Environmental Law that brought this attention of submetering to my attention. I know we had talked about it last year, but he brought it to another level. And later on today you're also going to hear from Professor

However, I wish to denote that this bill, as you've heard today, also is considered in the Governor's bill, and the Governor's Comprehensive Energy Plan, and in Section 6, this accomplishes in more depth a similar aim. I encourage this committee for adopt H.B. 5587 and the companion sentiment in that section of the Governor's bill. And I'll like to just give Professor MacDougold a little time, he was also on my list. Thank you.

JOSEPH MACDOUGALD: So I'm Joe MacDougold and I'm a Selectman in Madison, and I'm a Professor in Residence at the University of Connecticut School of Law. As Representative Kokoruda mentioned, later today Professor Sara Bronin who is a national expert in this field, in microgrids, hopefully will be talking to you as well. I want to thank Representative Kokoruda to taking leadership on this.

And I'm here to support both House Bill 5587 as well as specifically Section 6 of the Governor's Bill 6360. So as was mentioned, submetering is the ability for a property owner to install a source of energy generation from renewables or other sources, and then to go and charge, get the benefit, pass it down to their tenants. Why can't you submeter today, should be the logical question. Because if you -- this act removes the limitations to submetering.

Today if you submeter, if you were to set up a wind turbine in an attempt to sell the power to your tenants, you would then have many of the same reporting requirements of CL&P or United Illuminating. How do you know that this actually happens, that this is actually a problem? Because there are so very few submetering arrangements in our state. In other states this is a matter of simple

administrative approval. In the State of Connecticut, it's a very serious problem, and it removes one of the most important -- one of the most important ways we can provide incentive for alternative power.

As a Selectman in a coastal town, the longest town north to south in the State of Connecticut is Madison, we have suffered some of the worst energy recovery problems after each of the events. Our blackout rates are extremely high. As we plan forward for more multiunit development we're going to want to encourage units to look forward to have alternative sources of power, either for emergency or renewable power. Yet that's really not realistic until the submetering problem is addressed.

As a state, it's inconsistent for to us encourage the development of commercialization of renewable energy, but to take those same companies and to tell them that they can't set up and practice within their home state. It's really quite a thing if you put it in place, in an area where we're trying to increase public and private partnerships.

Finally, as an educator, I have to tell you that energy issues really excite the entrepreneurial spirit of most of my students, and what we see throughout the University of Connecticut. The University of Connecticut, you may know, has unique strength in this. Dr. Prabhakar Singh and the Center for Clean Energy and Engineering, I believe this committee went and saw some of the microgrids that they set up. They're also very supportive of seeing those commercialized, but to work on submetering as a key component of that.

With so much effort going into technological

programs, I think we need to do what we can to harness that ingenuity and to see that it turns into companies and installations here in the state. It's a very important program, and I appreciate this committee's attention to it.

REP. REED: Thank you both for your testimony. Representative Hoydick.

REP. HOYDICK: Thank you, Madam Chair. Thank you for being here, Noreen, Joe, nice to see you both.

Before I get into a different line of questioning, submetering has a lot of different meanings. And in the context that I think you're presenting it, it is for a landlord or property owner to have a generation vehicle, and then charge that to their tenants. What if the property owner bought the tenant -- bought the power through normal utility company means, and then tried to submeter. What's the difference.

JOSEPH MACDOUGALD: Sure. The specific proposal which tracks in Section 6 of the Governor's bill, and I think relates to the -- the language of the house bill in front of you is really aimed at trying to encourage on-site generation. And the reason that that's so important is twofold.

HB6360

One, renewable energy is the type of energy that's generated on site. Commissioner Esty mentioned that. Two, as -- really to go to my Selectman role, emergency power or even additional power is extremely important, and you want to encourage people, like there have been some sizable commercial developments in New Haven County that we appropriated for this, you want to encourage them to build that generation, but they can't offset it. Natural

Any other questions?

Thank you so much for your testimony, and thank you for waiting so long.

REP. KOKORUDA: Thank you.

JOSEPH MACDOUGALD: Thank you.

REP. REED: Next up is Roddy Diotalevi. Thank you for the positive feedback. Welcome.

RODDY DIOTALEVI: Representative Reed, and Members of the Energy and Technology Committee, my name is Roddy Diotalevi, I'm the Senior Director of Sales and Marketing for the UIL Holdings Corporation which is the parent of United Illuminating, Southern Connecticut Gas, Connecticut Natural Gas and I thank you for the opportunity to offer my comments and general support of House Bill 6360.

UIL supports the Comprehensive Energy Strategy as it seeks to establish energy policy that will benefit Connecticut consumers, the state's economy, and the environment.

The strategy proposed is to continue to enhance Connecticut's commitment to use energy in the most efficient way possible, and we support expanded focus on energy efficiency as provided in this house bill. UIL strongly supports the provisions of the CES that provides Connecticut consumers with a once in a generation opportunity to switch to natural gas, a cheaper, cleaner, and domestic fuel source. Replacing fuel oil with natural gas offers Connecticut residents the prospects of significantly lower energy bills. The many advantages of natural gas have prompted businesses and residents to inundate our gas

companies with inquiries about gas availability in their areas.

Unfortunately, the current regulatory framework under which we operate prevents us from serving a large number of these potential customers. Only 31 percent of Connecticut homes heat with gas today as compared to nearly 50 percent of our neighboring states. This statistic highlights the challenges ahead in providing an opportunity for residents and businesses to switch to natural gas quickly and affordably. The CES encourages the natural gas companies to expand the state's gas infrastructure in a prudent and responsible manner over the next seven years. And to help expand the infrastructure, 6360 proposes a change to the hurdle rate model, specifically a 25 year payback period which is used in assessing the cost effectiveness of connecting a new gas customer. And UIL supports this proposal.

However, we suggest expanding the model to 33 years, as is done in Massachusetts and mentioned by Commissioner Esty earlier.

The bill also requires PURA to order the state's electric and gas distribution companies to decouple revenues. UIL supports decoupling for our companies. Only UI has a full decoupling mechanism on a pilot basis while the gas distribution companies have all requested decoupling mechanisms, yet were previously denied. So while the gas companies are being encouraged to expand the gas delivery infrastructure, there's no decoupling mechanism to address the increase in sales volume. I'll finish up.

Decoupling mechanism must clearly separate existing gas customers from newly acquired gas customers as part of the strategy to convert

nearly 300,000 Connecticut homes. So we've also submitted written testimony to the committee on other important issues, on 6360, including virtual net metering, submetering, aggregation, and microgrids. So I thank you for the opportunity to offer these comments, and I'll try to answer any questions you may have.

REP. REED: Thank you. I'd just like to start with a question I had asked earlier, I think it was perhaps to Commissioner Esty, about the questions we get from constituents about why the gas company just doesn't do the capital outlay to expand its own infrastructure, since these are going to be the company's consumers. Why do we need the architecture that's being proposed?

RODDY DIOTALEVI: Okay, that's a great question. And currently the regulatory model under we which we operate, we do finance all the capital investment in expanding the infrastructure.

Unfortunately, some of the rules on which we operate, the current hurdle rate, the way we treat customers for off-main in trying to -- we get a lot of customer inquiries every day. So if this is the gas main running around the room, and Representative Hoydick would want gas, we would have to assess where the main ends to where the interested customer is. And so what we do is we would assess the capital costs to run the infrastructure to Representative Hoydick's home versus the future revenues that we'd receive from the Representative.

And as I think Commissioner Esty mentioned earlier, unless there's other interested parties, that wouldn't -- that model wouldn't pass, and we'd have to tell the Representative

that we can't run gas to her home.

So most of the financing or some of the financing for some of the provisions in the CES will still be financed by the gas companies. We're looking for a change in the rules that would allow to us expand the infrastructure.

And so some of those rules would be creating customer demand. Some of those rules would be the way we look at individual customers or the way we can aggregate customers, make some assumptions that if we build that mains to the Representative's home, we may get future customers to sign up onto the gas main. Right now we can't do that.

So it's a matter of looking into some of the rules. The way we look at the plan is, we -- we kind of chunk it up into three pieces. We certainly have to create customer demand. Although there's a very enticing and compelling economic advantage to switch to natural gas, there is an up-front cost associated with that, so many customers can't take advantage of the price advantage.

Then there's some rules at which we operate and the processes within the gas companies, the hurdle rate, the CAP model or some of those.

And then we have the end piece which is really the contractor community. And when I hear questions about oil dealers, there's a big piece out there. In order to get 300,000 Connecticut homes to convert, we're going to need a lot of, not only the HVAC contractors and the existing plumbers, but we're going to need more contractors to -- to adopt their business into being able to install natural gas equipment and service natural gas equipment. So that -- that's kind of how we look at the

plan.

REP. REED: Thank you. And talking about the fuel oil dealers, I mean, sometimes we get the feeling that you're not talking to them. That they're talking to DEEP, they're certainly talking to us. Everybody is talking in circles, but the gas company and the fuel oil dealers are not sitting down to have a conversation. Because clearly they provide major access in terms of their ability to get inside homes, to have the customer confidence that they have. I mean, that could be very useful to you. Are you having these conversations?

RODDY DIOTALEVI: We need to do a better job in that. We just started engaging the HVAC community and plumber community. You know, I mean, in the best case scenario, the gas companies aren't looking to corner the market. In the best case scenario they'll be 50 percent of the Connecticut homes that cannot convert to natural gas. We're merely looking to help bring Connecticut on par with our neighboring states. But we do need to engage the oil dealers, because we need their help, and if they could adopt their businesses, they'd be a big piece of the Comprehensive Energy Strategy's goal to convert 300,000 customers. So we do need to do a better job.

REP. REED: Great. We applaud that. Are there any more questions? Representative Paul Davis.

REP. P. DAVIS: Thank you, Madam Chair. Good afternoon. You were talking about ratio. Currently we have approximately 30 percent heating with natural gas, and hopefully this program will bring it up to 50 percent. Even with this program, though, is it your belief that there will be areas of our state,

particularly some of the rural areas, that it still will not be economically feasible to put the infrastructure in for gas and make it reasonably profitable or at least get the return on the investment for the companies.

RODDY DIOTALEVI: Yes, Representative, that's a given. Because again, the Comprehensive Energy Strategy talks about converting about 300,000 customers which would bring the heating customer percentage in Connecticut from 30 to 50 percent. There's still areas very far from our distribution infrastructure that we wouldn't be able to serve in the next seven to ten years. Even now when we're inundated with customer inquiries about hooking up, we use a cutoff now of about half a mile. Because beyond that we know that it's not going to be cost effective to serve that customer.

So as this Comprehensive Energy Strategy hopefully is adopted, and we start -- our infrastructure starts inching out, it may create other opportunities down the road for some of the those customers that are much too far from the infrastructure to connect in the short-term.

REP. P. DAVIS: So as a follow-up, it's still important for us to be able to have our oil suppliers available to supply these people. And do you feel that maybe our incentives also need to address some of those issues as to how we can incentivize our oil suppliers to get involved in, shall we say, clean energy, renewable sources, and so on?

RODDY DIOTALEVI: Yes, the plan also talks about, and it clearly identifies those customers that we will not be able to reach in the short-term, and it talks about some of the conservation measures that should be made available to them

and expanding some of the conservation programs. I mean, we have a very successful program called Home Energy Solutions where we'll do, check, somebody mentioned a blower door test and insulation and windows. So those types of things need to be expanded into those customers' grid oil that can make their homes more efficient, and thereby cut their energy costs that way.

REP P. DAVIS: Thank you. Thank you Madam Chair.

REP. REED: Thank you. Representative Miller.

REP. L. MILLER: Thank you Madam Chair. Several years ago Iroquois put a pipeline through Stratford that went to one of the power plants in Bridgeport. And I was observing the guys that were working on the job. And they were incredible, but they were all from out of state. As far as jobs go, if pipelines have to be expanded in any way, I'm not talking about a line to a house, I'm talking about a regular pipeline. Does your company have qualified men to do that or do you have to hire outside contractors?

RODDY DIOTALEVI: Installing and increasing the gas mains and the individual services to the homes are done by local contractors. And one of the local contractors is out of Stratford.

So we have, I think Burns Construction, but we have many contractors that are local contractors that have been engaged, and have been ramping up their operations to help, just without this Comprehensive Energy Strategy, the increased interest in homes trying to convert to natural gas.

So we have had these contractors, and these contractors have ramped up their operation and

created jobs. And this plan will only expedite the need and the ability for these contractors to grow their business even more.

REP. L. MILLER: The line I'm talking about, I gave -- a 10-inch or 12-inch pipe. It's big stuff.

RODDY DIOTALEVI: That's a 6-inch high pressure line going from Milford all the way to Bridgeport Harbor Station, correct. Through Stratford.

REP. L. MILLER: And they can handle that in the State of Connecticut?

RODDY DIOTALEVI: That's a high pressure line. That would be a different type of contractor, that's probably a high pressure certified welder that's installing that pipeline. The typical pipelines that we're running down city streets are a plastic pipeline, typically 4 inches, and not at that high a pressure. Typically 60 pounds as opposed to 600 pounds.

REP. L. MILLER: Okay. Thank you.

REP. REED: Thank you, Representative. Any more questions? Oh, I'm sorry, you just told me that. Representative Hoydick.

REP. HOYDICK: Thank you, Madam Chair. Hi, Roddy, nice to see you. Thanks for coming up today. You mentioned submetering, and I was quickly scanning through your testimony, and couldn't find it except for a bullet. But what is the point you want to make about submetering?

RODDY DIOTALEVI: Virtual metering, submetering, microgrids, I think the utility's point is that when we have these programs and a certain subset of customers take advantage of these programs, we're not generally opposed to those

programs, but if there's an infrastructure investment that needs to be made to support, whether it's submetering or renewable power source at a submetered facility, and there's infrastructure required to back up that fuel cell or whatever it is, those -- if that customer is taking advantage of that program and is able to net meter or submeter or install a microgrid with subsidies, those costs are merely shifted or will need to be shifted to other customer classes, because the infrastructure investment isn't going to change. So to the extent that as long as we're setting policy, and we know that we need infrastructure, it's going to have a cost, and we want to create programs for whatever reason, for good reasons, we just have to understand that those costs are going to be shifted to other ratepayers, other rate classes, and as long as we're good with those things and understand the costs, then the -- and the utilities are made whole, I -- I don't think we oppose those programs.

REP. HOYDICK: Thank you. So if I could just say this back to you so I understand it. If we -- as we move forward with microgrids and some people come -- well some of that infrastructure has to be paid for by a smaller number of consumers, that's what you're saying, that we just have to be aware of it, and that the whole program, the whole infrastructure piece still has to be paid for by somebody. And do you think that those that are submetered should pay a portion of it or are you just saying we should consider it when we're make policy?

RODDY DIOTALEVI: Well, in a rate case we determine what the -- what the recovery, what the capital costs and ongoing maintenance for the infrastructure that we have in our franchise. And we say, you have to collect $100, whatever

that number is. We go back and forth.

Well, theoretically we set rates based on future projections to collect the $100. So if we have a 100 unit complex that we're going to say, you know what, we're going to allow to submeter, and therefore we're not going to collect a $35 service charge for those 100 people, we have to collect that $3,500 from other ratepayers, because we agree that that's the capital investment and maintenance required to invest in the infrastructure to serve all customers.

So to the extent that we don't want the submetered customers to pay a service charge, that money just gets shifted over to other ratepayers, and as long as we understand the costs don't change to serve, then I think we're good with that.

REP. HOYDICK: Thank you for explaining. Representative Reed and I were just saying that we like your plain speak. We appreciate it.

RODDY DIOTALEVI: I'm not as smart as the other people up there.

REP. HOYDICK: Thank you. That remains to be seen, I guess. Thank you.

REP. REED: Thank you very much for your testimony. Any other questions? Representative Bowles.

REP. BOWLES: Madam, thank you Madam Chair. Just quickly, I'm curious about your perspective in terms of propane as part of the mix. We've talked about oil, we've talked about natural gas. Clearly propane doesn't have the same influence in terms of the market, but I was just curious about your perspective on that as an overall energy component in the State of

Connecticut. I don't mean to be putting you on the spot, but I'm just curious.

RODDY DIOTALEVI: No, no, you know, propane, you know, for areas that we can't serve with natural gas people like -- I mean, if the reason we're getting inquiries into our company is that people like to cook with gas, they like the cheaper cost, maybe dry their clothes with gas. If they can heat their home with gas, it's cheaper. But to the extent that, especially cooking or nice insert gas fireplaces or gas grills, to the extent that there's no gas infrastructure available for the remote areas, propane is a good fuel.

REP. REED: Any more questions?

RODDY DIOTALEVI: Thank You.

REP. REED: Thank you. We have your contact information, right?

RODDY DIOTALEVI: Yes.

REP. REED: Thank you so much. Next up is Donald Stein from the Town of Barkhamsted. Welcome, and thank you for waiting.

DON STEIN: Yup. Good afternoon, Senator Duff, Representative Reed, Members of the Energy and Technology Committee. As you said, my name is Don Stein, I'm the First Selectman of Barkhamsted. I also have a volunteer position as Chairman of the Connecticut Resource Recovery Authority, as Representative Piscopo knows. I'd like to thank you for the opportunity to testify today, and will be in support of House Bill 6531 which is AN ACT PRESERVING AND RETAINING THE ENVIRONMENTAL BENEFITS OF IN-STATE RESOURCE RECOVERY FACILITIES.

classification of -- modest reclassification of Type II energy that goes up -- goes out into the grid from the Hartford plant, I don't think that model is sustainable for the foreseeable future. The creation of a modest increase in the cost for that energy that goes out into the grid for an interim period of time while the Governor's grand plan is formulated and implemented kind of saves our bacon, if you will. The alternative being if it gets to a point where we can no longer burn it economically, landfilling out of state becomes a viable option to control tipping fees, which are a prime concern for all municipalities. So I would hope that this committee would report favorably on 6531, and I'd be happy to try to answer any questions you may have.

REP. REED: Thank you. Are there any questions? Thank you so much.

RALPH ENO: Thank you. I admire your stamina.

REP. REED: The next to testify, Sally Bronin? Sally Bronin? Am I saying that correctly? Could be either Bronin or Brown, but I think it's Bronin. No? Didn't have the stamina? Okay, then next up, Matt Knickerbocker. Good afternoon.

MATT KNICKERBOCKER: Good afternoon. Good afternoon Senator Duff, Representative Reed, Members of the Commission. My name is Matthew Knickerbocker, I'm First Selectman of the Town of Bethel, and I'm also speaking today on behalf of CCM. And I'd like to address our support of H.B. 6360 with respect to virtual net metering, and especially I would -- excuse me -- call your attention to Section 5. You have my written testimony, so in the interests of time I'll just topline a couple of items.

This is particularly important to the community of Bethel, and I know other CCM members have gone down the same road.

In 2010 we created an Energy Conservation Commission whose goal was to reduce the reliance on outside energy within the town to have a -- more of a green footprint, to become more energy independent from the grid. And the commission's goals were to focus on establishing a solar farm. We have a decommissioned landfill with 40 acres to work with, as well as a fuel cell project which would power our educational complex, which was vitally important to the high school, especially since that's one of our backup emergency shelters. And since we've had three 100-year storms within the last 18 months, we thought that was an important thing to do.

So we were actually at the RFP stage, had selected vendor partners to work with, and then discovered the PURA ruling in November of 2011 that prohibited virtual net metering from being applied to waste equipment. So that pretty much ended any thought that we could proceed down the road, and both of those projects are on hold. So I came today to speak strongly on behalf of allowing third party power purchase agreements and lease equipment to be a part of this. We're ready to go. It will not only solve some of the energy problems, but it'll put people to work in Bethel, from our community. So I'd urge your support, and I'd be happy to answer any questions.

REP. REED: Thank you very much. I know many of us had projects that were just about to happen that had -- ran into the same issue. So this is a huge priority of ours to make sure that this gets through this session. Are there any other questions, any questions? Representative

Steinberg.

REP. STEINBERG: Thank you Madam Chair. One quick question.

MATT KNICKERBOCKER: Yes.

REP. STEINBERG: How did you come to the decision to lease the equipment as opposed -- did you seriously consider purchasing it?

MATT KNICKERBOCKER: Well, the capital outlay would have been prohibitive. So even though the energy savings that we would realize would be greatly reduced with the third power purchase agreement, it was really the only way we could build, given some of the other capital needs of the town at that time.

REP. STEINBERG: Thank you.

MATT KNICKERBOCKER: You're welcome.

REP. REED: You're welcome, Representative. Representative Hoydick.

REP. HOYDICK: Thank you for coming up and testifying. On a slightly different note that we heard a couple of days ago, we have two bills before us, one would allow towns to exempt Class I renewables. These are on your property, so it wouldn't be this case. But since we're in this whole vein of thought, I would like to get your opinion. The other bill would mandate that they be exempted class I renewable generation from personal property taxes, and just to share your thought from your community's standpoint, if you have one.

MATT KNICKERBOCKER: An exemption from personal property taxes? Well seeing as we don't have any right now, such a law, if that were to

pass, would not hurt us. And I think it would be, at least temporarily, a good incentive.

REP. HOYDICK: It would be good if -- let me -- let me rephrase this. So you're -- Bethel --

MATT KNICKERBOCKER: Yes.

REP. HOYDICK: Is leasing and using the generated power.

MATT KNICKERBOCKER: Well we're not yet, but we would.

REP. HOYDICK: Right. But if it was not on your property, and you had a renewable generation in the town, that would mean if one of these bills went through that it could not -- personal property tax could not be applied to the generation system. We'll talk about it.

MATT KNICKERBOCKER: Yeah, I'll have to think about that. I have a nice spreadsheet that might be able to help me. So I'll take a look at it. It's right up there with the gas tax. I mean, the car tax. Yeah. You're welcome.

REP. REED: Thank you very much, any more questions? Okay. So thank you so much for coming, and for waiting so long. I appreciate it. The next to testify, Shaun Chapman. Hello, welcome.

SHAUN CHAPMAN: Hello. Welcome, thank you. Madam Chair, Mr. Chair, Members of the Committee. I am Shaun Chapman, I am Deputy Director of Government Affairs for SolarCity. We are a leading clean energy services provider here in Connecticut, and thankfully we actually have 50 employees here in Connecticut. And we also drive green trucks, so I'm glad that we're beating out that other company with only 30

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employees -- green trucks. I don't know why they stole our green trucks, but we actually have 50 employees here in Connecticut, and we are very supportive of Public Act 1180 when it passed, and we think there are a number of great provisions in that piece of legislation. And as I testified on Tuesday, we -- there are some pieces of that that didn't maybe go quite far enough that we didn't anticipate, and one of those pieces is, as it pertains to virtual net metering, and a good policy there.

So I'm here to talk about 6360, and how the part that pertains to virtual net metering can help move clean energy projects forward.

In the piece, it only allows -- I want to stick to three main pieces. It only allows for certain types of arrangements. And in 6360, the one change that we would advocate for is that it also include commercial scale projects, and not just be limited to agricultural and town ownership. We think it should be expanded to commercial.

We also believe, much like the gentleman testifying before me from the Town of Bethel, that towns should have the opportunity to lease or enter into a PPA arrangement for towns, for a number of reasons, one of which is they can take advantage of federal tax advantages that are not available to them as towns if they own a piece, and the capital outlay would be far too great in these cash-strapped times.

And listening to the Selectwoman from Somers, I think she made excellent points about not being able to take advantage of the net metering credits there as well.

So those would be my two main points that I think the committee should consider, and would

be helpful in moving this piece of legislation forward.

REP. REED: Thank you. Any questions? For the man with the green trucks? No? Thank you so much.

SHAUN CHAPMAN: Better than the man with the yellow hat.

REP. REED: Next on deck is Richard Barlow. Are you the First Selectman of Canton? Welcome.

RICHARD BARLOW: (Inaudible) ... over the last 40 years, Connecticut closed all but one of its town's landfills, which is improved in protecting (inaudible) the state.

Today Connecticut remains not only a national, but worldwide leader in the percentage of MSW diverted from landfills to resource recovery facilities. Resource recovery facilities both rely on the revenues from tipping fees charged for disposal, and revenues from energy sales. The ratio varies from 40/60 to 60/40 depending on the facility. The recent abundance of natural gas has driven down the energy costs, significantly affecting revenues of state's resource recovery facilities. Others testifying today are providing information on the specific finances.

Without a means to ensure higher revenues, the energy sales of Connecticut's resource recovery (inaudible) is at risk. Raised Bill 6531 will allow these facilities to remain in operation for a transition period until the other recommendations of the Governor's Modernizing Recycling Working Group are implemented, which will reduce the future needs for resource recovery capacity.

REP. REED: Sara Bronin.

SARA BRONIN: Yes, sorry.

REP. REED: I was so worry about the last name, I kind of flew by the first one. Welcome, Sara.

SARA BRONIN: Thank you.

REP. REED: It's not Sally.

SARA BRONIN: Somebody signed up for me. Mr. Chairman, Madam Chairwoman, and the Members of the Committee. It's a pleasure to be here today. I know you've been here for a long time, so I'll try to make this very quick. My name is Sara Bronin, I'm an Associate Professor of Law at the University of Connecticut School of Law, and I help to run our Center for Energy and Environmental Law. My research focus is, in part, on the legal framework in which we regulate energy development, and I also work to promote more sustainable development here. (HB6360)

In another hat, I also do real estate development including playing a central role in the construction of 360 State Street in New Haven, a project that is the first multifamly building in the country to use a fuel cell. I just published, and I can leave it for you, a scholarly article in the Vanderbilt Law Review on building related renewable energy in the case of 360 State Street in which, among other issues, I cover the topic of submetering. So I'm here to testify today in favor of Bill Number 6330. And I first want to applaud the Governor and DEEP for creating, advancing a plan that balances so many competing interests so well.

I do think that, you know, here in this state

we've, you know, often had a disjunctive approach to energy, and you know, this energy strategy as we continue to refine it has been very impressive.

So I support the bill in its entirety, including the decoupling provision.

But I wanted to focus today on Section 6. I think you've heard a little bit about this. Of course it deals with submetering, the ability of a building's owner to invest in, in this case, a renewable energy generating facility and charge tenants for their usage. As a public policy matter, submetering is critical to opening up investment by property owners in energy efficiency and renewable energy, and in creating jobs and housing opportunities that we don't have now.

Submetering is highly consistent with many of the goals that members of this committee have expressed today. Right now, of course, as you know, we don't allow it except in campgrounds and marinas. Other states, like New York, do not only encourage submetering, but actually provide financial incentives for property owners to engage in submetering. In Connecticut, the submetering prohibition means that especially in older buildings, tenants are not individually metered for their usage. Instead, the building is master metered with a cost based on square footage. This means the tenants may waste energy, and those who save energy are not rewarded. At the same time landlords have no incentive to invest in more efficient energy generation. Is that where I stop? Yes. Okay. Great.

REP. REED: Thank you. Senator Duff.

SENATOR DUFF: Thank you. Thanks for your

testimony, and for your patience today, as you see, with all the audience members. On the -- on the submetering, what are some things that you think the committee should be aware of on the -- I think many of us see the positives of this. What are some of the things that we should watch out for if we move ahead with it.

SARA BRONIN: Right. So there are two issues that you may hear from others about today. So one is the concept of consumer protections on submetering. So how do we -- if we're letting landlords and property owners invest in renewable energy infrastructure or, you know, if we expand this submetering to other types of energy generation, one question that has been raised in other states, and I think we should address, and will address here, is how are the tenants protected against, say, landlords overcharging, charging beyond the retail rate, not providing an appeals process, not providing adequate energy. So that's certainly something that we can -- can and should address.

And New York State, as I said, has a great model law for to us look at those issues.

Another issue is the issue of utility, you know, how the utility will want to treat submetering. So I know in the case of 360 State Street, we got a lot of resistance from the utility company there to the concept of submetering, even when we tried to do it within the broad exception that the current submetering provision allows. So where basically PURA otherwise authorizes it, as in campgrounds and marinas.

And I think one of the reasons for that is that this decoupling concept. So the coupling right now of revenues and usage. And if we do go forward with the decoupling, you know, continue

to strengthen our decoupling provisions, I think we'll find that utilities hopefully have less resistance to this. Because I think, again as a public policy matter something is really significant for our state to move ahead. And actually I was going to say before I got buzzed, you know, to have -- actually this is something that is a huge driver of energy and real estate-related energy development in other states.

So where states have submetered, building owners do invest in this technology, and do put it in their buildings. And you know, ultimately that provides jobs and that's something that we all are very cognizant about.

SENATOR DUFF: Great. Thank you for that. It's good to clarify. I appreciate it. I think, I'll speak for myself, but I think other members of the committee also are very interested in submetering, and want to move ahead on -- with some ways to make sure there's proper safeguards, as I think there will be. I think again as we try and look at all the different pieces of the Comprehensive Energy Strategy and energy policy in general, we don't want to be left behind.

And as you had just mentioned that, this just encourages growth and other states are doing it, and we shouldn't really be -- we shouldn't be left behind. So I appreciate your articulate views on this and helping us wrestle with this. Thank you Madam Chair.

REP. REED: Thank you. Representative Hoydick.

REP. HOYDICK: Thank you Madam Chair, thank you, Sally for coming and testifying. I forgot to ask -- Sara -- really does (inaudible) Sally. I apologize. I forgot to ask Joe MacDougold

and Representative Kokoruda before about the backup power for self-generated microgrids or renewable energy. Would the utility be responsible for providing that backup power in this model as well, in the submetering model?

SARA BRONIN: Yes, so in states that allow submetering, the utility often does provide the backups for that renewable energy generation. So one question is how is the utility compensated for that. And that's treated differently in different states, and we have to think about how to treat it here. But for the most part we're talking on the scale of, you know, dozens of customers, not 30,000 new customers that are coming online. Eventually maybe we hope it becomes that way as we embrace distributed generation which is what submetering helps with. But especially in the early stages, I'm not sure that the impact is going to be so great for these smaller and midscale projects that are likely to use this, to have this worry as much about that as we might, you know, down the line.

REP. HOYDICK: Thank you, Sara.

REP. REED: Thank you, Sara. You know what would be helpful, if you could share with us by email the model that you think really works in terms of oversight from the various states that you know about. That would be helpful as we try to sort of find appropriate language for how to go forward, because we're very excited about doing this.

SARA BRONIN: Sure. And I'll leave a copy of my article too.

REP. REED: Great. Thank you so much.

SARA BRONIN: Okay. Thank you.

REP. REED: Next up is Elin Katz. thank you so much for waiting so long. I know you've been here since the very beginning.

CONSUMER COUNSEL ELIN SWANSON KATZ: Well so have you guys. So. Thank you very much. I'm happy to stay if you want me to. I'm at your service. And joining me is Victoria Hackett an attorney with the Office of Consumer Counsel, as well. And just before I get started, if you see me running around it's because our testimony was apparently not posted until just a few minutes ago. However, we're very proud we got it in at 3:51 yesterday, so we had over 40 minutes extra before the deadline. So. Okay.

Mr. Chairman, Madam Chairman, and all the Distinguished Members of the Committee, thank you very much for your time and attention today. We submitted seven separate sets of testimony, and while I won't cover all the issues, there are certainly some very important issues before you that I would like to discuss.

First on Senate Bill 839 we are very supportive of the change in the title of PURA members from director to a utility commissioner. This change conforms Connecticut's practice to the parlance and practice of the industry, and appropriately conveys the gravity and responsibility of this position.

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We also strongly support the changes that give greater autonomy, responsibility, and independence to PURA. This also enforces both the appearance and the reality of the authorities' independence with respect to rate making, and is an important part of the checks and balances in place with respect to rates and utility issues.

We also support the addition of language at the beginning of the statutes concerning energy and utility regulation that says PURA shall be guided by the relevant policies of DEEP. Again, this is part of a system of checks and balances set up within Connecticut's energy framework. PURA is independent with respect to its utility ratemaking authority, but it must appropriately consider DEEP's qualities.

The guided by language is not new, it's being moved to the front of the section from another part in the statutes. However, in doing so the requirement that PURA's decisions also be based on the record of each proceeding has been dropped. And we submit this language should be added back in to ensure that parties to a proceeding are afforded appropriate due process, and also that the authority articulates the basis in the record for the decisions it makes.

Similar issues arise with respect to the next bill I'd like to discuss, H.B. 6360, AN ACT IMPLEMENTING CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. There are many, many exciting elements of the Comprehensive Energy Strategy, and I was privileged as Chair of the Connecticut Energy Advisory Board to be part of the process of developing the CES.

We are again supportive of many parts of this particular bill, but we do have concerns on a couple sections.

First we have significant concerns with contradictory language that appears in Section 3 of the bill, concerns that are echoed by comments submitted by the Attorney General to your office as well, to your committee.

This section concerns the conservation and load management plan, the CLNM -- with your permission may I continue? Okay.

REP. REED: Yes.

CONSUMER COUNSEL ELIN SWANSON KATZ: Thank you.

REP. REED: Keep going. Go.

CONSUMER COUNSEL ELIN SWANSON KATZ: The framework through which we decide how many ratepayer dollars we spend on conservation and energy efficiency, and how we spend it. In one section it gives the commissioner of DEEP the authority to review and approve the CLNM budget, and states that PURA shall ensure that revenues to fund the budget are provided through a conservation adjustment mechanism. Basically it appears that DEEP sets the budget, and PURA must pass it through. Later in that section there's contradictory language that provides PURA shall open a proceeding to review any additional funding requirements to ensure that just rates are just and reasonable. While this contradiction may have been inadvertent, it does get to a fundamental distinction between PURA's role and DEEP's role. You have delegated legislative authority to PURA to set rates with appropriate administrative procedures to ensure that all parties have due process. That party -- excuse me, that authority cannot and should not be abrogated by a provision that PURA simply pass through potentially millions of dollars in energy efficiency spending without doing its own independent check on whether these amounts are just and reasonable in light of all the pressures on rates. No matter how laudable the reason for the spending, PURA still needs to perform its role.

Some might argue that the check on the CLNM budget is an energy efficiency spending must be cost effective. However, this bill also impacts how cost effectiveness is defined, as it changes the cost effectiveness analysis to include program benefits for all energy savings, which would include nonregulated fuels such as oil and propane. This is a significant departure from what is -- has historically been considered cost effective, and would make it look cost effective for gas and electric customers to pay, for example, for an oil efficient -- for a more efficient oil furnace to be installed in an oil heated home. As Commissioner Esty stated, we certainly don't want to leave out the oil customers, but if they're going to be part of the framework, they should certainly be contributing to the extent that they're getting the dollars back. Again, more efficient oil furnaces are laudable, but the issue is, do gas and electric ratepayers need to pay for them.

Our concern is that the change in cost effectiveness along with the cloudiness around PURA's role could mean that PURA is asked to pass through millions of dollars into rates without performing their statutory analysis along -- around just what is just and reasonable.

Finally, another significant concern in the bill revolves around decoupling and the rate of return. Again, the Attorney General is joining us in raising these concerns to you in their testimony. In short, it is essential that PURA be allowed to consider the impact of decoupling on a company's rate of return. A company that has full decoupling has less risks, and hence that lessened risk should and always has been considered in setting (inaudible) in rates.

The language in Section 1 eliminates that consideration in both in the OCC and the Attorney General feel that it should be added back.

Finally, there are numerous bills around clean energy. We submitted detailed testimony and just to cut to the chase, there's an RPS study coming out of DEEP, and it seems to make sense to us to deal with that as a whole rather than piecemeal through legislation since we have committed to doing this RPM study.

And my last point is that we also support H.B.6533 considering hydraulic fracking. There's questions around whether we can safely dispose of this waste, and I would submit that until we have assured ourselves that we can, it's in the best interests of consumers, particularly water consumers to consider a ban to protect all of Connecticut until we've answered these questions.

With that, I thank you for the extra time, and I'll be happy to answer any questions. And Miss HACKETT is here to assist me with that.

REP. REED: Okay, I'll kick it off quickly. In order of magnitude, what should we do first?

CONSUMER COUNSEL ELIN SWANSON KATZ: Well, I mean, I would suggest that the changes with -- we need to clarify the roles of PURA and DEEP. I mean, that's essential to make sure we're maintaining the framework that has been set up. I mean, this may have been an inadvertent change, but it's very significant as written. And then the ROE, that's proposing a very significant change to how the historical structure of rates. So, you know, those are sort of our two biggest concerns.

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REP. REED: And, I mean, sort of returning to that, it always feels like we're sort of on an archeological dig when we start talking about the PURA/DEEP relationship. And how many troubling moving parts are there to it. Because it really, it's concerning to all of us that it could compromise where we want to go, and how quickly we want to get there.

CONSUMER COUNSEL ELIN SWANSON KATZ: Yeah, and that's certainly understandable. And in fact in our testimony we are supporting parts of this bill that clarify and streamline the process between how the CNLM, the Conservation Load Management Plan is developed. Because as it currently exists, DEEP does a full blown thing, and PURA does a full blown thing. So we need to clarify the roles we support putting the gas and electric plans together instead of having two separate proceedings, which could potentially lead to four separate proceedings. So we -- I fully appreciate the need. We got to get these things moving.

On the other hand, we also need to make sure we have full and adequate process. It took a long time to develop the Comprehensive Energy Strategy, in part, because there were so many public meetings and technical meetings. However, that process led to a better product. The first draft was not as sensitive to or cognizant of the concerns we've heard from the oil dealers. But for the public process, that might not have come to light.

So there's always a balancing between the need for speed and the need for process. I just don't want to see us move too far one way or the other. And the second point is, this is about the relative roles of each of these two bodies. And this is a -- this is a common tension in the utility area, when we have --

we're not the only state that struggles with this. But that tension itself is part of the checks and balances. You don't, I would submit, want to have one agency setting the budget, approving the budget, and then passing it straight on through into rates. I think you need to have appropriate checks and balances.

REP. REED: Thank you for making that point. I think that's really, really critical that that, in some ways, is the way the process is supposed to work. That's it's -- we're annoying each other, all the components of democracy. Are there any other questions? Representative Becker.

REP. BECKER: Thank you Madam Chair. Good to see you again, Elin, and thank you for introducing your cohort as well. Just to kind of put a fine point on where you were just now, the -- the lines, if I'm looking at it correctly here in the bill, it's lines 196 and then I guess into the 200s. So on pages 7 and 8 of 6360 that we're talking about, because that's where it says that PURA shall ensure that the balance of revenues required to fund the budget is set by DEEP.

CONSUMER COUNSEL ELIN SWANSON KATZ: Correct.

REP. BECKER: Is provided through a fully reconciled conservation adjustment mechanism, correct?

CONSUMER COUNSEL ELIN SWANSON KATZ: Correct.

REP. BECKER: Okay. And then the notion of rates remaining just and reasonable, and PURA is going to do that, that is found in line 223.

CONSUMER COUNSEL ELIN SWANSON KATZ: Correct.

REP. BECKER: Okay, just want to make sure that we're focusing on the right place. And then switching back to the cost effectiveness piece of this. So that, I think, I tracked back in the bill to line 60, where the word -- where under current law, the cost effectiveness testing compared to the value and payback to the program benefits to the program cost in terms of program -- programs are designed to obtained gas saving, or changing the word gas to energy, so it becomes any form of energy savings? Is that the key here?

CONSUMER COUNSEL ELIN SWANSON KATZ: Yes. It's not just there, but it's also in another section, and actually it's line 240 as well. And I'm going to ask Attorney Hackett to address that, because she's become our cost effective -- cost efficient -- or efficient, energy efficiency expert in the office in part, whether she likes it or not. So --

VICTORIA HACKETT: Thank you. I'm probably hardly an expert, but, you know, trying to learn. And yes, I think page 9 of 28, line 241 is the other place. That's where the -- the first place that you noted, line 60, that's where it would change the cost effectiveness for the gas program. And then -- because that's from the gas conservation statute.

And then for the electric programs the change is on line 241. And actually one of the things that we've proposed -- that we would like to propose it to combine those statutes and put the gas and electrics (inaudible) into one statute, and also to add the consideration of the gas came into the same statute where the electric cam currently is, which is 1619 BC, which is also in our written testimony.

But we think that would really greatly help to

streamline both Kera and DEEP's consideration of seeing the land going forward. Because one of the difficulties has been that with the different statutes governing the proceedings, the proceedings don't happen together. So I just wanted to throw that in as well.

REP. BECKER: So I'm just trying to get a -- make sure I'm understanding the concept and the cost effectiveness.

VICTORIA HACKETT: Okay.

REP. BECKER: So we include all energy, then for example, it would be oil savings too, so a home that's bio-oil and has electric utility services, one qualifies for the program, it could look at the savings for both the electricity and the oil.

VICTORIA HACKETT: Right.

REP. BECKER: And of course, with oil being at a high price today anyway --

VICTORIA HACKETT: Sure.

REP. BECKER: -- it would sweep in many more opportunities for savings and the cost would rise?

VICTORIA HACKETT: Yeah. And we do think that the programs should include oil customers, both residential and commercial. But there should be a contribution from those oil customers that is equivalent to the contributions coming from electric heated homes and gas-fueled homes and businesses.

If you have an electric -- if you have a home with gas heat, you're paying a conservation charge on your electric bill and on your gas

bill. If you have a home with oil heat, you're only paying the charge that's on your electric bill, you're not paying as much into the fund.

You should be able in -- you know, in our community, you should be able to participate in the programs to the extent that you've contributed to the programs, but we need to find a way to not burden the rest of the electric-rate payers with -- with funding all of the energy efficiency in oil homes. And we think there are a variety of ways to do that. But you're switching those costs from oil -- from people who have oil to the electric rate payers.

REP. BECKER: So it's a fairness concept, and so the ability to make changes should be tied to fuel sources, I guess, that are -- that have a mechanism for customers to pay in a portion of the -- of this program.

VICTORIA HACKETT: Right.

REP. BECKER: And so we're kind of in -- in relationship to that. And I think there is language in the statute that talks about that somewhat, but maybe not --

VICTORIA HACKETT: I think that's in one of the other -- I think that was in -- I'm not sure if it was 839 or 1037, there was language about making sure that people only benefit to the extent that they contribute, but it also took off the cap for how much electric rate payers could subsidize things for long-electric measures.

So what you're basically talking about by just including those two or three words, all energy savings, you're looking really considering how many oil-heated and propane-heated homes and

at it.

And I'm just concerned that, you know, I don't want to suggest -- put a marker down right now this is what it means when it doesn't seem to be the time when we're having those conversations at the moment trying to reach a consensus, a meeting of the minds between the different stakeholders.

REP. BECKER: Thank you. Thank you, Madam Chair.

REP. REED: Thank you. Any more questions? Thank you so much.

CONSUMER COUNSEL ELIN SWANSON KATZ: Thank you. May I just add one thing on subbing areas which has come up several times, which is that we have proposed changes to 16-41, which would bring people who are sub metering within the authority of PURA and within their penalty statute.

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So there is certainly movement on that, and PURA has the ability to do that with this kind of change. Thank you very much for your time.

REP. REED: That -- that generated a question from Representative Hoydick.

CONSUMER COUNSEL ELIN SWANSON KATZ: I didn't want to leave yet.

REP. HOYDICK: I'm glad you didn't want to leave yet. Could you say that again? In which -- is it addressing in one of these bills or is it --

CONSUMER COUNSEL ELIN SWANSON KATZ: Yes.

REP. HOYDICK: Okay. Say it --

CONSUMER COUNSEL ELIN SWANSON KATZ: 6360, and our

comments on 6360 there's a section on submetering, and commenting on that we are supportive of the concept of allowing sub metering with appropriate consumer protections, right? We always -- but I heard everyone else echoed that too.

As part of having appropriate consumer protections, PURA needs the ability to enforce the rules and regulations that may promulgate. So that's why we are proposing that that -- they be given that authority under 16-41, because in fact we have -- they don't have that authority now.

We have situations where we are dealing with illegal sub metering we have cases going on. And they actually don't have any enforcement authority with respect to penalties or fines around that. So it makes it that much harder to address -- address what people should or shouldn't be doing in this context.

REP. HOYDICK: So would you be -- would you be open to or suggesting that if a property owner has generation that they are metering or some metering and charging to their tenants, that they would have to come before PURA as a rate case?

CONSUMER COUNSEL ELIN SWANSON KATZ: Not as a rate case. But they -- you know, the idea is that they do need to come before PURA for approval. Right now that is because we don't have any systems set up, and there's some legal ambiguity whether anyone can in fact sub meter at all. So that's why we support the changes to clarify that sub metering should be -- should be allowed.

I mean, it's clearly coming based on all the discussion we had. It just needs to be done

with appropriate controls to protect, you know, the tenants from having a landlord, you know, tack a 25 percent premium on the bill or something like that.

REP. HOYDICK: I totally understand. Do you have language or do you have examples of how this is done that you could --

CONSUMER COUNSEL ELIN SWANSON KATZ: Yes. Absolutely. We have the -- actually we've spent a lot of work on this. We've been doing a lot of work on this with respect to PURA.

REP. HOYDICK: Great.

CONSUMER COUNSEL ELIN SWANSON KATZ: To the extent it's not fully enumerated and we'd have to provide supplemental testimony on that, as well as the other issues.

REP. HOYDICK: Pack it all along with Representative Becker's request, and that would be great.

CONSUMER COUNSEL ELIN SWANSON KATZ: Great.

REP. HOYDICK: Send it to us.

CONSUMER COUNSEL ELIN SWANSON KATZ: We're always happy to help. Thank you so much.

REP. REED: Thank you very much. Next up is Abe Scarr, I believe. I hope I'm pronouncing that correctly, Compheard. Oh, there we go. Welcome.

ABE SCARR: Thank you. And yes, that's correct. Chairperson -- Chairperson Reed, and members of the committee, thank you for the opportunity to testify today. My name is Abe Scarr. I'm the director of ConnPIRG. I've submitted more

detailed written testimony on a number of issues today.

For my oral testimony I just want to touch on two basic topics on some of the efficiency programs, as well as an opposition to Raised Bill 6531. I will note that in my written testimony I also have comments raising concerns about the natural gas bill back.

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So energy efficiency is appropriately at the heart of the comprehensive energy strategy, and Connecticut has very much to be proud of in its energy programs, energy efficiency programs, which have delivered real savings to residents and businesses.

And as we move forward towards expanding our rate pair funding efficiency programs in the state, we should be taking a critical eye and have a responsibilities to address problems and any deficiencies that exist within our current programs.

There are existing problems right now with our programs, some of which have been identified with the CES, including making sure that the home energy solutions program is achieving deeper efficiencies, rethinking marketing and outreach, and re-evaluating the programs from the perspective of the constituencies they seek to serve.

And a number of these problems stem from the utility program administration of our efficiency programs. The case for removing and reforming program administration is twofold. First there's a basic incentive and organizational cultural problem, and while decoupling of it moves forward may change that problem with incentives, it will still take time for the utility organizational cultural to

change.

Second, over time the utilities have demonstrated that they're either resistant or incapable of adapting and reforming programs to improve performance. There are well-documented problems with a number of the programs, and no program is perfect or should be expected to, especially as we're creating new programs and experimenting with ways to achieve efficiency in the state.

But we can and should expect program administrators to learn from mistakes, transparently track performance and implement reforms to improve performance. Is that really three minutes? With permission I'd like to extend my remarks a little bit if that's possible.

REP. REED: Yeah. Just see if you can begin wrapping, thanks.

ABE SCARR: Sure. So in my detailed remarks I've provided more detail, including a proposal to implement a consistent -- sorry, a top to bottom review, putting program administration out to bid and extending and expanding the efficiency board to represent consumers that are the people benefiting from efficiency programs.

And then quickly on Raised Bill 6531, I'm strongly opposed to this. It's addressing a real problem with waste management and recycling in the state, but the RPS is the wrong way to do it. We should be increasing recycling and reducing waste in our state, not providing subsidy through our energy policy to the incinerators. Thank you.

REP. REED: Thank you for your testimony. Any

questions? Representative Hoydick?

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REP. HOYDICK: Thank you, Abe, for coming today, and bearing with us. I'm curious, though, about your comments about the utilities managing the efficiency program, and why you think that this -- they're not doing a good job.

ABE SCARR: Sure. And as -- as I said before, I believe there's pretty well documented, even if you look at the comprehensive energy strategy, places where we want to improve and reform our programs. And that's to be taken for granted with any programs that we have, there's always room for improvement.

I think that the strong case for needing to change program administration is that a lot of these problems have been documented for years. You can look back for 2008, 2010, and today and see similar problems being raised and similar efforts for reform being made. And I think too slow of progress in making those reforms.

As I detail in my comments, there was a program in review investigation in 2008 which made some of the recommendations that I put forward, that were not fully included in the final report, which I think the committee should consider today.

REP. HOYDICK: And the reason I asked you -- thank you, Abe -- the reason I asked you that question is because professionally and representing my town, I've -- we've had really great success with our local utility company in administering efficiency programs. And they've been very helpful in indentifying grant opportunities and financing and things that we, as we thought we were very progressive and in the know with energy, were unaware of.

And I -- I think they took those recommendations from 2008 and have been steadily improving and so I'm -- I'm really trying to zone in on exactly what you think now needs to be addressed and improved upon and again why you're not seeing it happening.

ABE SCARR: So again, some of the problems that I've identified would be with the home energy solutions program. I think we, as the CES documents, are not seeing the deeper efficiencies we'd like to. I think there's been pretty consistent problems with the income eligible programs, with some of the municipal programs, and just in general with data transparency and good accountability and evaluation of the programs.

That has improved since 2008, the evaluation of the programs. There were reforms implemented, but I think there's still room for improvement there. And again, when you -- again, there's always going to be problems with programs and that's understandable, but when you look at seeing that there are problems that have been consistent over the years that have not been addressed, that's when I can ask you to take a step back and consider program administration.

REP. HOYDICK: Thank you. I appreciate your point of view, and I appreciate you articulating that. I think the direction that's been set by the utilities is focusing on the most efficiency as fast as we can get it, and that's focused on commercials and communities because we get a bigger bang for the buck when you go to the municipalities.

And I think they would be the first to agree as they cooperated with CES about the home energy program. So I think we're all on the same

page, and I thank you very much for your testimony.

ABE SCARR: Thank you.

REP. REED: Thank you. Any more questions? Thank you very much for your testimony.

ABE SCARR: Thank you.

REP. REED: The next up is Councilwoman Cynthia Jennings from the Hartford City Council. Is she here? Welcome, and good afternoon.

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CYNTHIA JENNINGS: Good evening. Seriously, good afternoon, Senator Duff, Representative Reed, and the members, the esteemed members of the Energy and Technology Committee. I would like to thank you for the opportunity to come before you to speak about Connecticut's energy future.

My name is Cynthia Jennings, and I'm a lifelong environmentalist. I was selected under President Clinton as one of 26 people to advise the United States EPA administrator Carol Browner on issues of environmental justice. I also served for three years as the executive director of the Black and Puerto Rican caucus of the Connecticut General Assembly.

I served as outreach consultant to Northeast Utilities during their project design to upgrade the energy grid in northeast -- I'm sorry, northwest Massachusetts and Connecticut.

I currently serve as a councilwoman on the Hartford City Council, and I chair the Environment Committee. I am a founding member of the Connecticut Coalition for Environmental Justice, and I am a civil rights attorney. I am pleased to see the development of a comprehensive energy plan developed by Governor

Malloy in cooperate with the commissioner of the EEP.

The city of Hartford has a disproportionate amount of environmentally-risky facilities within its geographical boundaries. When you flush your toilet in Avon, it ends up in Hartford. When you throw your garbage out in Canton, in ends up in Hartford, and it's burned in Hartford.

Today I strongly oppose the inclusion of trash incineration as a class 1 renewable energy source. I'm supporting this testimony relative to House Bill 6360, 6532, 6535, and 6531.

The reason I oppose designating trash incineration as a renewable energy source is because it is highly polluting, it contributes to global warming, and it is a known asthma trigger. The city of Hartford currently has 25 percent -- a 25 percent asthma rate among its children. This means that one in four children in Hartford has asthma.

Hartford is also home to a major trash incinerator. A high percentage of the air pollution in the city of Hartford comes from its trash incinerator. The Hartford trash incinerator burns garbage for almost half of the towns in Connecticut. I'd like your permission to continue.

REP. REED: Yes, please.

CYNTHIA JENNINGS: Okay. I worked with a broad base of Hartford environmentalists in opposing trash incineration within our city. Most communities would not allow a trash incineration to be built in their town. Hartford's trash incineration burns garbage for more than 70 towns throughout Connecticut.

It is an unhealthy, polluting source of energy, and it is not a renewable energy source under the terms of the proposed legislation. Once you burn your garbage you must then fill a landfill to store the toxic ash. Once garbage is burned it contributes to greenhouse gases in the environment, global warming and lung disease. Trash incineration is not a clean energy source, and should not be classified as a class 1 renewable energy source.

As a member of a town that is host to a major trash incinerator, I urge this legislative committee to protect Connecticut's air, protect children's lungs, and say no to including trash incineration as a class one renewable energy source, even as a temporary measure.

Instead of meeting our renewable energy goals through trash incineration, Connecticut should make firm commitments to invest in true, clean energy projects like wind, solar, geothermal heating, recycling, reducing packaging, reusing projects, and rethinking how we dispose of our garbage.

Let's invest in clean energy products and clean energy projects. I urge this committee to say yes to clean energy projects in Connecticut, and to support a cleaner, healthier Connecticut for all Connecticut residents. Thank you. If you have any questions I'll be happy to respond to them.

REP. REED: Thank you, Councilwoman, and thank you for waiting so long to testify. So I think one of the issues that we are confronted by is the idea that the economic model for waste to energy -- because of the low price of natural gas, is no longer sustainable, and that they will go out of business, quite frankly.

Which is concerning for the process of where to put it, but also for the jobs that are involved. Are there -- are there any things that you were thinking about in terms of -- you're assuming, I'm guessing, that more clean energy will create more clean energy jobs. Is that your -- your answer to this conundrum that we're confronted with?

CYNTHIA JENNINGS: Well, absolutely. I actually cut my testimony down because I was talking -- I was going to also talk about the fact that clean energy is going to produce many more jobs than the way that we're disposing of energy now.

And I think that Connecticut can become a leader in clean energy if we rethink about how we develop our schools, our public buildings, whether or not we use geothermal heating and cooling, whether or not we use solar panels, whether or not we -- we use renewable energy sources that are clean and healthier for our children.

Connecticut Coalition for Environmental Justice, of which is one of the cofounding members with Dr. Martin Mitchell and others, actually has done a lot of work to remove diesel fumes and diesel fuel from school buses, so the children are not exposed to -- they -- we've enforced the idling laws, we've done a lot to stop the -- to clean up the air in Connecticut.

We're asking that -- that you consider at least removing the trash to energy facilities, even if they -- you know, not even re -- you know, not even redesignating them for a period of time. We need to increase recycling. We need to put our money into something that is going

to be healthier for our children, that we don't have to breathe. And I always tell people polluted air does not stop at the Hartford city line.

REP. REED: Thank you very much for your testimony. Are there other questions? Representative Becker.

REP. BECKER: Thank you, Madam Chairman. Excuse me. The frog keeps coming back. Good afternoon, Ms. Jennings.

CYNTHIA JENNINGS: Good afternoon.

REP. BECKER: We've had occasion to meet a couple times at League of Women Voter events. Good to see you. A couple questions for you. I went out and I actually visited the waste energy plant out in Bristol, and they told us that the only emissions coming out of their plant is steam

They have, you know, high-tech scrubbers and the like. And so I was just curious as to what emissions are, in fact, put out by these plants and if you have information on that that you could share?

CYNTHIA JENNINGS: Well, if no plastic gets into the waste stream you don't have to worry about dioxins, but if you burn plastic you have dioxins. Dioxins confuse your -- they -- dioxins affect your hormone receptors. They -- they mess with your endocrine system. Many of these things, obese synergens create obesity, diabetes.

There are so many things that are in the -- in the trash energy system, but they will tell you if you bottle it you can sell it for babies. But that is absolutely not true. The only

truth, nothing bad goes into burning -- bad into the system. Those scrubbers do not scrub everything out.

And what we're doing is under monitoring or checking, remonitoring on a particular day and time when they can check and change and do what they have to do to make sure that the monitoring comes out right. We also -- if we're going to keep these systems, we have to monitor them regularly, have an independent monitor check them regularly.

REP. BECKER: And one other question, and that is if we were to close these plants down, or if they go out of business, Madam Chairman said they might, given the energy prices, do you have a suggestion on what we do to dispose of the trash that they currently take care of for us?

CYNTHIA JENNINGS: Absolutely. If you read -- they're -- a huge percentage of our recyclables are in the garbage. We need to educate our children, our parents, the employees in the state, we need to have recycling done in fast food restaurants that currently don't do it.

We really need to up our recycling program, because that in itself would create more jobs and it would -- it would create cleaner air. So that we also have to reduce the packaging that we have and so many -- so many things. We have boxes and huge plastics, and huge packaging for items that sell on the -- in the stores.

Well, we have to put -- regulate how much packaging material you can use. You open it up and you throw more than you -- you just bought. So we really -- we -- we can reduce, recycle and rethink most of the things. And the things

that are left ,we can put those things in the landfill because they, you know, but we can't -- we can't continue to burn them and incinerate them.

REP. BECKER: Well, as a town with single-stream recycling, we do a great amount of that in West Hartford. For my household, I know that we put out much more in the way of recycling, and I think we had one bag of garbage, actual trash in the last week. So --

CYNTHIA JENNINGS: Exactly. I want us to -- I want us to have stickers, one that says pay and one that says free, and put the free sticker on your recycle bin, the pay sticker on your trash bin, and understand you're paying to throw this stuff out. Recycling you get paid.

REP. BECKER: I was going to say it's actually better than free. The town gets paid for doing that, so thank you.

CYNTHIA JENNINGS: The town gets paid for it, so thank you.

REP. REED: Thank you. Representative Lesser.

REP. LESSER: Thank you, Madam Chair. Obviously if this bill passes, or the section -- or the few sections -- and it because a class 1 resource, Councilman, are you aware of anything in this bill that would prevent out-of-state trash being burned in a trash energy facility in Connecticut?

CYNTHIA JENNINGS: Well, I don't know, because out-of-state was burned in our facility. We burned in Hartford trash from 77 towns plus New York City, and we ended up fighting to keep (inaudible) landfill open in New York so that they wouldn't continue to burn garbage in

Connecticut.

REP. LESSER: It's my understanding, and I thank you for that answer, Councilwoman. My understanding is that there is a court case, Supreme Court case that has found that trash is a part of interstate commerce and so that would be something that we would be precluded from preventing even if we wanted to do that.

CYNTHIA JENNINGS: That's right.

REP. LESSER: So I think that would be a concern if we started to see a huge influx on the amount of trashed energy that we were generating in the state.

CYNTHIA JENNINGS: Absolutely. It is considered commerce, and the only way to prevent it is don't burn it here. Thank you.

REP. LESSER: Thank you for your answers.

CYNTHIA JENNINGS: Thank you.

REP. REED: Thank you. Any other questions? Thank you so much for your testimony.

CYNTHIA JENNINGS: Thank you. Take care now.

REP. REED: The next is Bruce Parker from Kimberly Clark.

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BRUCE PARKER: Good afternoon. My name is Bruce Parker, and I'm a member of the Leadership Team at the Kimberly Clark facility in New Milford. I'm going to present for Jim Schneider, whose travel plans were interrupted because of the snow, and joined by outside council Vicki Karandrikas to help with any questions as needed.

Kimberly Clark appreciates the opportunity to publicly support Bill 6360's provisions advancing microgrid development in Connecticut, and it presents suggested amendments that Bills 6532 intended to ensure that Class 3 combined heat and power resources remain viable options to support such development.

My comments will summarize the more detailed written testimony submitted to the committee prior. Kimberly Clark installed a 35 megawatt Class 3 CHP system to meet the mill's electronic and thermal needs and remaining competitive in Connecticut.

KC's decision to invest 50 million in CHP development relied upon projections that class 3 sales would help offset significant development in ongoing operating costs. As a Class 3 developer, K-C supports Bill 6360's measures to promote micro good development.

As recognized in that bill, CHP offers the type of generation needed to power a CONSUMER COUNSEL and achieve the related reliability benefits. However, the success of Connecticut's initiative is threatened by the serious Class 3 market imbalance stemming from the flood of Class 3 credits produced by C&LM resources, Conservation and Load Management.

Class three RECs are trading at the floor price, if they can be sold at all. The comprehensive energy strategy's recommendation for increased C&LM funding would likely worsen the present imbalance. The Class 3 oversupply situation jeopardizes the revenue stream that KC and other CHP developers rely upon to justify their investments.

If left uncorrected, the present Class 3 market will have a chilling, if not fatal effect on

CHP and development in the state. For CHP to be a viable option to support Connecticut's initiatives, the Class 3 market must be restructured to re-establish the necessary incentives.

To this end, K-C proposes the creation of a new RPS class or subclass comprised entirely of C&LM projects, thereby removing them from the Class 3 category.

We fully support the forthcoming preview that Commissioner Esty gave us earlier today in terms of managing C&LM within that framework. Separating Class 3 CHP resources from C&LM projects into distinct categories will recognize the key differences in funding requirements and resources, begin to ease the current Class 3 imbalance, and mitigate any impacts from future C&LM funding increases.

Recognizing the department's RPF study is underway, K-C urges Connecticut to act before this legislation -- legislative session closes, and further CHP and CONSUMER COUNSEL development is compromised.

Of course, K-C is open to working with committee members to adjust these proposals as necessary, and help address important renewable energy matters facing Connecticut. Thank you for your consideration, I'm available for any questions you might have.

REP. REED: Thank you for your testimony. It's clear there's just a lot of activity around classes and subclasses and it's something that I think is -- we're going to be exploring not just this -- this general assembly term but in some of the terms to come. Does anybody have any questions? Senator Chapin.

SENATOR CHAPIN: Thank you, Madam Chair. So if we were to create a new class or subclass for C&LM credits, how do you envision that impacts Class 3 credits as it relates to Kimberly Clark?

BRUCE PARKER: Senator, I think I have a unique president as both a operator and a CHP potential future developer. Right now I go to work with 350 paper makers in Western Connecticut, and they are committed to excellence and delivering business results.

As an operator right now, we are losing on every kilowatt we produce, and that $50 million investment that we've made, we are not paying it back. Okay? At that's -- we haven't paid back the business leaders who have made an investment in us in Milford and in the State of Connecticut.

So as a -- as a future developer, I can't help but look at attachment one in the formal testimony written that shows a Class 3 market that's over 100 over supplied and continues with a project -- with a trajectory upward and the ensuing Class 3 REC price, which is at the floor of 10, but that's actually a false floor because anything beyond the ones that get sold to 10 don't get sold at all. So, you know, that's not a good environment for considering future CHP investments.

SENATOR CHAPIN: And as far as I think I'm starting to get a handle as to how it impacts you, but -- and I'm not sure how many other CHPs there are across the state, but are they in the same position? Would this proposed change -- if we created a new subclass, help all CHP generators out there?

BRUCE PARKER: I believe absolutely, yes.

SENATOR CHAPIN: So if we were to create this subclass, I guess the market wouldn't be flooded, and therefore you wouldn't be at the floor? Is that how you envision this?

BRUCE PARKER: That's how we envision. Certainly that we would operate within the parameters of the floor, no lower than the floor certainly you want to have a market whereby we don't have it oversupplied and there's Class 3 RECs that go unsold

SENATOR CHAPIN: And from your perspective, being a company here that's actually done a good neighbor and a community-minded company, I think I hear the commissioner say earlier -- well, I know I've heard the agency say this RPS plan is going to come out or the drop plan is going to come out, and it seems to be taking longer than they had originally told us.

Do you have a sense of urgency that we really can't wait for that RPS plan, that we should be moving during this legislative session?

BRUCE PARKER: I certainly support it. Vicki?

VICKI KARANDRIKAS: Yeah. I think, you know, we certainly appreciate all the work that has gone into the comprehensive energy plan, and as well before that the draft and even before that the IRP, and through that process we -- we know that the -- the problem has been well documented, and the idea of separating out conservation on the (inaudible) project has been pretty well received.

I know it's a matter of studying to find out what more can be done with respect to RPS and (inaudible) certain studies, but we think that, you know, moving forward and taking a basic step separating out conservation doesn't

preclude looking at what the (inaudible) recommends and finally when the RPS is in the final form, taking those recommendations and further seeking Class 3 or any of the other classes, based on the recommendations they had.

But the time is really right that this legislative session provides an opportunity that's been (inaudible) over the last two or three years, and it's a good time to at least take the first step. Maybe not, you know, accomplish everything all in one fell swoop, and that would be where our path study would come in after the public (inaudible) follow the draft and really with that finalize and that can be the basis for looking ahead.

I believe Commissioner Esty (ph) mentioned that RPS is going to be something that will evolve as the market in Connecticut evolves. So that -- that might be the place to look at (inaudible).

SENATOR CHAPIN: As I recall, in I think it was 2005, when we passed an act concerning energy independence -- I think at the time your only mill in Connecticut had the highest energy costs of any mill I think in North America.

BRUCE PARKER: That's correct.

SENATOR CHAPIN: Can you confirm -- can you -- so you did confirm it, and now that you have the CHP, how has -- how has that affected at least -- your monthly bill as it related to your monthly energy bill as it related to other mills?

BRUCE PARKER: Oh, sure. We, you know, our facility in Milford at one time in its heyday had 1,200 employees, and it had whittled down to 350 and I'd say the perspective now is that

we're trying to move ourselves back into an investable position, to grow that once again.

Our cost structure is far better than it was before. However, the cost structure isn't a cost structure that's suitable now to pay back a $50 million investment. And that's really the crux of it is we need the -- the promise of the revenue that we kind of entered into as -- you know, that was kind of the -- how we anted up the $50 million to make this big investment in Connecticut.

We're better off but we're not where we would like to be because we really are not paying back that investment as the business leaders would have hoped.

SENATOR CHAPIN: And assuming you -- assuming we make no changes and you continue to have difficulty paying off -- paying for this investment that you made, I guess there may be some that may think that we already made the investment so you're here. Is that a false sense of security?

BRUCE PARKER: I believe so. You know, corporations expect some certainty in their investments, and I would say that he's a bit of a black eye for the business climate in Connecticut. It certainly impacts us in terms of future investabiltiy here in the Milford because we're always out competing against our sister sites in Oklahoma, South Carolina and elsewhere. So you know, we want to have the best business footing and business case here to grow in Connecticut, and you know, this -- this isn't -- hasn't been a great -- a great example of the partnership working the way it was envisioned.

SENATOR CHAPIN: Thank you. And thank you for

taking the time to come up here today. I really appreciate it. Thank you, Madam Chair.

REP. REED: Thank you, Senator. Representative Lesser.

REP. LESSER: Thank you, Madam Chair. I also wanted to echo some of Senator Chapin's comments. Actually I believe I went out with him and some other legislators to view the facility you have in New Milford, was very impressed by it. And I think we may be to some extent victims of our own success here with the collapse of the RPS Class 3, you know, the Class 3 REPs.

So I'd like to just, you know, I guess we're sort of pre-judging what comes out of the MRPS study next week, but whether we take you up on your recommendations or find some other way of dealing with this, I just think you raise a really important issue and something I hope we deal with this session. So thank you for coming up.

REP. REED: Thank you. Are there any other questions? Representative Miller. Okay, I'm just going to say one thing, cause I'm guilty of it as well, we all are. We have 68 more witnesses. I don't know if they've all -- they're all here. Talk about sustainability . we're going to check it out today. So I'm -- I'm advising myself and all of my colleagues that that's our reality. Representative Miller.

REP. MILLER: Madam Chair. How important are those credits, when you decided to put these machines in, how important were those credits?

BRUCE PARKER: You know, we targeted about $20, the middle of the market, in our analysis. I'll

tell you that this investment for $50 million was at the very limit of what the corporation was willing to do. If the same -- if the same investment was placed in front of the business leaders today with a REC with a 10 -- somewhere between 10 and zero and no plan to fix the Class 3 market, the investment would never have moved forward. Potentially that could have spelled the end of the site.

REP. MILLER: So it was a major part of the insulation?

BRUCE PARKER: Fifty million dollars is a lot of money.

REP. MILLER: Oh, I know. We -- you know, we talked about business climate in the State of Connecticut. I'm not going to comment on that because we don't have a business climate. The only way we can get businesses to come to Connecticut is if we throw money at them. Here you are a local company, you've been here for years and years and years.

And I don't know why this state is looking to in a sense reduce some of the credits that you need to keep this insulation viable and keep your costs down. I don't know, maybe you should tell the governor you're going to move out of state tomorrow and then he'll throw some money at you and you can say, okay, we'll stay, you know. But I don't know. It just doesn't make any sense. And again, we appreciate your staying in Connecticut and we appreciate the fact that you're a great neighbor and involved in our state and we appreciate that so much. We'll do what we can to help you.

BRUCE PARKER: Okay. You can understand our urgency because the REC market really has been in a collapsed state since 2010 is when it --

it flattened out, so this is our third year of a market that's way over supplied. Thank you.

REP. REED: Thank you very much. Any other questions? I think we're doing an informational on RECs for the committee and anyone else who wants to attend in April. So we want to make sure that you have that because we really want to hear from you because we've been dealing with this for quite a while and it will be very -- it's an interesting journey that you've had. Thank you so much for your testimony.

BRUCE PARKER: Thank you.

VICKI KARANDRIKAS: You too.

REP. REED: Next -- I don't see Representative Butler. Oh, there he is. Welcome, Larry. Please come up and testify. Thank you. Great to see you.

REP. BUTLER: Good afternoon. Great to see you as well. Hello co chairs, Senator Duff, Representative Reed and distinguished members of the Labor and Public Employees Committee. I am here today to ask for your consideration for Bill 5590, AN ACT CONCERNING REFUNDS TO CUSTOMERS OF GAS COMPANIES.

And in the grand scheme of things, what's on your agenda just may not be as big but it relates to our interaction with our local gas utility in my experience recently that I think needs to be addressed. The purpose of this bill is to provide for refunds from our gas utility company in a timely manner.

In my experience, I was told this could take up to four to five weeks. In my opinion, that's too long. When you call to ask if there's

REP. REED: Next up is Michael Foote. Welcome. It is still the afternoon. Good afternoon.

MICHAEL FOOTE: Sorry about that. I wanted to start out by saying thank you to the committee, and thank you to Chairman Duff for taking me out of turn. My name is Michael Foote. I'm here representing NWP Services Corporation.

We are the leading provider of multi-family utility billing in the United States, and I am here to support Governor's Bill 6330 and House Bill 5582 regarding the comprehensive energy plan and electric sub metering. But to also ask that this committee consider including another utility issues that can help you reach your conservation goals with regard to water and sewer to allow for allocated billing in multi-family properties.

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Currently PURA allows for submeter billing for water and sewer, and PURA -- for properties that are served by PURA-controlled water companies. The law and PURA regulations are a little unsettled as to when a property can use what's called RUBS, and that stands for Ratio Utility Billing Service.

Where a submeter is not used in each unit, but the master metered usage for the property after a common area deduction is taken, is allocated to residents based on ratios that are derived from square footage of an apartment compared to total square footage, number of occupants in an apartment, compared to total number of occupants in the property.

This type of billing has an advantage over in-rent billing, and that's where there isn't separate utility billing but a resident pays for their utilities in their rent, and they can

use as much as possible. And their amount they pay each month does not change. In that situation they're, in fact, incentivized to use as much as they can because there's zero price signal to them to use less.

For our customers that are multi-family owners, their utility expenses are typically their third-largest expense, and it is a -- when utilities are billed with rent, it is a driver for rent increases year-over-year if they're -- if the property as a whole uses more in utilities, in this case water and sewer, than the budgeted they'll have to make an adjustment in the next year to make up for any sort of losses and this can only be achieved in increasing rent.

What we propose to do, and this is -- this is used in many, many other states, is to separate out the billing for water and sewer from rent. Use the RUBS billing methodology, which never bills out more than the property is billed, so it's not a profit-making situation for the owners, just an expense recoupment for them.

And it has a price signal to the residents to conserve water. If all of the residents use less water, the amount they allocate, the pie that you're dividing up, is smaller. And just the back of the napkin calculations for 140,000 multi-family residential units, there is -- the difference between in-rent billing to using a RUBS program goes from zero conservation benefit to about 6 to 18 percent.

Over the course of a year that would be about three billion gallons of water that you all could save, and you also get the savings on the sewer side of things because if you're using less water, less sewage has to be treated.

We are willing to work with PURA or any other regulatory body to have some common-sense regulations to allow residents to understand how they're billed, to check how they're billed, to have access to all the information necessary, and to work with the agency or not if this is just done statutorily to put this type of language together.

And I believe my time is up, so I'll move to questions here. I don't want to step on any toes here.

REP. REED: Thank you. Thank you for your testimony. Are there any questions? Representative Case?

REP. CASE: Very informational. I just really wanted to thank you for coming up. As far as you've come --

MICHAEL FOOTE: Not a problem.

REP. CASE: -- to testify and give us information. Thank you for taking the time.

MICHAEL FOOTE: Not a problem.

REP. REED: Thank you so much for your testimony. It's really interesting and it's part of this whole universe that we're talking about of all the sub metering and really sort of looking at sort of all of these issues, conservation and all of it. So we have your contact information and hopefully we'll be able to continue the conversation.

MICHAEL FOOTE: Thank you. There's more detail in the written testimony. I'd be happy to answer any questions. Thank you.

REP. REED: Thank you so much. The next on our

list is Representative Vargas. Oh, there you are. Welcome, Representative.

REP. VARGAS: Thank you. And I want to thanks the co-chair, Senator Duff, Representative Reed and ranking members and federal legislators serving on this committee. I'm here today to speak on Bill 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Connecticut's best energy solution requires one, that we reduce energy prices for the greatest number of Connecticut residents, two, that we create a number of lasting jobs with access to living wages and benefits. Three, that we lessen the average Connecticut resident's impact on the environment, and four and finally, that energy is accessible and affordable to all home and business owners encouraging consumers to increase with increasing frequency.

This also means energy efficiency. To quote our governor, "The cheapest energy resource is the one you never use." Connecticut's energy efficiency programs are already helping Connecticut citizens reduce their energy costs by conserving the amount of energy needed to heat homes, water, and so on.

But there is still room for improvement. Deepening our conservation efforts beyond changing light bulbs, installing weather stripping to cover heating systems, ventilation, etc, offer the most savings for residents in the long term.

Fortunately, the more requests for deeper retrofits on homes and businesses the larger Connecticut screen jobs market will become. According to a report by the Environmental Northeast on energy efficiency in Connecticut,

if Connecticut were to increase efficiency program investments to levels needed to capture all cost-effective electric natural gas and unregulated fuels, the result would be 78,000 job years with one full-time job for every period of one year.

These are in-state jobs putting tradesmen and women back to work while being a potential market for the unemployed and new entrance into Connecticut's new green economy. Every house or business weatherized helps decrease Connecticut's carbon footprint. Deeper energy efficiencies measures move Connecticut one step closer to the goal of 80 percent emission reductions by 2050.

Just a couple of suggestions that I'd like to offer. One, integrate energy efficiency into all natural gas conversions, require improvements to building shell and the use of high-efficiency heating equipment that will create more jobs, keep energy dollars in Connecticut's economy, and prevent the state from wasting natural gas in inefficient buildings.

This ensures Connecticut homes and business owners will be saving money in the future when natural gas prices increase as they inevitably will as more states go toward natural gas. And the second recommendation is to establish a stable funding source for heating oil with energy efficiency.

Natural gas and electric tax rate payers already pay into an energy efficiency fund, and as a result have access to energy assessments, rebates and low-interest financing. To continue efficiency programs for heating oil customers past June 2013, we need heating oil customers to pay their share too, a modest

surcharge on fuel.

For example, 3.5 cents per gallon would ensure a full range of efficiency for heating oil customers and ensure that help is available when they're ready to upgrade their home or business.

And I'll wrap up by saying that as an example on a 2,500 annual fuel bill, it would only cost $25 to contribute to this fund, and considering that 50 percent of the state still heats with oil, it is important that we have continued access to these programs to each of the legislative mandate of 80 percent weatherization by 2030. Thank you for allowing me to testify.

REP. REED: Thank you. Thank you for your testimony. Are there any questions? Representative Steinberg.

REP. STEINBERG: Thank you, Madam Chair. Very quickly, thank you for testifying. And I particularly appreciated your suggestion to make sure that we take advantage of energy efficiency updates every time we expand our natural gas. To your point, the CEFIA solarized Connecticut program, before you can qualify it for solar installations, you have to go through the home energy audit process.

And that just sounds like a logical way for us to get started on a lot of natural gas upgrades as well, and I challenge CEFIA to make sure that maybe they can create some incentives to urge people to update their appliances and do other smart things as well. Thank you.

REP. VARGAS: Thank you, Representative Steinberg.

REP. REED: Thank you. Any other questions? Thank

you so much. I totally agree. I think this whole committee agrees that when people are beginning to think of improving their homes and making these kinds of changes it's really great to be able to provide them with an opportunity to do it all. So thank you so much for your testimony and your support.

REP. VARGAS: Thank you very much, Representative Reed.

REP. REED: Excuse me, Representative Morris. I didn't look around far enough. Representative Morris.

REP. MORRIS: It's okay. Thank you, Madam Chairman, Chairwoman. Thank you for everything that was in your testimony. Very well thought out, which is a lot of what you always do anyway. And it's appreciated.

I just want to make the comment, because I brought it up earlier, in terms of the economic opportunities that are yet available and I noticed in your letter of testimony there as a reference. While you're on that page, you're a Hartford legislator.

Is there anything more in terms of the governor's budget -- I mean, the governor's bill that you'd want to add as part of your testimony and its impact for you and your community, particularly around all the programming that you're talking about with CEFIA and how they --

REP. VARGAS: Well, when it comes to bringing in resources to the City of Hartford, you know, number one I'd add that because we do have a population that has a lot of needs and energy assistance. Overall I think the governor's strategy on energy is a great strategy.

Overall I support the bill, and I think it's an opportunity with a little tinkering that we can create some green jobs that might help our people in the City of Hartford obtain work, because as you know, unemployment in the city is at record levels.

And it's a problem. It's a national problem but it's really hit the urban areas a lot harder. So I appreciate it, Representative Morris. I appreciate your concern. And I think that these -- these recommendations will go a long way to give people entry-level jobs that are good-paying jobs and green jobs and help the environment and help conserve energy.

REP. MORRIS: And then in terms of energy strategy, we had the conversation earlier with the commissioner, who made it clear that he's really trying a balanced approach that's also sensitive to the needs of the oil, you know, distributors, the oil industry.

Your constituency was in Hartford. When you have to prioritize, cause we also talked about Lye Heat (ph) and the shortages of money that we're expecting to come down from the federal government in the future, I would imagine you've got a significant part of your constituency that are recipients of Lye Heat.

So in terms of prioritization and the opportunity to be able to change over to natural gas as opposed to using --

REP. VARGAS: Well, they'll need assistance because as you know we have a lot of residents depending on oil and on small oil-distributing companies in the city. And conversion is not cheap. So any programs that will assist people in making that conversion will be great.

But I also think in the -- in the end, gas may not be that cheap in the future because many states are moving along the same direction Connecticut is moving, and as demand for gas increases there's going to naturally be a change in price.

REP. MORRIS: Thank you very much for your testimony, Representative. Thank you, Madam Chairwoman.

REP. VARGAS: Thank you, Representative Morris.

REP. REED: Thank you. Thank you very much. The next is Steve Guveyan from Connecticut Petroleum Council. Hello.

STEVE GUVEYAN: Hello, and good afternoon. And when there are 64 witnesses behind me I will summarize our comments quickly. I'm Steve Guveyan from the Connecticut Petroleum Council, the trade association.

REP. REED: Sustainability.

STEVE GUVEYAN: Our trade association of major oil companies, refiners, terminal operators, pipeline companies. We are deeply involved with heating fuels, transportation fuels and natural gas. I will say right at the outset we do not favor one fuel over another. We'll be talked about the governor's energy plan 6360.

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We are agnostic on fuels. We sell heating fuel to the heating fuel dealers. We sell natural gas to the natural gas utilities. We'll sell propane to propane dealers. People want a BTU, we want to sell it. What we call it doesn't make a lot of difference to us. That's where we are coming from.

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Our point on the energy bill, the governor's energy bill 6360 we make a very strong recommendation for change in Section 18 dealing with low-sulfur heating oil. What that section says in different words is that heating oil as we know it is going to go immediately, and diesel fuel, as we know it, is going to take its place.

So we're opting out of heating oil, bringing in diesel fuel. It's going to happen on the timetable in the bill very, very quickly. We cannot make things and have them in commerce and make the bill effective the day the governor signs it and have all those (inaudible) over.

Normally the EPA gives industries four years to make a fueling change. This bill is saying we're going to give you about four weeks and we're going to make you do it twice in that time period, once to a 50 standard, once to a 15, 1-5 standard.

We're saying that sets the stage for very bad price supply run-ups. There has historically been a big difference between the price of heating oil and the price of diesel fuel, forgetting the tax fuel, forgetting the tax surplus.

The diesel is always more expensive so if you don't make the change understand right away diesel is going to cost the heating oil customers in this state right now around 12 cents a gallon more. The number moves around. But if you make it effective right away everybody's going to take that hit right away. That's coming, we can see it. If you go back to Hurricane Sandy the numbers got over 20 cents a gallon. So we are recommending strongly that that section be changed. We'll

get you there. We're not seeking to eliminate it, but give us a phasing scenario the way Massachusetts is doing.

We in our testimony have given you the Massachusetts numbers. They're still very aggressive. You're going to get 84 percent of what you want a year from this July 1 if you do it the way Massachusetts and other states are going. So we have those numbers in our testimony and that would be our condition.

The second bill we want to comment on is the hydraulic fracturing bill, 6533. We do express opposition to that. Representative Steinberg, I know it's your bill and I know you put time and effort into it and we've had discussion on it and we can continue to have discussion on it.

What the bill says is gas that becomes here as part of the governor's energy plan from the Marsellus Shale in New York. The gas is going to come here, but the wastes that come out of that hydraulic fracturing process cannot come here. They cannot be treat here, they cannot be stored here. They cannot by recycled here, they cannot be disposed of here.

And as somebody who's been involved in the energy environmental debate for a long time, I know many of you have, you have heard what the policy makers and legislators in Connecticut have told us. You have said to us as an industry, and you said it to many industries over the years, we want you to take responsibility for your waste. You're in the beer business, recycle the bottles. If you're in the Coca Cola business, recycle the cans. If you sell newspapers, recycle 'em.

Mattresses, get it done. Electronic screens,

computer screens, recycle. We agree with that. This is -- even though we manufacture those wastes, we can't recycle them yet, and we want them to be able to do that. The changes of that happening here, as the commissioner said earlier, are probably slim.

We're still 100 miles away from that shale in New York, and it's a long way to run trucks back and forth. The timeline now is to recycle on the site. So the chances of it happening here are not great, but we would not want to see that cut off. Thank you for taking our testimony.

REP. REED: Thank you. I think we're going to have a few questions for you. I just wanted to begin quickly, remind me, because I always get confused by this, diesel and home heating fuel are both number two oil. Is there kerosene in one of them, or what -- why the differential in pricing beyond the tax situation?

STEVE GUVEYAN: Ultra low sulfur diesel fuel, diesel fuel that goes in cars and trucks and buses especially, the sulfur content is 15 parts per million, 1-5. In the old days years ago it was up in the thousands, when people said oh, diesel fuel is dirty and smelly. That's what they were referring to.

Then it went down to 500. And in the last number of years it's gone down to 15. Heating oil, which is very, very similar to diesel. Different additive packages, but you can swap them out and nothing bad is going to happen to either one if you swap out the additive packages.

The heating oil standard that sulfur content is still up in the range of 2,000 to 3,000. We're fine with bringing the numbers down, but don't

give us a curve that goes like this and say that the day the governor signs the bill the new numbers kick in to a number at 50, which is in the bill, that does not exist anywhere in the country.

You can't make fuel just for the State of Connecticut for four weeks and then change it to 15. If we get to the 15, understand you're going to a higher-priced fuel. You're swapping out the less expensive heating oil, you're bringing in the more expensive diesel fuel, and every customer in the state is going to pay for that.

So we're telling you, and we do want it on the record, go into this one with your eyes open. The way to cut the impact on the customer is to spread out the sulfur reduction over a period of years, and that's what the EPA recommends. That's what's in our written testimony.

REP. REED: But isn't New York also requiring low-sulfur fuel, and isn't -- so -- and I would assume you're providing them as well, so you're essentially providing a region. I mean, it's bigger than Connecticut?

STEVE GUVEYAN: New York is the only state that's gone to the 1-5 number. Unlike Connecticut they did give advance time. There's no advance time with this, but New York did have advance lead time telling everybody the number was going there.

Second, the results haven't been good. I mean, look at the price difference in New York Harbor. This fall it was 23 cents a gallon. I mean, we heard the screaming up here. It was 23 cents a gallon more for the diesel and New York law barred its customers from taking the less expensive heating oil, even though it was

available because they went to the 15 standard.

There was a lot of screaming. You've got all the low income cap agencies. You've got the middle class. I heard the screaming up here. It was bad. The numbers have softened a bit, they're down to around 12 cents. But we're alerting you to what's coming if the numbers and the dates stay the way they are.

REP. REED: Thank you. Senator Duff.

SENATOR DUFF: Thank you. Thank you, Steve, for your testimony and for your patience in waiting. Quick question on the fracking bill. How do you -- I ask how do you -- if fracking waste were to come to Connecticut and be reused or whatever the word is I guess.

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STEVE GUVEYAN: Recycled.

SENATOR DUFF: Recycled, thank you. Would -- do you envision that there would be some sort of a new fracking waste place? I mean, would -- is that something that, you know, where you could kind of zone something like that or if it were to happen, how would that happen and what is kind of the process there?

STEVE GUVEYAN: Two options. One would be take an existing facility that can treat waste products. So in Meriden there's a company down there that does it that recycles oils. Clean Harbors is in Bristol. There may be somebody in Bridgeport. There are three or four companies in Connecticut that are licensed to deal with those kinds of things. That's one option.

Second option would be getting closer to the New York line. Since the shale's going to be coming -- shale gas is going to be coming from

REP. REED: Thank you. Representative Case?

REP. CASE: Thank you, Madam Chair. Just to touch on the point of the 15 ppms. Back in the 2000s, I think we have to be really careful on how we, as you said, come to this process. Because it took years for this to take place bringing it down from 3,000 to 500 to 15 ppms. We had a major overhaul of diesel manufacturers doing their engines.

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We actually had to mark pumps saying that this is ultra low-sulfur diesel, if your vehicle is 2007 or older, you know, please be aware that this is an ultra-low sulfur diesel. They have to add in so many extra lubricants in order for it to run properly.

So I think we have to really look at this because how it's going to affect the furnaces in the houses when they're used to running on, as you say, the 3,000, the 5,000 ppm. And also the -- the oil distributors and how it affects them. It takes three to four cycles in a delivery truck in order to get all that sulfur out and bring you down to the 15 ppm.

And you can really do some damage to your furnace, as it could do -- as it did do damage to vehicles. Correct me if I'm wrong. When I as in the -- I think it was like a three or four-year process to turn over to get to the 15 ppm.

So I agree with you on that because it's a very dangerous step to just drop in one quick swoop down to that low sulfur. I know it's better for the environment, but with people's older homes, they don't have the equipment that can actually run on that fuel right away.

And I agree with you it's going to be more expensive as we've found out with 15 ppm, because yes, you have the low sulfur diesel, but you gotta mix in the lubricants. One of the -- when I was at a meeting -- when I was in the oil business, the lubricant guy came in and he was like this is great. I can put a few more kids through college.

Cause you know you're just -- you have to add in that much more product in order to make it work in a piece of machinery. And correct me if I'm wrong.

STEVE GUVEYAN: That's right.

REP. CASE: So it's a process. We just can't --

STEVE GUVEYAN: It's a process. And what we're really finding is, you know, we're all used to going to the gas station and fill up your care with gasoline. We are on a gasoline standard in this country, and everybody knows it. We use gasoline in our cars.

Maybe 2 percent of the vehicles out there use diesel fuel. You go to the rest of the world, that's not true. The rest of the world is moving away from gasoline and onto diesel fuel. Today if you look in Europe, one out of every two new cars is fueled by diesel fuel. One out of every two new cars by diesel, not gasoline.

So the point is demand worldwide for diesel is picking up. We're gasoline-dependent here, but worldwide, there was a floor under the price because everybody wants it.

REP. CASE: But I guess my point to you, and I'll let it go because we need to move on, but in order for us to do this for heating oil, it can't just be within a one-year process.

STEVE GUVEYAN: Agreed.

REP. CASE: It's gotta be phased in because it's going to be detrimental, not only for the oil dealers, but it's going to be detrimental to the furnaces within your homes.

STEVE GUVEYAN: Yes. In our written testimony we actually lay out the plan which the Massachusetts regulatory groups, their DEP, spent a lot of time on. A lot of the New England states, it looks like, are going to go in that direction, so phase in over a period of a number of years. We're very supportive of that point. Thank you.

REP. REED: Thank you, Representative Case. Representative Miller.

REP. MILLER: Thank you, Madam Chair. It's my understanding in Colorado they've been using fracking for 30 years. What do they do with their waste water? Do they recycle it someplace in the area?

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STEVE GUVEYAN: They do. I -- they do. I don't know where out there it goes.

REP. MILLER: So there is a process to recycle it.

STEVE GUVEYAN: There is. For many years, for 60 years we've done hydraulic fracturing in this country.

REP. MILLER: Okay.

STEVE GUVEYAN: But it's been lower volumes. As we go to the higher volumes to bring out all the gas we need, there is a lot more water. So they -- they have been doing more low-volume over the years, in which case there was not as

everybody knows that there are a number of these so-called shale plays, big shale formations across the country.

That has been the driver of the price going down. If all of a sudden that gas can't come to market, the market is going to react to that harshly.

REP. REED: Thank you, Representative. Any more questions? Thank you.

STEVE GUVEYAN: Thank you very much.

REP. REED: Very, very interesting testimony.

STEVE GUVEYAN: Thank you.

REP. REED: Thank you very much. The next one is -- is it Michael Gayda or Miguel Gayda?

MICHAEL GAYDA: It's Mike.

REP. REED: Michael, okay. Come on up. Welcome.

MICHAEL GAYDA: Well, thank you very much, chairpersons, and committee members. I'm very happy to be here. I'm especially happy to be the 16th witness instead of the 76th witness. My name is Michael Gayda. I'm president of PBF Energy. We are the largest oil refiner on the East Coast.

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We produce the most heating oil on the East Coast. And I'm here to tell you we cannot produce low-sulfur heating oil, you know, today. We can eventually, but not today. The amount of heating oil we produce is such that we believe we are one of the largest suppliers of heating oil to Connecticut.

And in fact we may be the largest supplier to

Connecticut. It's hard to trace all the model tools, because we don't deliver it directly. We support the decisions of the states in the northeast to lower the amount of sulfur in heating oil. We do not oppose that.

But we have a real problem with the timing that has been proposed in this legislation. We frankly can't do it, and we think there may be concerns about others' durability to do it also.

We support the move to -- from -- to 500 parts per million in 2016, and then to 15 parts per million in 2018. The point was made earlier that New York is kind of in the dominant position and leading the way. My view is really New York is the outlier.

They have about 25 percent of the heating oil market in New York, so 75 percent of the heating oil market in the rest of the country, predominantly the northeast, does not have a 15 part per million standard. And so, you know, it's really the exception.

And the exception is driven by drive higher costs for New York residents and New York consumers. We talked about that earlier. You know, over the winter, based upon the DEP's information and Sirus information and that's the New York version of the Energy Commission there.

There's about 12.3 percent per gallon price differential between ultra-low sulfur, heating oil, and you know, conventional heating oil. If you looked at yesterday's prices, that's 16.7 cents. What -- what -- if you pass this legislation, what you're really saying is the consumers in Connecticut have to pay a premium.

It would be analogous to say that all the gasoline that sold in Connecticut has to be premium gasoline. Very good product, but much more expensive. And that message is what you're saying. All the heating oil that's sold in Connecticut has to be premium heating oil. More expensive.

You know, I guess we think the other product is fine, and we'll get to that better, that higher quality of low-volume sulfur, but it will take us a few years. We can't do it overnight.

There is this discussion about will there be supply constraints? I can't tell you if there will not. We won't be able to supply it, but I can tell you there are systems in the market that were discussed earlier that it's possible that there could be concerns.

I heard my time's up. I submitted written testimony earlier. Happy to answer any questions you have.

REP. REED: Thank you very much for your testimony. Are there any questions? Representative Steinberg.

REP. STEINBERG: Thank you, Madam Chair. Just to clarify, your concern is really about timing. Obviously you're also concerned about a lack of consumer choice, if you will, but that's a decision that we're making from a policy perspective. But your immediate concern is that of the timing of your ability to meet the standard and serve the people of the State of Connecticut.

MICHAEL GAYDA: That's exactly right. We -- we will, and we'll make the investment. And frankly, it's hundreds of millions of dollars of investment, and takes a number of years just

the permitting to modify the oil refineries to do this. We can't get it done in the short term.

You know, the permitting process, like any major industrial facility, has to go through pace years, and then you have to design, you have to engineer, you have to construct finance, you know, a major construction project, and it can't be done, you know, in a couple months.

REP. STEINBERG: Thank you.

REP. REED: Thank you. Representative Yaccarino.

REP. YACCARINO: Thank you, Madam Chair. Thank you for your testimony. How long do you think the timeframe would be, would take to implement this? Five years, three years?

MICHAEL GAYDA: You know, what we're proposing is by 2018.

REP. YACCARINO: '18. Okay, I'm sorry, you did say that.

MICHAEL GAYDA: And --

REP. YACCARINO: Incrementally?

MICHAEL GAYDA: It is a step process, and the proposal is by 2016 to 500 parts per million, and then by 2018 to 15 parts per million. And, you know, our plans are in place that we'll be able to do that.

REP. YACCARINO: Thank you. I agree with you. I just forgot -- I did write the note 2018 and I didn't notice I wrote that, but thank you.

MICHAEL GAYDA: And I'll say that's consistent with

what many other states are considering in the Northeast. It's really the same program. And any time you have a, you know, different products at different areas, you organize a product, you increase the cost for consumers.

REP. YACCARINO: Right.

MICHAEL GAYDA: And, you know, there's really no reason to do that. And when you have a whole sector of change, then you don't have that same price impact and the same price differentials.

REP. YACCARINO: We have to be aware of the price change for the middle class and even the poor people that this can be, you know, if it's a thousand gallons a year, it could be a couple hundred dollars per household. And that adds up to people that are just getting by.

MICHAEL GAYDA: And information that, you know, I -- in my testimony I said there's about $67 million of additional cost to Connecticut. That was based upon 2011. 2011 was not a particularly cold year. A cold year could easily be over 100 million or more, you know, impact, and that's not everyone. It's, you know, it's fewer people.

And I would say that the burden probably falls on people who are less able to pay that cost because they're the ones with houses that are not as well insulated, who probably do not have modern equipment inside.

REP. YACCARINO: Thank you very much.

REP. REED: Thank you. Representative Miller.

REP. MILLER: Thank you, Madam Chair. I understand there's a couple of refineries that are closing. I don't know if it's BP or who it is,

but what impact is that going to have on the Northeast? And secondly, are you at full capacity at your refinery?

MICHAEL GAYDA: The second question first. We are at full capacity. You know, we're running full out, and as a side, during Sandy, you know, we ran full out, and when the other refiners were closed we continued to run and supplied a substantial amount of the fuel that was needed in New Jersey and New York and probably Connecticut too.

Again, we don't track every molecule. And there's a single standard of gasoline. So you can easily take what we're making and move it from state to state. When you have different standards, then, you know, perhaps you can't do that as easily. So it's a real concern about that.

And in terms of closing, there has been substantial refinery closings in the last few years, both in North America, in the Caribbean, as well as New York. And, you know, in the industry we call that the Atlantic Basin because products move back and forth. You know, and so it's in essence the same larger market.

There's about 2.5 million barrels a day, and a barrel has 42 gallons. So they're talking about, you know, 100 million, you know, gallons a day of refining capacity has closed down the last few years.

All that product -- excuse me, all that capacity has gone out of the market, so there's fewer leeway to fall back on in terms of when there's any kind of disruption in the marketplace.

REP. MILLER: Thank you. Thank you, Madam Chair.

REP. REED: Thank you. Any more questions? You know, I think I just -- I'm reminding myself, and I hope this is accurate -- that one of the reasons that we included low-sulfur fuel was that the fuel oil dealers were asking us for that option. They wanted to be able to, you know, have a bigger product line and to compete in this sort of new transitional bridge to renewable world.

And so that's why that was included. It was really driven by the dealers.

MICHAEL GAYDA: Well, you know, the dealers want to purchase low-sulfur fuel oil, and market that as a separate product. They can do that. No one is preventing them from selling a 50 part per million, you know, fuel. But the issue is you have to impose it on everyone.

REP. REED: Thank you very much for your testimony.

MICHAEL GAYDA: Okay. Thank you very much for the time.

REP. REED: The next up is Mark Lebel.

MARK LEBEL: Thank you, Chairperson.

REP. REED: Good evening.

MARK LEBEL: Good evening. Is it officially -- it is officially evening. Thank you, Chairperson Reed, and I'd like to thank Chairperson Duff as well, and then the rest of the distinguished members of the committee. I work for the Connecticut Fund for the Environments. We work to protect the land/air/water -- and water of Connecticut and Long Island Sound.

I work mainly on energy and climate change issues. I have a colleague that submitted comments on the act concerning regulation of water companies. It's also technically an issue at this hearing today, but hasn't yet been discussed.

I'm generally going to be addressing HB 6360, the CES implementation bill. We feel that the (inaudible) CES is a very exciting document. It points the way forward at a number of crucial energy and environmental issues. Generally I'm going to be talking about that, and when I'm talking about a different bill I'll try to make that clear.

Starting off with energy efficiency, the Energy Use Disclosure and Benchmarking sections of the statute sections 10 through 16 are great provisions and we strongly support them. We do want to note that there are similar ways of getting to the same goals here, that if any members of the committee object to sort of the -- the form of the proposals, such as the provision of energy bills from landlords to tenants, there are other ways of doing that.

I've included in my testimony the way that the State of Maine has done the -- gotten the same thing done with a simple checklist form that landlords can fill out with items that they can control, and that's in my written testimony.

Earlier there was an exchange about Sections 2 and 3 on the taxable changes about the definition of cost effectiveness, and I'd like to talk about that for a little bit. One of -- Senator Duff earlier asked about the hurdles to implementation here, and really the narrow definition of cost effectiveness is one of the hurdles here, and I think that it would be important to go back to DEEP and talk about

that and exactly what's going on here.

With the exchange with the OCC, I think the phrase billions and billions was used. And I think that that's a significant overestimate, and I'd like to hear the DEEP's perspective on what the right number is here.

But it does point to sort of a hole in the bill, that heating oil efficiency, a cool fix in funding isn't provided for. I think we would like to see a similar thing, that the OCC would like to see, and that that is a really important gap to close and we have to go to work with the OCC to try to find a good solution that works for consumers and the environment.

REP. REED: Thank you. Thank you for your testimony. Any questions? Apparently not, but thank you. And please do continue working with the AOCC, that's great. Thanks. Next up is Aaron Danenberg. Good evening.

AARON DANENBERG: Good evening. Madam Chair, members of the committee, thank you for the opportunity to provide testimony. My name is Aaron Danenberg. I'm a mechanical engineer and graduate student at the University of Hartford.

HB6360

During the 2012 session, this committee passed Section 10 of Bill 450, directing PURA to conduct a proceeding to establish electricity rates for geothermal systems to promote the technology. Unfortunately, the bill did not reach a vote in the Senate. However, I think with the release of the Comprehensive Energy strategy, it's become even more relevant.

Recent discoveries of natural gas are offering the state lower-cost fuel, a cleaner fuel, and an American fuel to provide our energy needs.

We have the technology to take that resource even farther. A ground source heat pump will extract four units of energy from the ground for every unit it uses to operate the system.

They run on electricity. For 2011, ISO (ph) New England reported a key deficiency of 44.7 percent. So what that means is if we use natural gas to generate electricity, and that electricity is used to operate a geothermal heat pump, we reduce fuel consumption by 45 percent. And -- excuse me -- by 45 percent.

Though these technologies offer substantial reductions in fuel consumption, commercial owners of these technologies will experience a high increase in their dollar-per kilowatt hour charges upwards of 35 percent. So that not only narrows the dollar per BTU savings these systems offer, it also adds a significant cost to operate all the other equipment in the building.

The cost of electricity and natural gas increase exponentially with demand. There are numerous factors that contribute, many of them are speculative and difficult to predict for the long term. However, the one constant in any market environment is to reduce demand.

Energy is the life blood of our economy and inherently has limitations in regard to reducing that consumption. However, technologies that leverage renewable sources such as the ground, the air and the sun, drive a stronger -- fuel a stronger economy that does more with less.

Recent advancements in heat pump technology have strengthened compressors -- excuse me, 20 seconds here -- have strengthened compressors such that they can extract heat from air

efficiently at temperatures down to zero degrees Fahrenheit and reduce fuel consumption by 20 percent with air source heat pumps.

Air source heat pumps are considerably less expensive than geothermal and should be considered in the same scope of the ground source heat pump systems. So I recommend the committee reintroduce language from the 2012 session, Section 10 of Bill 450, to direct PURA to conduct a proceeding to establish electricity rates or utility riders that will promote heat-shaving technologies.

REP. REED: Thank you very much for your testimony. Any questions? Representative Steinberg.

REP. STEINBERG: Thank you, Madam Chair. Just to be clear on this, from what you described there is almost a perverse disincentive to take advantage of this technology because of the rates that they would be charged to take advantage of this natural gas-produced electricity.

So if you could just explain a little further what you mean by riders that would at least restore the incentives to take advantage of this highly efficient alternative? And if you could just expand as well as to how broadly could this be applied, for example, in the State of Connecticut?

AARON DANENBERG: Okay. Well, I think one of the easiest ways to remedy the problem would be to attach utility riders to existing classifications, because there are a number of classifications for -- for electricity rate payers that are tailored to different types of industries and different types of businesses.

So what a utility rider would do would scale

individual components within your electricity bill to be reflective of the system of the savings that they offer the system on a -- on a weighted basis.

REP. STEINBERG: To my layman's mind, that sounds a little complicated. But I guess we had the language before, so maybe we could look at it again.

AARON DANENBERG: I mean, in simpler terms, you know, when you use this ground source heat source system we're reducing fuel by 45 percent to meet equivalent levels of heating. And so when you look at that curve that increases exponentially the cost of energy to deliver for any given demand, when someone reduces that by 45 percent, then you gotta look at how far did it shift the curve to the left, so what did that reduce the unit cost to?

And that's what you would use to scale, you know, a generation change or a distribution or a transmission charge?

REP. STEINBERG: I welcome PURA's efforts to figure this out on behalf of all of us. Thank you.

AARON DANENBERG: Thank you.

REP. REED: Thank you. Any more questions? Thank you very much for your testimony.

AARON DANENBERG: Thank you.

REP. REED: Oh, you know, you know. Eric Brown, a pro. A pro always knows. Good evening.

ERIC BROWN: I've been staring at the list every half hour for the last six. Thank you very much, Representative Reed and Senator Duff and distinguished leaders and members of the Energy

and Technology Committee. My name is Eric Brown. I'm director of Environmental and Energy Policy for CBIA, and pleased to have this opportunity to provide some brief summary of our written comments, primarily focused on the governor's comprehensive energy strategy bill, 6360.

CBIA was very proud to host, along with our partners with the Power and Energy Society, the coming out party, if you will, for the strategy. We've been very supportive all along of the overall goals of providing cheaper, cleaner, more reliable energy to Connecticut.

At long last we've arrived at the time to focus in on details, which this bill does. So I just wanted to tick off a few components of our testimony, first of all on Section 3. The strategy talks about broadening and invigorating the home energy solutions program. There's been some discussion of that, but the bill itself only talks about -- in Section 3 -- reviewing contractors to determine whether they're qualified.

We think we're missing an opportunity here, and we suggested some substituted language. What we'd like to see is the program administers, consumer protection, DEEP and others work together to come up with some objective standards, so that if you're a contractor and you can meet those standards, the equipment you have, the certifications you have, and so forth, then you're eligible to get out there and start deploying this technology and deploying these deeper, deeper savings by energy efficiency.

We also think this is an important component of what the commissioner talked about, the transition in the oil industry in certain parts

of the state, oil dealers are looking to transform themselves into energy management companies.

We need to give them the opportunity, and broadening and opening up the home energy solutions program to a more market-based program is part of what that needs to be in our view.

Section 4, we were glad to hear the commissioner and I think the chair say that that's going to be completely rewritten. Certainly it's problematic the way it is now. Sections 10 through 16 are designed to move the market in terms of rating, evaluating, benchmarking buildings and disclosing those to the public.

Some of those provisions are voluntary, like for residential buildings. However, for the commercial side it's much more prescriptive with a lot of mandates. Deputy Commission Katie Dykes had said we're trying here to provide an opportunity for building owners to highlight the value of their investments.

There's certainly ample opportunity for them to do that. We don't think we need to have legislative mandates to make that happen, so we urge your reconsideration of that, and finally I'll just mention Section 18. You know, you've heard from the experts on the problems with going so quickly to lower fuel standards.

Again, the commission said we want to move in this direction in a cost-effective way. What we're hearing from industry is this would not be the most cost-effective way to do it and urge your reconsideration of that provision. With that, I'll end my testimony and try and answer any questions you may have.

REP. REED: Thank you, Eric. Representative Hoydick.

REP. HOYDICK: Thank you, Madam Chair. Hi, Eric. Thanks for hanging with us.

ERIC BROWN: Pleasure.

REP. HOYDICK: Your second to the last statement, I think it was Section 16?

ERIC BROWN: Yes.

REP. HOYDICK: Could you explain the -- it goes into detail that will adversely affect businesses. Can you explain what that means?

ERIC BROWN: Well, 16 is part of the -- part of the bulk of sections that talk about trying to get buildings rated and disclosed and posted on the Internet and so forth. So I guess our point is we like the idea of providing industry and residents, for that matter, tools for measuring their efficiency, for tracking it however they'd like.

What we're concerned about is taking a mandated approach, saying you have to do this. You know, in certain cases they would have to do annual benchmarking, it would have to be reported to DEEP, the DEEP will then put it on the Internet. Other commercial buildings would have to have energy.

Evaluations prior to any lease or sale, so if you own a building you might lease something, you know, fairly regularly. Again, if I'm a building owner and I've got a good, efficient building, I want to tout that. I want to say listen come to me, look what I can do compared to what you're looking at down the street or

whatever.

We think the market forces are there. Tools, yes. Here's an easy tool on EPA's website or whatever, where you plug in some things and you can find out -- you can score your building. And if you want -- you get a good score and you want to promote that in your lease advertisement or your sale advertisement, terrific. But forcing companies to do it, we think, is not a good signal to send to the marketplace.

REP. HOYDICK: Do you know any other areas of the country that do this, Eric?

ERIC BROWN: I do not. I wish I did.

REP. HOYDICK: I do. Check any of the boroughs in New York City, and it's arduous. As a property manager working in the city, having to report if you have over 50,000 square feet, on your energy consumption to a government agency is not easy.

I personally did not support this last year. I'm not supporting this part of it this year at all. I think this is not conducive to doing business. I think the education part most certainly is. I think the energy efficiency education granting formulas, financing, is wonderful.

But I think mandating things of this nature definitely is not something that we should be targeting, since we have so many other more important things to do. So I thank you for sharing that.

ERIC BROWN: You're welcome.

SENATOR DUFF: Any other questions? Thank you,

Eric.

ERIC BROWN: Thank you.

SENATOR DUFF: Okay. Next is Fred Zalcman from SunEdison. I don't know if I got that right. I probably --

FRED ZALCMAN: You did, and congratulations. Good evening. My name, again, is Fred Zalcman. I'm a managing director with SunEdison. Senator Duff, members of the Energy and Technology Committee, it's a real pleasure to be here this afternoon to testify in support of House Bill 6360.

I've met many of you before, but for those of who don't know, SunEdison is one of the nation's leading solar energy service providers. We have over 1,000 megawatts of solar facilities worldwide under management, concluding 16 facilities here in Connecticut with close to two dozen in the pipeline under the ZERA program.

Our customers here include the City of Stanford, Staples, health food, coal stores, and we have a strategic partnership with CCM to offer solar to municipalities as an energy option. I'd like to applaud both the Malloy Administration and this committee for your leadership on solar energy programs and policies over the past several years.

You've really helped drive down the cost of solar energy here in Connecticut, and increased the deployment of this clean, abundant, renewable and local resource. Specifically this evening I'd like to testify in regard to Section 5 of 6360, the virtual metering provisions of the bill and the attempts to address the impediments to virtual metering,

and expand the availability to other customer classes.

Simply put, a properly structured virtual metering program opens up tremendous new opportunities for municipalities. To install solar on dormant roof space or under-utilized land, such as landfills, to offset the energy consumption that other municipal load, such as police stations, fire departments, school complexes and the like, buildings that may not otherwise be able to support solar because of structural issues or shading issues and so forth.

By virtue of virtual metering, the town can control its energy costs and pass along those savings either in the form of property tax reductions or using scarce public resources for other public services.

The current bill, as implemented under Public Act 1180, Section 121, has three major issues. The selectman from the town of Bethel has already spoken to the issue of ownership, and why that's a problem for cash-strapped towns. We simply can't afford the up-front capital required to buy and own and operate a solar system, so it certainly makes sense to offer that opportunity to lease systems and third-party owned systems under a PPA.

The second barrier that the bill addresses is the limitation on the overall program. Even under the best of circumstances, the current bill only supports a handful of virtually net-metered systems. The governor's bill would expand that, but given the -- a tremendous interest across the state, we would recommend that that the bill go even further.

And lastly, the other major issue with regard

to the current version of virtual metering bill, is that it limits the value of the credits to the generation component. And that's simply not enough compensation for a solar developer to develop a facility that can meet other offsite load, and it certainly doesn't recognize the value that solar is providing, both in terms of economic benefits, environmental benefits, and grid support benefits to the utility.

So with that, I'll conclude. Let me just say that while we wholeheartedly support the governor's bill, there are a number of I would characterize them as minor refinements that we've identified as an appendix to the testimony, and we've provided a mark-up version of the bill, and I believe there will be other witnesses testifying to those changes. So with that, I'd conclude and be happy to answer any questions you may have.

SENATOR DUFF: Thank you very much for your testimony. Any questions? Thank you, sir. Fred Cerillo followed by Todd Berch. Oh, Frank, I'm sorry. Did I say Fred? I'm sorry? He's gone, all right. Todd, followed by Justin from 350.org. All right. I know everybody's trying to write their handwriting nice.

TODD BERCH: Good evening, Senator Duff, Representative Reed and members of the Energy and Technology Committee. My name is Todd Berch, and I'm with the Connecticut AFL/CIO. Here today to testify on behalf of the 900 affiliated local unions representing members from all 169 cities and towns of Connecticut in support of the House Bill number 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Attached to the email testimony is a resolution

passed by the delegates of the 2012 Connecticut AFL/CIO convention. This resolution is in alignment with the goals of the proposed bill to reduce energy costs to residents and businesses. This bill also achieves environmental goals and creates local green jobs.

An estimated 7,000 jobs will be created to build approximately 900 miles of gas main in upgrading aging infrastructure that is need of repair. There will also be a demand for installers of high-efficiency equipment that will reduce energy consumption and energy costs of the consumer.

The Connecticut AFL/CIO, its affiliates and the central labor councils are poised and ready to educate our members and community outreach programs on conservation, energy alternative, and choices of energy conversion and equipment upgrades.

We firmly believe making energy conservation choices will lead to lower demands and lower costs when coupled with weatherization and energy audits.

This energy strategy will also make Connecticut manufacturers and other businesses more competitive by reducing energy costs that are burdensome to Connecticut's economy and job growth. We are also committed to seeking renewable and alternative forms of energy technologies by prioritizing the development and manufacturing of these technologies here in the State of Connecticut.

We appreciate the committee holding this public hearing and would be happy to address any questions.

SENATOR DUFF: Thank you for your testimony, for the speed of which your testimony came. Appreciate that. Any questions? Thank you, Sir.

TODD BERCH: Thank you.

REP. REED: Justin, followed by Dan Allegretti. Good evening.

JUSTIN HAAHEIM: Good evening. Got a similar frog in my throat so will be drinking some water. Senator Duff, distinguished members of the Energy and Technology Committee, my name is Justin Haaheim. I am the Connecticut regional coordinator for 350.org and a resident of New Haven. And I'm speaking on Governor's Bill 6360.

I'm grateful to you all for the opportunity to speak on such an important bill at such a pivotal time for energy issues in our state, and I'm here to offer a bit of moral context to the conversation. In recent years, our state has taken praiseworthy steps towards soberly addressing the threats of the climate crisis we are in.

The Global Warming Solution Act of 2008, and indeed the creation of the Department of Energy and Environmental Protection are two great examples. And this committee and DEEP and others truly deserve our gratitude for their leadership in the past few years to bring us to the place that we're in.

Many of the provisions in these bills continue that leadership, including their commitments to efficiency, virtual net metering, efficiency benchmarking for buildings, and more. 350.org gets its name from a NASA study a few years ago that determined finally what the maximum amount

of carbon dioxide is that we could put into the atmosphere before we start fundamentally altering the planet to which life is adapted.

Turns out that it's 350 parts per million carbon dioxide, and the startling fact that we face today is that carbon dioxide concentrations in our atmosphere are 392 parts per million and rising.

Climate change is here. And we're already seeing its impacts in back-to-back hundreds storms like Sandy, Irene, Nemo, among other things. So you'll understand my surprise then that we're here today in a state poised for such strong energy leadership to discuss the proposed $6 billion, 30-year build out of natural gas, a fossil fuel, whose net climate impact from extraction to combustion is on par with coal.

Its price volatility, even in the next ten years, was noted by Commissioner Esty in his testimony, and Commissioner Esty and I share deep concerns about the fracking that makes this gas so readily available to us now, thought I don't share his confidence that mitigating the harmful and sometimes devastating impacts to communities just across the border and to the environment are resolvable.

An energy future built around natural gas doesn't make sense. It doesn't make sense in the way that barreling towards a 15-car pileup and choosing to change the radio station doesn't make sense.

And I fear that our discussions have lost some of the urgency that the climate crisis demands. We know we need to put on the brakes, but in so doing we have the opportunity to change our

direction. And I'll just say briefly a change in direction looks like significant investments in long-term contracts for renewables here in New England.

The job-creating energy sources that we know will be the centerpiece of our energy future 30 years from now as we'd be finally paying back these pipeline mortgages.

So I'm here today to ask, facing the climate crisis we're in, will this committee take leadership to limit our dependence on the fossil fuels of the past, and build an energy future around clean, renewable energy. Thank you.

SENATOR DUFF: Thank you.

JUSTIN HAAHEIM: I'd be happy to answer your questions.

SENATOR DUFF: Thank you. Any questions from members of the committee? Thank you, sir.

JUSTIN HAAHEIM: You're welcome.

SENATOR DUFF: Dan Allegretti followed by Don DeCesare.

DAN ALLEGRETTI: Good evening, Chairman Duff, stalwart members of the committee. My name is Dan Allegretti. I'm with Exelon, parent of Constellation Energy, a leading electricity supplier here in the State of Connecticut.

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Let me begin with 6532, renewable energy certificate. We generally support this bill. We think it will help to lower the cost of meeting our renewable portfolio standard requirements for our customers, but we are concerned with Section 12 of the bill, which

Not all suppliers have the ability to pass that cost though to their customers. That can have a chilling effect on the -- on the willingness of suppliers to do business in Connecticut. And those that do will have to raise the fine print with their customers, something that generally doesn't sit well with customers.

The bill includes a price floor at $45, but unlike the other RPS classes, has no price ceiling on it at all. It also has an in-state limitation which we believe may be unconstitutional. So we would encourage you not to pass that bill, and with that I will conclude my testimony.

I thank you all. You have been tremendous in being attentive, asking questions all day. I really, really am impressed with this committee, and it's an honor to be here this evening. Thank you.

SENATOR DUFF: Thank you, Dan. Appreciate that. Any questions from members of the committee? Thank you, sir.

JUSTIN HAAHEIM: Thank you.

SENATOR DUFF: Don? Followed by Guy from the Connecticut Youth Association.

DON DECESARE: Good evening, Chairman Reed, Chairman Duff, members of the committee. My name is Don DeCesare. We pronounce it DeCesare, rhymes with accessory, spelled backwards it's erased. I have a fair number of hats in my closet. One that came to mind while I was sitting here today is I was a founding member of CTN, so I know the folks back in the control room are hitting the dump button just about now as I clearly will not qualify for the

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highlight reel.

I'm actually here in my role as chairman of the Connecticut Broadcasters Association. I was honored to be elected three times chair of that, and now elected to the role of past chair. I'm also the president and operator of WMRD a.m. in Middletown, and WLIS a.m. in old Saybrook,.

As a reminder to you folks, the Connecticut Broadcasters Association membership comprises all the FCC licensed broadcast television and radio stations in the State of Connecticut. I'm here specifically to ask you folks to help us with something that has dismayed us, which is our not having been included in the voluminous, comprehensive energy strategy for the State of Connecticut.

We are, I'm sure you all know, significant consumers of electricity in the state, but more importantly I think we are participants and have been for more than 90 years in the public information and public service of documents like this to the State of Connecticut and we certainly enthusiastically intend to do that again.

And finally, and more of this is included in my written testimony, we want to be innovators in the use of electricity in the State of Connecticut and think that we can do that. I want to draw your attention to something that appears on page 101 of the Comprehensive Energy Strategy, and that's the definition of critical facilities.

Hospitals, public shelters, police and fire stations, water treatment plants and telecommunications towers. We would like to be sure that you have that definition expanded to

include the transmission facilities of radio and television stations within the state.

It is not sufficient, at least in our view, the term telecommunications towers. That seems to point more towards cell towers. I would not for you that while we are enthusiastic users of cell technology ourselves, that is a point-to-point communications device. We provide point-to-multipoint communications.

And in an emergency, without us you folks cannot lead us out of this emergency. So with that, I'll end my testimony, and take whatever questions you may have.

REP. REED: Thank you very much. I remember back in the day, because I used to be in this business, we talked about convergence, which of course is now happening. Aren't you functioning on a lot of different platforms? I mean, you're sending programming out on iPads and cell phones and so you are able to -- because I know a lot of my constituents are very eagerly looking at their local TV stations on the whatever device they happen to have with them.

DON DECESARE: That is correct. We have evolved into the use of all of the platforms, and we like to think that we will continue do that as they emerge, and there are some exciting ones down toward the consumer.

But it doesn't change our fundamental reason for being, which is public service. The Telecommunications Act of 1934, which is under which we are licensed, requires us to provide public service and we do that with enthusiasm.

REP. REED: So are you not included in our storm response bill?

DON DECESARE: Not to my knowledge. Certainly not to the point of definition the way it ought to have been done.

REP. REED: Okay. Thank you very much. Any other questions? Thanks so much for your testimony.

DON DECESARE: Thank you very much.

REP. REED: Next is -- is it Guy Wagner? Connecticut Geothermal Association.

GUY WANEGAR: Good evening. Senator Duff, Representative Reed, Estyemed members of the Energy and Technology Committee. My name is Guy Wanegar, and I am the president of Connecticut Geothermal Association. And I appreciate the opportunity to speak before you today.

On behalf of the members of the Connecticut Geothermal Association, I'm here today to speak in support of House Bill 6535. The Connecticut Geothermal Association is comprised of geothermal heat pump system installers and related trades people, organized to promote the growth of ground source heat industry in Connecticut.

Geothermal heat pump systems are proven, reliable, efficient, and renewable heating and cooling technology. Other states are beginning to incorporate geothermal technology into their renewable energy credit programs in recognition of the net energy benefits these systems provide.

Unfortunately, the greatest barrier to increased deployment of geothermal heat pumps is the cost of the installation. Inclusion in the REC program will give interested consumers

Connecticut Geothermal Association -- I have about ten seconds left?

REP. REED: Yes, go ahead.

GUY WANEGAR: Okay. The Connecticut Geothermal Association notes that solar thermal is not included among the Class 1 technology additions to the bill, and we believe that the bill should apply to those proven technologies as well.

Therefore we support its inclusion as a Class 1 resource. We have also submitted testimony on Bill 6532, obviously we're going to hold on testimony on that. Thank you once again for the opportunity to speak before you, and I'm happy to take any questions.

REP. REED: Thank you very much for your testimony. Are there any questions? Thank you very much. We really are looking at these issues, so I want you to know that we heard you and we've got your testimony. And it's something we're talking about. So thank you very much for coming.

GUY WANEGAR: Thank you.

REP. REED: The next one is Steve Rosentel. Good evening.

STEVE ROSENTEL: Good evening, Madam Chair. My name is Steve Rosentel. I'm the president of Layeast (ph) Fuels in Danbury. We are a fuel oil dealer that sells both fuel oil, propane gasoline and sells equipment for both. Natural gas as well as propane, and oil systems.

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My testimony has been submitted. I'd like to use my three minutes just to make a few other points. I'm also a member of the SIMA (ph)

Board, and I am the vice chairman of the Propane Gasoline Association of New England.

Number one, let me start by saying we have benefit selling only ultra-low sulfur, 15 part per million heating oil this entire winter. We have customers in New York and the New York standard is not only for New York City but it's a statewide standard.

The fuel runs great, we have no problem at all. And I would actually advocate that the wording in the bill be changed in Section 18 of 5360 to reflect the importation date of the product for sale in Connecticut and it would elimination the lending issue that happens when you're going from a higher sulfur product.

So if 15 parts per million ultra-low sulfur heating oil were required to be imported into the state for sale in Connecticut as of a certain date, you eliminate the need for the 50 parts per million, and with respect to the history of some of the problems we've had in the past, I think it had more to do with the fact that the (inaudible) pool which today is about 90 percent ultra-low sulfur because of the change of the diesel fuel standard.

We don't have the problems that we had in transition in the past, so I think that's an -- that's an easy fix.

What I'd like to talk about is also that, you know, there's been a lot of discussion about the price of natural gas. Is it going to go up when we start exporting natural gas in three years? You know, what the demand impact is going to be. But I would suggest that the price of natural gas by itself is not very significant because it's only significant when we consider it in light of the price of heating

oil.

The whole plan is built upon the concept of savings, and if you look at the Appendix C table, Table C5 in the plan, there is a column that talks about the sensitivity -- classification of the sensitivity to low oil prices is very high.

And both in segment A and in segment B, the people near the lines and the people that are going to be near the lines, there's a negative net present value, representing that there will be no cities in a low-oil price scenario. It's one of the three that are modeled and reflected in the chart that's on Table C7.

To put it into a price-per-gallon equivalent, at roughly $20 per million BTU, that's somewhere in the neighborhood of $2.76 a gallon. And while today prices on heating oil are certainly higher than that, I don't know that it's unforeseeable that the market could not get back to that level, and I'd also like to remind everyone that that number is only an insignificant number relative to the projections for natural gas being correct.

If the projection for natural gas is overly optimistic, then the price of heating oil could be higher and still result in no savings. And also I'd like to just take a minute on -- to clarify what some of the -- the comments that Commission Esty made earlier today.

The $500 credit that's proposed in the budget to hook up people and get them to commit, as it's planned in the governor's budget bill that's $5 million per year for the state and the window that he talked about is a window only for signing people up. It's not a window as to when the utilities would have to bring

the gas lines down the street and make it available.

I also see no provision in the wording of the -- of the governor's budget bill that would not permit the utilities to actually open an account, put the $500 credit on, get reimbursed from the state in the form of a credit against the gross receipts tax, and then have the customer call up and say send me a check. I have a $500 credit and I have no use for your product.

Now it's inconsistent with what the -- what the CEF says. But the point that I wanted to make is that the utilities in the state are going to be competing against each other to try and get as many of those 20,000 customers to commit and if you were a customer who signed a contract commitment, and you got the benefit and then you sell your house, do you sell it subject to that restriction?

And if I were a utility company, I would actually go to those folks that I have commitments from last, because they're committed. If I lose my price advantage, I still have those customers who are going to be guarantee. Commissioner Esty referenced that if somebody changed their mind, they -- you know, we -- they wouldn't be able to get the benefit of the credit.

That seems to undermine the whole concept of the credit in the first place if that's going to justify why we need to spend the money to direct the utilities as to where to bring the lines. So I'm very confused in what I thought the understanding of the credit program is, and as to what it says and what his earlier comments were. And I'll take any questions.

REP. REED: Thank you. So I think in our perfect world we want to see you and the natural gas people talking and finding a role, and, you know, having a place in whatever this transition is that we're building to -- the bridge to the renewable future is the -- the expression that everyone uses.

But that's the reality, it's something we're looking at. And you seem to be saying no, you're -- you're dug in, you're entrenched and you don't really see a role for fuel oil dealers?

STEVE ROSENTEL: With all due respect, Madam Chair, I don't believe that I'm entrenched. We currently install natural gas furnaces and boilers. Okay. What I am opposed to is the fact that the marketplace has worked without really interference for a very long period of time. We have had department -- an oversight review of the natural gas utilities under PURA that is responsible for protecting the consumer's interest of the 32 percent of the people that are currently using natural gas in the State of Connecticut.

We have a couple of different issues at hand. Number one, there is some question in my mind about -- one of the things that I reference in my written testimony is that the public good is going to be determined by DEET so are we undermining the authority of the commissioners. That's one question.

From a practical point of view, I testified on Monday before the Finance Committee, advocating that we do conservation credits in the form of a $500 credit for the purpose of people upgrading to high-efficiency equipment, because conservation and reduced consumption of BTUs is guaranteed savings.

When we look at things like the hurdle rate, 15 years to 25 years, I don't have a problem going with 25 years, but in my mind the reason it was 15 years is because the longer you have to project when the cost savings is going to be there to enable the recovery of the investment to expand the line, the more risk you have.

And the current structure, as I understand stand it, the risk would be borne by the other rate payers. So if the summary is in the pricing model that currently exists now, which has about 35,000 or 40,000 people that are converting to natural gas heat this year, this past year, the price advantage drives people to convert on its own.

I don't have a problem with that. I don't think the government should be picking winners and losers, and with all due respect to the commissioner and the governor, okay, all you have to do is look to the Sandy relief of $3 million that was given that gave tax credits to people who had to replace furnaces and boilers as a result of the storm.

And the tax credit table gave a greater amount of credit to a high-efficiency natural gas boiler or furnace than it gave to a propane or a fuel oil one. Okay. I think that's picking winners and losers. I don't see where we have -- we have entirely trapped the floor in the natural gas chapter in the energy plan.

I can't find the one on heating oil and propane. Okay. I hear about funding that's going to be helping any furnace, no furnace left behind. I've read it twice, I can't find where the credit -- or the subsidized financing would be for high-efficiency oil equipment.

So I'm not opposed to the general plan. I'm not opposed to the concept of conservation. I'm not opposed -- I think the government certainly has a clear role to play. But I am opposed to any state resources that are going to result in people that work for me, and about 25 percent of my employees pull delivery hoses and drive delivery trucks.

So you can hire people and create jobs to install furnaces, but what are you going to do with a 50-year old that's been controlling the delivery hose for 30 years that works hard every day, that comes through the snowstorms and shows up on your -- on the day that you can't get your electrical power to go on, and you can't even get through to the utilities, when he's delivering propane to your house or your generator because you're not going to have your power turned back on for six days.

We have happy customers because we have to compete. We have the ability to satisfy and resolve a customer's problem because it's within our control. If we become marketers for natural gas utilities, we're going to be in the same position as some of our customers that now use propane that used to be natural gas customers, because of the frustration of the lack of service that they get from the utilities.

That's the reality of what we deal with. I think people -- now my company's been here since 1917. I have 25 percent of my employees are second, third and fourth generation (Inaudible) employees, have been working for the company. Okay.

I think it's fundamentally and morally wrong to take their tax dollars, even in a very small piece, and use that to help put them out of

business. Now, we've stolen jobs from -- from other places like television industry jobs in California. And we moved studios to Stanford.

But we take -- and we've taken banking jobs out of New York or cable TV corporate headquarter jobs out of St. Louis. We've used the resources of the state to create jobs in Connecticut but we weren't taking those jobs from the people that have been here for 100 years with their families paying the taxes.

That's why I feel strongly that there's a lot of things in this plan that are totally unfair.

REP. REED: Thank you very much. That was a very, very interesting testimony. And we appreciate it. Representative Case.

REP. CASE: Just to touch on one of your points, just to try to clarify myself on the budget here. So I'm way out in the northwest corner, I know I'm not going to get natural gas for quite some time as I'm told. I do the $500 signup, it never happens.

STEVE ROSENTEL: Well, you wouldn't be entitled to it I don't believe because the way I understand the plan is the $500 is only going to be available to those who are going to be on the 900 miles of new lines that are going to be installed. So if you're a natural gas customer or you're on a street with natural gas and you are within 150 feet of that line, you also do not get the $500.

If your neighbor's house is a little bit further back and they are over 150 feet, they get the $500 for promising to hook up. And they probably wouldn't be required to hook up. But in the northwest corner of the state, my guess is when that map of 900 miles comes out,

there is no chance that you're going to be eligible for $500.

REP. CASE: And I'd rather keep my propane guy busy, so --

STEVE ROSENTEL: Thank you.

REP. REED: Any further questions? Thank you very much for your testimony.

STEVE ROSENTEL: Thank you.

REP. REED: Next up is Francis Pullaro. Good evening.

FRANCIS PULLARO: Good evening, Representative Reed and members of the committee. My name is Francis Pullaro. I'm the executive director of Renewable Energy New England. And I'm here to testify in opposition to particular pieces of Raised Bill 6532, specifically renew when its members are opposed to lowering the alternative compliance payment from $55 to $31. And also to the provision in the bill on Section 10 which would broaden the geographic eligibility of Class 1 RECs but eliminate the energy deliverability requirement that's associated with it.

In terms of lowering the alternative compliance payment, as a matter of principle, a well-designed alternative compliance payment strikes the right balance between protecting consumers from high prices, but also making sure it's not set too low so that renewable generation developers are still incentivized to actually build renewable energy projects.

By lowering the amount to $31, based on the expected revenue streams today from the energy market and other revenue sources, it's just

RAFAEL PODOLSKY: Good evening. Good evening. Thank you very much, Representative Reed, members of the committee. My name is Rafael Podolksy, I'm a lawyer with Legal Assistance Resource Center, which is part of the legal aid programs. And I'm really here on behalf of tenants in regard to the sub metering proposal you have before you.

The bills in question are House Bill 5187 and Section 6 of House Bill number 6360. The reason I'm here is really because I think it's important to recognize that on -- that in addition to benefits that can come from sub metering, for tenants there can be a real down side. And so it's really important that in any kind of bill that you craft that deals with sub metering, you fully and completely address what the potential down side is to try and either eliminate or minimize that down side.

From our perspective, there are two kinds of issue. One kind of issue is fairly straightforward and it's the issue of cost. One of the things we've learned with some sub metering systems is that they are farmed out to third parties.

And sometimes systems are read remotely, and those third parties charge administrative fees, and the result is that instead of what people assume, which is when you add up together all the costs to the individual tenants of sub metering, it's not going to be any greater than the property owner's total cost would be.

It turns out many systems it's the property owner's total cost plus 3 percent, 5 percent, 7 percent that's been added on for administration. We hope you would prohibit anything kind of add-on fees of that sort so

that there's never a net increase in utility costs for all the tenants as a group.

The second -- or the second area is a less straightforward area, but it's been mentioned by other witnesses. And that is we have a whole system that's been built up through the utility companies, and through other parts of the statute that's entitled 16 -- to make sure the tenants are protected in a variety of ways.

Some are procedural in terms of access to resolution of disagreements and some are substantive in terms of what their rights are. And they all by one means or another go through the public utility -- the PURA.

We think it is very important that that kind of access and those kind of protections be retained. When you move to a sub metering system, the tenant is no longer the customer of the utility company. The landlord is the customer, the tenant simply is basically being billed by the landlord or by a landlord's agent.

So, for example, it is important from a procedural perspective that the whole system run through PURA. That there be approval. That they be an enforcement authority. That they be available to receive complaints and to investigate complaints, you can have an appellate system through them.

All these things were available now if you are -- if you have a dispute with an electric company. But they're not an automatically available otherwise. But there are other aspects as well. Somebody needs to make sure the meters are accurate and they're reading accurately.

Someone to -- someone needs to make sure that a tenant is being billed only for their area of exclusive possession. I will summarize quickly. We have a whole extensive system of shut-off protection that is not nearly -- the winter shut off -- the ban on winter shutoffs for hardship cases, but the right to a reasonable amortization agreement, the right to get into an arrears forgiveness program, access to energy assistance. All those things.

So what we would ask you to do in the course of -- as you look at this issue, that you please make sure that those kind of protections which we've worked so hard to get in place ,are not lost to tenants who end up living in a building that's being sub metered. Thank you very much for the opportunity to speak to you today.

REP. REED: Thank you. Are there any questions? Thanks again. As we always say to you, Rafe, stay connected to us as we sort of (inaudible) so clear that this all needs oversight, that it's really a place we want to go to open up the sub metering potential.

RAFAEL PODOLSKY: Well, I think -- and what the statute says and what it lays out is very important, even in terms of the language you may use if you're going to delegate some things to PURA, you want to make sure your delegation is of sufficient breadth so it picks up all these kind of things and not say only shutoffs.

The shutoffs are just a piece of this, and so I would hope in looking at the wording of the statute you will -- you'll approach it broadly.

REP. REED: Thank you. Thank you for your testimony.

RAFAEL PODOLSKY: Thank you very much.

REP. REED: Next to testify Paul Miller.

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PAUL MILLER: Good evening, Chairman Duff, members of the committee. I'm kind of out of place here, I think, cause I'm a dairy farmer and there's not many dairy farmers in the room I don't think anymore. But I'm here to speak about a little bit the different types of energy and you've got it in the governor's proposal and I think that's good.

That's anaerobic digestion, which is taking the methane and preventing it from escaping in the atmosphere and turn it into heat and electricity. I submitted some written testimony. I'd just like to add a few comments that I've been traveling around the world, around the country, and Connecticut really hasn't addressed this problem in some time.

I went to Germany. There's 5,000 anaerobic digesters in Germany, producing power, clean power, taking the methane out of the environment using everything from municipal sludge to -- to manure to fish waste to food waste.

We would like to be able to take our cattle manure and turn it into methane, along with the possibility of some food waste, and maybe some poultry manure, which is available in our area. Visiting a dairy in New York recently, we just put a digester in, and I talked to him and he said well, it's super to be able to produce electricity, it's super to be able to put it back on the grid, but I guess the biggest benefit I got is from my neighbors.

They now wave at me with five fingers instead of one. So taking the smell out of the manure is important. It's important to use as a

community, making green energy, being able to produce energy and heat will enable us to expand our operation to maybe get involved in the grain industry. We would like to use the -- the water from this to possibly get into the green industry.

It will enable us to produce heat energy 24/7 which many of the other green opportunities do not do, but this generation system will be there. The cows produce manure year-round. They don't stop. So this -- this is going to be a big plus to us in our operation.

We need to be able to market this electricity, ten beneficial accounts on the ag side may not do that. We need to be able to maybe partner with municipalities or the state to market our electricity. We're looking at a two megawatt plant, so its' fairly substantial in size.

We need to be able to get a return for our investment to be able to have capital to be able to invest in it. We have some partners that would love to invest in our operation in the energy side, but they need to be able to show a return. And I guess with that, I'll just open it up to any questions if you might have any.

REP. REED: Yes, thank you. I mean, this is, we love -- we're very excited about this whole idea of anaerobic digesters, and digesters. And -- but it always seems, as you talk about the return on the investment, there's a magic number in there that makes it viable in terms of an economic model to bring investors in. and what is that?

PAUL MILLER: Well, we're looking at we need to -- through the value of RECs and selling the energy, we need to be in the 15 and 16 cents

range. Vermont, Cow Power, as it's called, they're getting 18 cents. Massachusetts has a pilot program where -- where they're getting a reasonable return, and I think that if we were in the 15 to 16-cent range, it would work

REP. REED: And then the other thing that's always interested me is when you talk to farms that are doing this, and it becomes larger and larger and they have a lot of consumers attached to, at what point are you now an electric company and no longer a dairy?

PAUL MILLER: I don't want to be an electric company. I'd just like to be a viable producer of clean energy for the State of Connecticut and also produce food for you to eat.

REP. REED: Thank you.

PAUL MILLER: You know, we just would like to be able to market our excess and not lose money on the project.

REP. REED: Thank you. We're very excited about this. Any questions? Representative Miller.

REP. MILLER: Thank you, Madam Chair. I know the New Haven water pollution control facility is doing -- has a digester, and they're producing power to operate their facility. And I know Bridgeport now is looking at New Haven to do the same thing, so this would catch on. I know New Haven is a model -- should be a model to the rest of the state in water pollution control.

PAUL MILLER: Yeah. I think it's super. If you look to the European model, they go one step further in the fact that most of the municipals partner with farms and the -- the waste product is not burned like it is here, it's actually

land-applied.

If we can clean our municipals to the point that we could land apply them, I think we'd be happy in agriculture to be able to have an additional source of fertilizer.

REP. REED: Thank you very much. Any other questions? Thank you so much.

PAUL MILLER: Thank you very much for having me.

REP. REED: Appreciate it. The next is Gus Kellogg, Green Leaf Biofuels. Good to see you, welcome.

GUS KELLOGG: Good evening, Chairwoman Reed, Chairman Duff, members of the committee. Thank you for allowing me to testify this evening. I am the founder and CEO of Green Leaf Biofuels down in New Haven. We're a new biodiesel producer in the state. I'm also a member of the newly-formed Connecticut Renewable Energy Coalition, also known as CT REC.

I am here to support Bill 6535, AN ACT REDEFINING CLASS 1 RENEWABLE ENERGY SOURCES. Green Leaf is a Connecticut company. Just this week we started producing our first biofuel down in New Haven harbor. This is a cleaner-burning, renewable fuel called biodiesel. Primarily when used in diesel vehicles and biokey when used in oil fire heating systems.

Biodiesel and bio heat are well recognized for their environmental benefits in reducing greenhouse gas emissions, particularly PAH, which is some nasty, cancer-causing substances, and sulfur.

Our particular products, made mostly from recycled cooking oil and animal fat, has been

JASON CALABRESE: Yeah, you have our testimony.

REP. REED: Great, yes.

JASON CALABRESE: (Inaudible) on there, but I'll make sure I pass it along as well.

REP. REED: Excellent. Thank you. Jay Fletcher is next. And after Jay Fletcher, Henry Talmidge, and then William Reese. Good evening.

JAY FLETCHER: Good evening. Good evening, Senator Duff, Representative Reed, and members of the committee. First off I just wanted to say I thank you for your perseverance over a long day of helpful testimony. My name is Jay Fletcher, the director of regulatory policy for Northeast Utility Service Company, appearing today on behalf of CL&P and Yankee Gas.

With me is Steve Gibelli, assistant general counsel for NUSCO. We've submitted written testimony on seven bills, but we'll speak today only on House Bill 6360. We appreciate the efforts of the governor and the administration to develop the Comprehensive Energy Strategy.

There are many provisions in the CES that we support, including the provisions regarding expanded energy efficiency and natural gas expansion. We look forward to working with the administration, the legislature and others on making this bill even more beneficial to our customers.

We are concerned about Section 5 of the bill. The credits given by the host net metering facility will be subsidized by all of our other customers. These subsidies are unfair to non-participating customers, and will result in higher rates.

Section 8 of the bill pertains to micrgrids. We support CONSUMER COUNSELs and DEEP's CONSUMER COUNSEL pilot program, and have worked with DEEP throughout their process. We would suggest that the legislature allow DEEP to complete its pilot program, which is currently underway, and is evaluating proposed projects and the feasibility of those projects before any further changes are proposed to statutes.

This section allows CONSUMER COUNSELs to cross the public rights of way. We as the franchise utility, regulated by PURA, have the responsibility to safely and reliably distribute electricity to our customers. This provision begins to dismantle that confidence.

There is also a public safety concern with allowing non-utility entities, not regulated by PURA, to distribute electricity across the public rights of way. The CL&P is very concerned that allowing other entities to either build their own or utilize existing distribution facilities has the potential to jeopardize the safe and reliable distribution of electricity.

Section 6 of the bill contains and expansion of the current allowances for sub metering. While there are certain protections afforded to submeter customer in this section, they fall short of the numerous protective statutes and regulations that protect non-sub metered customers.

Existing legislation already allows PURA to grant exemptions to the sub metering prohibition. Therefore we believe this section is unnecessary. Section 7 of the bill is vague ,and we have questions as to its intent.

If the intention here is to allow customers to

aggregate bills to avoid certain charges, such as the customer charge, then we are deeply concerned that this provision is a direct erosion of our revenue requirements, which will ultimately cause other customers' costs to increase. Thank you for the opportunity to provide testimony and we'll take any questions.

REP. REED: Thank you very much. Oh, right on the -- okay, again another --

JAY FLETCHER: Just the way I planned it.

REP. REED: Another pro. Are there any questions? Representative Hoydick.

REP. HOYDICK: Thank you, Representative Reed. Jay, thank you for coming today.

JAY FLETCHER: Sure thing.

REP. HOYDICK: Thanks for bearing with us. You said in Section 5 you have issue with -- in the governor's bill --

JAY FLETCHER: Yes, that's the virtual net metering section.

REP. HOYDICK: And your concerns were the same as the other -- as UI is concerned about -- about sharing the costs and making sure that all rate payers are whole and just a certain section -- it's the same -- same testimony?

JAY FLETCHER: That's right. When -- when these credits are given to these other customers, the credits then have to be borne by all other customers.

REP. HOYDICK: Right.

JAY FLETCHER: The host facility will designate

these beneficial accounts to receive these credits, and whatever those credit are then are dispersed and paid for by all other customers that aren't part of this chain.

REP. HOYDICK: Okay. Great. I just wanted to make sure I was on the same page.

JAY FLETCHER: Yes.

REP. HOYDICK: Thank you very much.

REP. REED: Thank you. I just wanted to -- so this really goes to the heart of the bigger question, which is the more generation we create, whether they're CONSUMER COUNSELs or net metering, virtual net metering or sub metering or any, you know, a whole bunch of things, it impacts your ability to keep the grid going in the way you'd like without transferring those costs.

So that feels like an ongoing conversation because obviously this is going to -- this is some -- anaerobic digesters another one -- this is really as we build all of these options all this versatility, how is it going to impact our utilities?

JAY FLETCHER: Yeah, and I think -- I can -- Mr. Deithlevy (ph) from UI explained it this morning. There's set amount of costs the utility has, and to the extent that one person doesn't pay those costs, the rest of the customers have to pay those costs.

I don't know if your question is going to the engineering of all this, and I can't say that I would be an expert in the engineering side of it, you know, as to what this actually does to the operation of the grid, but I could certainly get that information if you'd like as

to, you know, what our thoughts are around -- you know, kind of the engineering ramifications of moving more and more load into distributed generation.

Yeah. I think it's really interesting because it's really part of obviously where we think we're going, and you know, none of us wants to be on the grid until we need the grid.

JAY FLETCHER: Right. Right.

REP. REED: So we want you there, hanging out, waiting for us. We need you.

JAY FLETCHER: That's correct. We have to be there in case these generators don't work but yet all these things just keep kind of moving costs from one group to another group.

REP. REED: Thank you for your testimony. Henry Talmage and William Reese will be next. Good evening.

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HENRY TALMAGE: Good evening. Senator Duff, Representative Reed, members of the committee, my name is Henry Talmage. I'm the executive director of the Connecticut Farm Bureau. We represent 5,000 farming families across the state from all different sizes and types of agriculture.

Connecticut agriculture is a $3.5 billion industry and represents over 20,000 jobs in the state, according to a Yukon study in 2010. As you know, there's been significant interest in local food and engaging a higher percentage of our food source from local Connecticut sources.

The governor's Council on Agricultural Development was given a charge, of which I'm a cochair of this council, to look for ways to

increase the amount of Connecticut-grown product that's consumed in the state from less than -- an estimated less than 1 percent to 5 percent in the year -- by the year 2020.

What we've learned in this process of doing some really extensive interviews, one-on-one interviews, production surveys, producer surveys, agri-business people, is that we recognize -- we ask four questions. Two questions really, what were the top four obstacles and what are the top four opportunities to growing agriculture as an economic base in the state?

Not surprisingly the number one obstacle was the high cost of doing business, the high cost of input costs, and top of the list is the cost of energy. So the governor's Council on Economic -- on Agricultural Development in its initial recommendations is urging that the state take an approach that addresses agricultural energy policy.

In Europe, agricultural, and especially on farm agricultural energy generation has become an integral part of the agricultural operations both in ways to reduce production costs and allow them to sell product that they might not be able to because of lower production costs but also through additional revenue generation that it comes with on farm energy generation.

The governor's council thinks that this is the direction that we should be looking at, and in particular we are excited about some of the opportunities, as you've heard, with anaerobic digestion, but also combined heat and power units. We have a significant greenhouse industry here in Connecticut, one of our biggest challenges is seasonality of our growing season.

And yet people eat and want to eat local crops year round. There is opportunity imbedded in that, the problem with it is the energy profile and the costs associated with producing in the northeast needs to be solved. And this is something that they have addressed in Europe and have done very well.

So with that, the Connecticut Farm Bureau is -- supports House Bill 6360, the governor's energy plan, especially -- and we're especially pleased to see the inclusion of agricultural virtual net metering provision in the bill. As mentioned before, we're concerned about the ten beneficial agricultural counts.

Only with relation to the anaerobic digestion really because that's scaled to a size that's bigger than -- quite a bit bigger than the electrical needs of the farm. But so for that particular segment, that's a hurdle. We're also very pleased and -- 6535, AN ACT REDEFINING CLASS 1 RENEWABLES, it's important to point out and clearly establish anaerobic digestion as a Class 1 renewable. We also think that there's opportunity for food waste to be utilized in anaerobic digestion.

And then finally 6332, we're concerned about reducing the alternative compliance payments that would shift production away from Connecticut energy, and we really think that this is an opportunity that we're faced with here. So I'm happy to stop there and answer any questions you might have.

REP. REED: Thank you so much. Are there any questions? Senator Duff.

SENATOR DUFF: Thank you. Thank you for being here today, and we appreciate your advocacy on all

this. It's not all the time that the Energy Technology Committee gets to help farms. This is part of what we're doing and how we know we can help Connecticut's economy, so we -- we're glad to be in partnership with you.

HENRY TALMAGE: Great. Thank you.

REP. REED: Any other questions? Thank you so much for your testimony. William Rees. Good evening.

WILLIAM REES: How are you doing? Senator Duff, Representative Reed, Senator Chapin and all of you who I have yet to meet, I want to thank you for taking the time now that it's getting so late. I'm here to testify on a few different bills, but I first wanted to thank you for or applaud you guys for putting farm energy first in the state.

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It's been a long time since agriculture has seen this kind of incentives and opportunities. My name is William Rees, and am president of Green Power Solutions, a biomass development company focused on turning biomass into energy and value.

GPS is working with Connecticut farmers to construct on-farm anaerobic digestion facilities. These systems generate clean energy, biogas electricity, cojan (ph) heat and fertilizer from the processing of manures and ag wastes.

I want to testify on a couple different fronts, and I think I'll start with House Bill 6360. I'm working with Fairview Farms, who is looking to put in a project that's going to cost around $50 million. They're one of five farms in the state who are poised to do the same.

This is an opportunity for agriculture and your opportunity with virtual net metering has created a scenario where anaerobic digestion technology energy, as green as it is, can now compete and find good value for the energy it generates.

As far as some of the issues that I see in the legislation for 6360, there is an issue with the beneficial accounts for agricultural producers. The problem with farms is they have a lot of material and can generate a lot of power, but they don't use a lot of power on their own.

Paul Miller, Fairview Farms, probably generates -- could generate 2,000 -- excuse me -- 2,000 kilowatts from his facility, from his manures, and local manures. But he only uses about -- sorry -- 80 kilowatts. So for the language in the bill, if there were 35 agricultural producers, there still isn't a large enough demand for one project to offset the supply.

What we're hoping for is that this can be opened up to other users, and we're primarily focused on state agencies and municipalities. We want to be able to sell the power to these groups, and open it up a little bit so that farmers can find the demand for the energy that they have available to them.

The second item I wanted to talk to you guys about was 6532. Well, sorry, that's a lot quicker than I thought. I'll hurry up very quickly. I'm in opposition of 6532 because it reduces the ACP. And as you guys know, the ACP directly affects the value of RECs in the state.

The -- the way this is written going out the utilities will be able to go out to Delaware or

electricity.

Connecticut is not set up. Our resources that we have excellent thermal conductivity in our granite rock, and we use that for heating and cooling without going through the middle point of making electricity. It seems that DEEP has commented to you that having RECs for thermal energy does not meet the definition of electrical generation.

But you are the legislative body, and I know that they are the staff and they're doing their job. But it's going to be your decision to do what's best for Connecticut. And I -- in my opinion the best thing you can do is classify us as a renewable energy credit along the lines of Thomas Jacobson outlines so that we can receive the benefit that we have here. Thank you.

REP. REED: Thank you for your testimony. Any questions? Thank you very much.

PETER TAVINO: Thank you. Megawatts, remember that. Good night.

REP. REED: I'm still getting excited about the fact that it's our decision. Thank you for reminding us. So is it John Simon? He's left, okay. Chris Phelps. Good evening, Chris.

CHRIS PHELPS: Good evening. Yeah, it's not morning yet. Okay. Representative Reed and Senator Duff and members of the committee, thank you. My name is Chris Phelps. I am state director of Environment Connecticut. We're a nonprofit environmental advocacy organization, and I've submitted written comments on a number of the bills before you today. I'm not going to regurgitate them.

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A lot of the points we talked about have been made in various ways and talked about. To summarize, we did support House Bill 6330, a number of the provisions in there, virtual net meeting for example is an issue I've worked on with members of this committee in years past.

And we definitely support expansion of that policy. In fact, our goal would be see all customers, home owners, business owners, all property owners able to take advantage of virtual net metering opportunities.

We also are supporting House Bill 6533, regarding fracking wastes. Opposing House Bill 6535, 6532 and 6531, which all in one way or another relate to renewable and the RPS. I want to focus on two in the couple minutes I have.

The fracking waste we definitely support a ban on disposal of these large quantities of highly-toxic wastes as articulated in the bill. And my colleagues at Penn Environment, for example, on the front lines of this debate and this battle.

And actually in my testimony I believe I included electronic links to a link to the website to some testimonial videos from, you know, not folks like me who work for an environmental group and come up when we're supposed to come up here and talk to you about this, but people who live in communities that are impacted directly by fracking. Families, business owners, land owners who are dealing with the effects of the fracking that's going on to generate and drill for natural gas in those communities.

I really urge you to look at that, to get the words not from people like me but from people

REP. REED: Thank you, Chris, for your testimony. Always interesting and provocative. Are there any other questions? Thank you.

CHRIS PHELPS: Thank you.

REP. REED: Next is William Dornbos, and following William will be Jim Lore, and then Kate Donnelly.

WILLIAM DORNOS: Good evening.

REP. REED: Good evening.

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WILLIAM DORNBOS: Thank you for the opportunity to testify this evening. My name is Bill Dornbos, and I'm the Connecticut director of the ENE, also known as Environment Northeast. ENE is a nonprofit research and advocacy organization that has been working to advance Connecticut's energy and climate policies since its founding in 1999.

We submitted fairly extensive written comments, and I want to take the opportunity to put those into context through this testimony. From our perspective, we see that Connecticut is currently grappling with three underappreciated and major energy challenges.

The first, our state's escalating energy system costs. This primarily concerns our dramatically increasing transmission costs, which now stands about 1.9 cents per kilowatt hour in Connecticut and are projected to increase regionally to almost three cents per kilowatt hour by 2015.

The second challenge is our ongoing underinvestment in the state's award-winning energy efficiency programs. Programs that can,

with more resources, do more to capture the lowest-cost energy resource for consumers and businesses. And it was very hard actually to hear Deputy Commissioner Jessie Stratton point out that Connecticut needs to make some progress on its efficiency investments.

Finally, the third challenge that we see is a need to take advantage of promising new technologies towards space heating and grid modernization. With those kind of big picture energy challenges in mind, then I would like to just highlight three of our points on House Bill 6360.

First, the committee has a real opportunity before it to help grow Connecticut's economy and also improving our environment by passing Section 3's refinements to the state's process for procuring energy efficiency. Connecticut's residents and businesses will reap significant economic benefits.

As much as $40 billion over the course of the next 15 years for electric efficiency alone, according to our recent economic analysis that Representative Vargas also previously cited to. We urge the passage of those efficiency provisions.

Second, establishing an effective oil/heat efficiency program would by itself be a tremendous economic win. Providing perhaps the best payback of any energy efficiency investment in Connecticut right now, as much as $7 for every one dollar invested.

Such a program would also allow the state's award-winning efficiency efforts to extend weatherization measures to homes and businesses heated by oil.

We recommend that the committee amend House Bill 6360 or otherwise take appropriate legislative action to pass legislation that would establish a permanent oil heat efficiency program, and attached to my written testimony is draft language to that effect for a bill for that purpose.

I should note also that if we're concerned about -- if there is a concern about cross subsidization of oil efficiency by the electric rate payers, then actually this is the solution to that concern.

Third, the natural gas expansion proposed in the comprehensive energy strategy and partly addressed by Section 19 of HB 6360 needs to be reworked into an efficient fuel choice program for space heating needs.

So in closing, what we recommend with the natural gas expansion is that the single focus on natural gas, while beneficial for some consumers, and this is out another highly valuable conversion opportunity such as conversions to high-efficiency air source heat pumps.

If the goal of the expansion is to modernize Connecticut's space heating, then we should craft a policy approach that addresses that challenge in a comprehensive manner, one that will encourage and help customers to adopt optimal and efficient heating options within their choice of fuel. Thank you.

REP. REED: Thank you. Any questions? Representative Miller.

REP. MILLER: Thank you, Madam Chair. Good evening.

WILLIAM DORNBOS: Good evening.

REP. MILLER: When you talk about space heating, what exactly do you have in mind?

WILLIAM DORNBOS: Not outer space.

REP. MILLER: No, I know.

WILLIAM DORNBOS: But technologies for heating homes or businesses. So we talked a lot about oil heat, obviously today, and also natural gas. But there are also technologies, there's ground source and air source heat pumps that can be utilized for those purposes.

REP. MILLER: Also maybe a standalone little gas unit for a commercial operation?

WILLIAM DORNBOS: Certainly.

REP. MILLER: Okay. One thing we found out or we know is that a lot of people have energy audits. And they'll be given a document that tells them what they should do and how much money they can save. And that document gets thrown into the drawer of the kitchen counter and they don't do anything.

You know, I forgot the percentage but people just don't respond. They want the audit, they want to know, but they won't spend the money to upgrade their furnaces or insulation or whatever it may be. They just let it go by the wayside but they got the audit. It was $25. So I don't know how we can encourage people to do the things that are recommended.

They'll go by a 60-inch television set before they put a new oil burner in their boiler. Don't know what the answers -- these people, but it's just human nature I guess.

WILLIAM DORNBOS: I think that's an excellent concern, and I think it's part of a much longer discussion about how we can expand the state's -- the reach of the state's efficiency programs. And I'd welcome having that discussion actually.

REP. MILLER: Thank you.

REP. REED: Thank you. Any more questions? Thank you.

WILLIAM DORNBOS: Thank you.

REP. REED: Jim Lore. Kate Donnelly? No? Roger Smith. I saw him a little while -- oh, here you go.

ROGER SMITH: I wouldn't miss this for anything.

REP. REED: Good evening, Rog.

ROGER SMITH: So my name is Roger Smith. I'm the Connecticut Co-director for Clean Water Action, and we're a nonprofit environmental advocacy group. So first off I want to thank everybody for your attention and for being here at this late hour.

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I want to say that we strongly support the direction of the Comprehensive Energy Strategy, to really think as a state about where we're going to go in terms of cost, reliability, environmental concerns, and really try to think about it comprehensively.

It has been many years in the works, and frankly it's good to have somebody in charge of energy at the state level. So I want to offer some comments. I put testimony on five bills today. I'm really just going to cover one

issue. I'd be happy to answer questions about others.

But the issue that I wanted to cover was on natural gas and on the build out of natural gas pipelines and conversions. So I think the fundamental question that we have as a state is is our goal to expand the use of natural gas or is the goal to help people who are struggling with high heating costs?

And if the problem that we're trying to solve is the high heating costs, I'd suggest that we look at the energy strategy in a slightly different light. So we provided a few recommendations here for where to go forward. So the first one is that we'd like to see the legislature really direct DEEP and PURA to put together a portfolio of heating solutions.

For people who heat with oil and propane, one thing that everybody can do is energy efficiency. And that could mean insulation, air sealing, it could also mean high efficiency oil equipment. So that should be an option.

The second one is that for anyone who's on heating oil, they should be considering heat pumps. There's new units called ductless mini splits that are very affordable. They're basically electric heating and cooling, but they're much cheaper to run than an oil unit is.

This is something that can help people who live nowhere near a gas main, and even for folks who are near gas mains, it may be cheaper to do that than to have to run a pipeline to a house.

The third is that there's some renewable energy sources that can also work. Solar can heat water directly and you can use that for space

heating. You can also combine heat pumps and solar photovoltaics and literally lock in someone's heating and electric costs for the foreseeable future.

And then another option of course, is natural gas conversions. So for folks who are on or near gas lines, it can be an option to upgrade to a natural gas boiler or furnace and water heater.

So we'd really suggest that there be a variety of approaches and if we're going to come with new financing mechanisms, that any of these be able to qualify for. So we don't pick a choice for people, but we actually give them an array of options and help them afford it.

Same thing with the tax credit. Why is the tax credit only for gas conversion? If you live nowhere near a natural gas line, that doesn't help you at all. These other options can help you cut your oil bill somewhere between 20 and 50 percent. So if that's our goal as a state, I think we should reward that.

Another point that I wanted to make is that we have a lot of old houses in Connecticut, and I live in one, and I spend a lot of time doing outreach to help people make them more energy efficient. I think we have an opportunity to do better, and I'll wrap up shortly. I think we have an opportunity to do better than just to take people who are wasting oil in inefficient houses and help them waste natural gas.

So what I would suggest is that we put some standards in place. And we put in basic efficiency requirements so that they have to put in high efficiency heating equipment, which is ultimately going to save them more money,

especially when gas prices rise in the future.

And secondly to meet basic weatherization standards. We shouldn't be putting a $10,000 heating units in homes with no insulation. That should be part of the package. That could all be financed together. So we'd like to see that these homes making gas conversions meet the state's very minimal definition for what it means to be weatherized. And with that I'll end my comments and, you know, I put a lot more in writing. Thank you.

REP. REED: Thank you, Roger. Some very excellent points. Are there any questions? Representative Miller.

REP. MILLER: Thank you, Madam Chair. And I liked your last comments about the insulation in the home. In most cases, again we have an older housing stock in Connecticut. And 50 percent of the buildings don't have insulation.

ROGER SMITH: Or more.

REP. MILLER: Yeah. I'll just stay at 50. But if they did insulate the houses, and they were going to replace their heating system, the fact is that years ago a lot of these plumbers, they used the rule of thumb. Four, five or six or seven, that was the number they used at the -- took the square footage of the house, multiplied by one of those numbers to get the heating system.

So not only would you save energy by insulating the home, you would reduce the size of a heating unit because these guys would through in 100,000 BTU furnace for a small Cape Cod where they can get away with 60. So with the insulation a lower size boiler or furnace, whatever, could really save some bucks.

ROGER SMITH: Yes. So potentially a cheaper unit for you to replace.

REP. MILLER: Well, sure.

ROGER SMITH: I mean, another way to look at it is that you know, so right now let's just say an oil boiler is $3,000. You switch to gas, you cut that in half to 1,500. It's probably going to take you about seven years or so to pay that back, so if natural gas prices keep rising as we're seeing them and they end up doubling in seven or eight years, so you've got someone who's potentially where they are today.

And maybe they're having trouble paying their oil bill today, so they're going to be having trouble with their gas bill seven years from now. With energy efficiency, they can actually come out better seven years from now than they are today, even if gas prices rise or we start exporting gas to say Japan, the world's biggest importer, which is willing to pay $16 a BTU compared to the three or so in Connecticut.

Believe me, these gas guys would be happy to pay whoever is going to give them the best price. I don't think they're going to give us a special bargain.

REP. MILLER: And the equipment they're selling today you get these condensing units, both gas and oil, we get 95 percent efficiency and you can't beat that.

ROGER SMITH: Absolutely.

REP. MILLER: Thank you.

REP. REED: Thank you. Any more questions? Representative Steinberg.

REP. STEINBERG: Thank you, Madam Chair. At the risk of engaging the ire of my chairs. Seems like most of us are here because we want to be at this moment. Was there anything else you really wanted to say if you were given another one more topic and another minute?

ROGER SMITH: Yes. Absolutely. How could I say no to question like that. And here's the other topic, which is related to what I said.

REP. REED: Representative Steinberg, you're vice chair, remember?

ROGER SMITH: I think that was an excellent question. So the other point I'd like to make is actually on heating oil efficiency. So we can talk a good game about we'd like people to make their homes more energy efficient. As it stands right now, the state law that allows heating oil customers to access rebates for insulation, low-interest financing through the efficiency funds, home energy solutions for $99, all that ends July 1st unless we come up with an new mechanism.

So I really challenge this committee to find a permanent solution so that we're not laying off workers and telling people, sorry, you don't count because you heat with oil. The two ways we can go, you can establish a surcharge, a conservation charge on fuel oil sold in the state and do it at the wholesale level.

For less than one percent of the cost of heating oil, 3.5 cents a gallon, they can have full access to these programs and there's no issues about cross subsidization. If you don't want to do that, have people who don't heat with electricity and natural gas pay more into the efficiency fund right on their electric

bills. But you got to do something because if we do nothing then we're literally leaving half the state out in the cold.

REP. MILLER: Thank you. Wasn't that worth it? Thank you very much.

REP. REED: Thank you. Did you want to hear his PhD thesis as well?

ROGER SMITH: I submitted that in my written copy.

REP. REED: Thanks so much, Roger.

ROGER SMITH: Thank you.

REP. REED: William Leahy? He left? Peter Ellner, and Mike Morrissey will be -- will follow Peter Ellner. Good evening.

PETER ELLNER: My name is Peter Ellner, and I'm speaking on governor's bill 6360. I live in a semi-rural area in Oxford that normally would have fairly clean air. However, in recent years during cold months, the air is filled with an odor from people burning wood, garage and other low-grade fuels to heat their homes.

When I've spoken to my neighbors, I've learned that they are caught in a bind of not being able to afford to replace their inefficient oil furnaces or even to pay for common sense home improvements like insulation.

I'd like to call for the legislature to provide a mechanism to allow home heating oil users in Connecticut the access to the same energy efficiency benefits that are currently provided to electric and gas customers under the Home Energy Solutions Program.

This would include assistance for home energy

audits, insulation, and replacements to furnaces and boilers. It would be financed by a small surcharge on heating oil. By nearly every analysis, efficiency programs like this yield the biggest bang for the buck in saving consumers money on their energy costs.

This program would provide an opportunity for oil dealers to obtain increased profits by offering repairs, retrofits and new equipment to the customers that markups that in many cases would be far higher than the oil they deliver.

The governor has stated that his goal is to return Connecticut to the top of the annual energy efficiency rankings by the American Council of Energy Efficient Economy. I strongly support this effort, and I believe that permanently expanding the Home Energy Solutions program to consumers of heating oil would be a constructive step in this direction. Thank you.

REP. REED: Thank you very much. And it's very good to hear you bringing that because we're trying to make that happen and thank you.

PETER ELLNER: Thanks. I appreciate that.

REP. REED: Any questions? Thank you. Mike Morrissey. And following Mike Morrissey I believe it's Graham Barker.

MICHAEL MORRISSEY: Good evening, Senator Duff, Representative Reed and other distinguished members of your committee. I'm Mike Morrissey. I reside in Glastonbury and I'm also the state director to the National Propane Gas Association.

I'm here to comment on HB Number 5589, AN ACT

Kennedy. And following Ms. Kennedy, Scott Bassow.

RAQUEL KENNEDY: Good evening. Thank you all so much for hanging in there with us. My name is Raquel Kennedy and I am with Victory Energy Solutions and I'm also the chair of advocacy for the Home Performance Alliance of Connecticut. And I am here speaking behalf of the Home Performance Alliance of Connecticut regarding House Bill 6360 and I want to tell you, first a little bit about our organization.

We support -- we are in support of the energy conservation, energy efficiency, renewable energy and each (inaudible) is a collaborative voice for home performance professionals and the first organization of its kind in Connecticut. And we provide an opportunity for collaboration among energy professionals to promote awareness of the benefits of building performance, create resources for information, education and training.

And since 2011 we have been proactively advocating for policies that support a self sustained market for home energy performance by working effectively with all of the stake holders in the state and in the national level. And my company, Victory Energy Solutions is representative of many of the home performance and energy management contractors in Connecticut who have contract with Connecticut light and power and uniting, illuminating to provide the home energy solutions program and home performance services such as home energy assessments, advance air sealing, insulation windows, and HVAC replacements. All within the context of building signs and within the parameters of the energy efficiency context.

And as you know rate payers in Connecticut can

access core services through the home energy solutions program, which is valued at 800 dollars or more for under 100 dollars. And with additional incentives available for low cost financing and rebates.

Through a partner -- through a partner program the clean energy communities offer jointly by the clean energy financing investment authority and the Connecticut energy efficiency fund. Communities successfully encourage support for energy efficiency and clean renewable energy and provide home energy solutions program participation.

We are encouraged by your leadership in conjunction with the Malloy administration, DEEP that will provide the needed catalyst to move forward to build a stronger energy efficiency infrastructure and facilitate our ability to create new jobs and contribute to a growing Connecticut economy.

Many of us in this room have been responsible for the development in growth of energy efficiency and renewable energy programs that are the (inaudible) of a significant growing industry in Connecticut. Several weeks ago the President stated the -- during the President's State of the Union address to Connecticut, Paul indicated that half of the residents in Connecticut want us to focus on jobs and the economy.

And I know that my time is up, but I would like just a couple of minutes just to talk about, really the importance of job creation and economic development as it relates to energy efficiencies, not just about BTU (inaudible).

And the policies that are made here and that are carried out by the DEEP and by PURA really

have an impact on the growth of this industry and on economic development in job creation. And, in addition to that, obviously, you know, coming up with a solution for oil heated home that has a tremendous impact on the ability for up to 60 percent of the home owners in Connecticut to have additional disposable income, because they're able to make their homes more energy efficient.

It also has a significant impact on our ability as contractors to be able to create more jobs, because we are able to service more homes in Connecticut. In addition, you know, we recognize that supporting gas conversions is another tool in support of (inaudible) affordable fuel sources. And we ask that you require weatherization through the home energy solutions program to be done when any conversions of natural gas.

This will help towards meeting the state goal, weatherization goal. It will preclude wasting gas in inefficient buildings, over sizing HVAC systems to compensate for leaky buildings and for economic development and job creation in a very significant way.

I have some -- some other areas that we cover, but it's all on my testimony. But I think it was really important for you to hear from the contractors that actually participate in the program and that deliver these services. And we really hope that you use our organization that uses HTACT as a resource as you continue to develop these policies. We're there where the boots on the ground, we know what's happening with the customers and we can be very helpful to all of you.

REP. REED: Thank you for your testimony. Do you -- are you interacting with CEFIA on these?

RAQUEL KENNEDY: Yes

REP. REED: I know they're trying to create financial -- actually -- so when people are talking about natural gas that they have these other opportunities as well?

RAQUEL KENNEDY: Yes. I mean, the key, you know, the key -- the incentives should be there, the financing will be there. The key is really education, it's marketing and it's consistency. We can't have programs that stop and start and really retain the credibility that you want to retain in this industry.

REP. REED: Thank you for your testimony. Any questions? Thank you so much. Next up is Scott Bassow. No. Guy West? Martha Kelly? Here she comes. And following Martha Kelly will be Ellen Weiniger? Good evening and thank you for staying with us all this time.

MARTHA KELLY: I know, I don't think I've ever been here this late for a hearing. Co-chairs, Dawson, Reed, and members, thank you for your patience and staying so long and attending so steadfastly. I'm going to make some remarks on Bill 6360. I submitted written testimony, in some cases three -- from three bills.

Thank you for this opportunity to address the Energy and Technology Committee on this important matter. My name is Martha Kelly. I'm a resident of Hartford, Connecticut's capital city. I work for the Connecticut Coalition for Environmental Justice. I'm a low income person, who lives in a rented apartment. My apartment is heated with gas now, which I pay for, although with some assistance at times from the energy assistance programs.

My community suffers a high rate of asthma. I urge the state to move away from trash incineration and to adopt policies that move us towards zero waste. And I'd like to say that I strongly oppose any measure that subsidizes or incentivizes the polluting trash incinerators in our state or the construction of any new facilities.

And I commented as being against the bill that is for setting up a special category for CRRA. Hartford is the location for the fifth largest trash incinerator in the nation. At this time, the waste of 50 Connecticut towns in incinerated in Hartford at the mid Connecticut project, down from what use to be 70, because many towns have decided they don't care for CRRAs policies, prices or practices or history.

In the year ending June 2012, the plant in Hartford processed on average 4,512,169 pounds of useful solid waste each day and it operates 365 days a year. And that's from a report to the legislature by CRRA. Municipal solid waste is a dirty fuel, more polluting even than coal. I have attached to my written testimony a link to a report called Burning Public Money on Dirty Energy, Misdirected Subsidies for Waste to Energy Incinerators on November 2011 report by the Global Alliance for incinerator alternatives.

Aside for my concern about giving renewable energy credits to incineration, I'm concerned that the governor's proposal puts too great an emphasis on natural gas conversions, because natural gas is a finite fossil fuel even if there's lots of it in New York and elsewhere. Its extraction and distribution carries a lot of hidden cost. The new methods of extraction have caused contamination of drinking water supplies and farming operations. Which

somebody that is concerned about locally produced food, is a concern. I've heard it referred to affecting farms in New York State.

Also natural gas pipelines are a source of a lot of leaks and there have been a number of devastating explosions just recently, which, thank you. I just urge you to put the emphasis on energy efficiency programs and the true renewables to reduce our use of fossil fuels. And I support the idea of virtual net metering being expanded.

And I'm also concerned that I have a lot of neighbors who use oil and that problem needs to be fixed so that they can at least move to using less of it. Thank you.

REP. REED: Thank you very much for your testimony. Are there any questions? Thank you. Ellen Weiniger? And following Miss Weiniger, Michelle Alabiso?

ELLEN WEINIGER: Officially, good evening. Thank you chairpersons Reed and Duff and the other (inaudible) members of this committee for providing an opportunity and staying so late to make it happen. I am going to address HB 6533 and express support for that -- that piece of legislation -- proposal legislation. Many thanks to the legislatures for addressing this issue regarding legislation to ban the sale application and disposal in the state of Connecticut of radioactive waste and natural gas drilling operations. Protecting the health and safety of continuance is the single -- primary (inaudible) responsibility of government officials.

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HB5410

My name is Ellen Weiniger and I am the educational outreach director for Grass Roots Environmental Education. We have offices here

support of Section 18 and in opposition to Section 19 of HB 6360 an Act considering a culmination of Connecticut's energy -- comprehensive energy strategy.

My name is David Foster. I'm a third generation heating oil dealer. My grandfather started his business, Seymour Company in the 40s and my father bought his business out. I branched out on my own in 1985 and went to work for Wilcox Fuel. In 1990 my partner John McCall and I bought out Dick and Don Wilcox and we are currently employing 25 people. And I have approximately 3000 heating oil customers.

I'm also on the board of directors of CEMA, Connecticut Energy Marketers Association. I'm also a long standing member, contractor member of the heating and cooling licensing board for the state of Connecticut.

I'm here today to voice my opinion for support of the language in section 18 of HB 6460, that reduced the sulfur content of home heating oil from 3000 parts per million to 15 parts per million. And it removes the language, in the law that require Connecticut to wait for this fate of New York, Massachusetts and Rhode Island to have a similar standard.

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Notrasulf, an ultra low sulfur heating oil will burn cleaner and bring benefits to the environment and my customers. I also blend a biofuel that is purchased here in Connecticut from biofuel dealers and going by a 15 part per million in a certain percentage of biofuel makes my product cleaner, greener and has less emissions that natural gas.

It also does something else that natural gas can't do and that is be a renewable. So when the governor's plan talks about a cleaner,

greener fuel, a low sulfur heating oil with the addition of biofuel makes it not only cleaner and greener, less green house gas emissions, but it's a renewable fuel.

I'm opposed to section 19 of HB 6360 that (inaudible) to set into a law a 25 year hurtle rate. My basic understanding of how the hurtle rate works is that it would allow natural gas utility to lower the standards that have been used in the past to facilitate conversions from heating oil to gas. I've been told this is a way to provide more choices to consumers and cannot have a gas line on their street.

And if that's the case it raises the question why under the current rules, natural gas is not attractive enough for the consumer to demand it and utilities to make it available. I was on a panel recently and listened to some tracks from PURA that DEEP has identified over 216 thousand potential natural gas customers that are right near the main of -- and have not chosen to convert.

I'm going to summarize this really quick, I guess. I ask that the energy committee amend the language of HB 6360 and Act concerning implementation of Connecticut's comprehensive energy strategy to prohibit (inaudible) from recovery their cost from new. Existing rate pares when they expand their infrastructure. Thank you and I'd be happy to answer any questions you may have.

REP. REED: Thank you so much. Any questions?

DAVID FOSTER: If you don't mind, just one second, I wouldn't -- there was some comments made about going to low sulfur and how heating equipment would be effected. New York state went over a year ago and I think there's some

misinformation being a technician all of my life, we have customers that are on low sulfur, have been for three or four years.

There's no change to the equipment, it burns cleaner, it burns better and I just wanted to bring that up so that there wasn't any misinformation on that.

REP. REED: Just elaborate on that a little bit more, cause I felt from one individual who testified that there was going to be an urgent price differential and it was going to skyrocket the low sulfur and sort of change the whole home heating oil game. Can you enlighten us on that?

DAVID FOSTER: Yeah, sure and it's very simple. New York did it last year and when they changed we didn't have a huge price differential. Matter of fact, low sulfur diesel that you use in your truck that transport and do things like that, the price differential was anywhere between two and ten cents a gallon all winter. So they may think that it's going to happen, but in reality it didn't happen and New York is a perfect case for that. So I don't think that that's really an issue.

REP. REED: Thank you very much Mr. Foster that was really helpful.

DAVID FOSTER: Thank you. Any other questions?

REP. REED: I don't see any. Joe Wasserman? And following Mr. Wasserman, Andy Bauer.

JOE WASSERMAN: Hi. And I want to thank the committee for giving me the opportunity to testify. My name is Joe Wasserman. I'm a community organizer with Connecticut coalition for environmental justice or CCEJ. I'm here to

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name's Andy Bauer I chair the Portland clean energy task force. I know you probably don't have my testimony right in front of you, if you care to look it up; I've got some pictures and charts there.

I'm going to present myself tonight as an end user, because I've taken advantage of just about every energy efficiency, clean energy opportunity in Connecticut that you can think of. But before I go into that, you heard Roger Smith from Clean Water Action speak, I'm proud to say I'm a volunteer with Clean Water. I donate to Clean Water. I listen to Roger all the time, he -- he knows what he's talking about.

Concerning a large scale expansion natural gas and I did title my testimony on Bill 3 -- 30 -- 6360, that may be an error, I'm really commenting, generally on the comprehensive energy strategy. A lot of stuff has been said about an expansion of natural gas. I would just like to throw a natural -- a rhetorical question and which would be, we're looking at expanding natural gas, I would imagine New York, Vermont, New Hampshire, Main, Massachusetts, Rhode Island, New Jersey, Pennsylvania, everybody else is looking to do the same thing.

So the big huge supplies of natural gas in my mind don't really look all that much larger. I -- I think it would be foolish to do an expansion of natural gas just for that reason. Moving closer to home for me, I imagine most of you, as I have, have come to really enjoy energy efficiency? I'm a proponent in Portland of the home energy solutions; they are the gateway to many things that you can do with -- with your home.

I've seen dozens, if not hundreds of my neighbors say, hey wow I've done this, now I can install new windows, now I can do solar, now I can do insulation and they're rebates for that. And that -- those -- those are wonderful things. I'd encourage the -- the intent of 6330, seems to be promoting energy efficiency for large scale projects.

HB6350

I would like to echo what Raquel Kennedy said, speaker from a little while ago. It's imperative that we -- we have a consistent funding source from our oil customers to prevent the kind of yo-yo type of, here's an incentive for six months and now it's gone. Because I've got a lot of people who've done an HES, but they don't have money to do insulation, when the rebates are being offered. And then when they want to do the rebates, the time is passed and they can't do them.

On my testimony, I'll -- I'll sum up quickly, for -- I've got a picture of me and my portable TX system on the left and then my neighbors, which was installed six months later. You can see for yourself the inefficiencies are going up, the prices are going down, the government incentives are going down, so they're all going in the right direction and I'd love to see more of that happen for all of -- for people across Connecticut.

And on the back page, which is really kind of impressive are my electricity bills for two years. One year is the year before I had geothermal installed; I paid 900 dollars that year for electricity. The next year with the geothermal I paid 1300. So my electricity bill went up 400 dollars, but I saved over 2500 dollars in -- my oil bill. I no longer have an oil burner in my furnace. And I am the happiest man because of that.

I will be able to put my son through college for one year on what I saved in 10 years on that geothermal system. So I'm happy to provide further comments, but the comprehensive energy plan looks very good with its promotion of -- of energy efficiency and home energy.

REP. REED: Thank you for your excellent testimony. Are there any questions? Thank you. Thank you.

ANDY BAUER: My pleasure. Thank you.

REP. REED: Let's see, Elise, I believe it's Miller? Willer, okay. I thought it was -- it was spelled correctly, I misinterpreted. Welcome.

ELISE WILLER: Sen. Duff, Representative Reed and members of the committee, thank you for the opportunity to comment on bill 6360. My name is Elise Willer and I'm speaking on behalf of Connecticut Working Families. The key to my testimony is energy efficiency. The comprehensive energy strategy did a commendable job demonstrating that increased energy efficiency is one of the best ways to bring down energy bills, create jobs and help reduce Connecticut's carbon footprints.

It did such a good job that Working Families is suggesting even stronger policies to invigorate our existing program and expand them to reach every corner of the state. The establishment of the energy efficiency fund has resulted in many programs that are already helping Connecticut homeowner's and businesses reduce their energy costs by providing subsidies for energy audits, furnaces, boilers and other energy saving projects.

However, the contributors to this fund and subsequently the only people with access to these energy savings past June 2013 are natural gas and electric rate payers. With around 50 percent of the state heating their home with oil, we need heating oil customers to contribute their fare share. As such, Connecticut Working Families supports the establishment of a stable funding source for heating oil energy.

Much of the comprehensive energy strategy is focused on a large natural gas billed out, potentially resulting in 300 thousand homes converting to natural gas as their main energy source. It seems logical to Working Families to this the reasons for such a large natural gas billed out are jobs, reduced energy bills and saving the environment. That energy efficiency measures that accomplish the same goals potentially even beyond the like of natural gas should then accompany any natural gas expansion.

As such, Working Families supports integrating energy efficiency into all natural gas conversions. While analyzing Connecticut residential energy efficiency programs, it became apparent that reaching our goal with 80 percent weatherization might not be possible without increased participation and a real commitment to achieving deeper energy savings.

We believe that the key to overcoming these obstacles is to support community organizations and measures -- and members and energy efficiency grassroots outreach. Working Families support the development of statewide community based approach to increase home and business (inaudible) while also adjusting issues in underserved communities.

Finally, as we think about Connecticut's energy future, it is critical to think about the jobs that we are creating an increase energy efficiency funds on major national -- natural gas expansion and a greater demand for energy efficiency measures would naturally result in hundreds of new jobs. If you'll give me a moment to conclude?

But instead of -- but instead of leaving it at that, the creation of jobs, I encourage Connecticut to take one more step and not just create jobs, but create careers. Create a new green economy where people have paid living wages and benefit accordingly. Working Families supports adding wage and benefit standards to any request for proposals resulting from legislation associated with the comprehensive energy strategy.

With that, I thank you for your time. I'd be happy to answer any questions.

REP. REED: Thank you very much for your testimony. Are there any questions? Thank you. Next up, Noel Lafayette and then Peter Cullin. Good evening.

NOEL LAFAYETTE: Hi. Thank you for getting my name right the first time. Long day, I'll try to keep it brief. Vice chairwoman and Rep. Hornick, Senator Duff and (inaudible). My name's Noel Layfayette. I am representing, here today, Solar Connecticut Organization. Executive director Mike Treyhan, we have over 100 member companies. And we are here to support the governor's bill; however there are some details that we would like to review. Some of them you've heard already today, but we have some specifics that I think are important. So I'll try to get through it quickly and (inaudible) ask questions.

HB6360

Late last year Solar Connecticut created a coalition of businesses, solar, wind, fuel cell, end users, other existing (inaudible) clean energy, efficiency people, waste management people to come together and recommend improvements to the existing virtual net metering law. It's our belief the reason that no clean energy projects have been completed on the current virtual net metering law is that the law is seriously flawed.

I heard some of the committee members say they tried to do landfill projects and they found out what those laws were, okay. After months of consideration, a lot of back and forth, there were over 20 or 30 people involved in this, reading this bill, so it's been pretty well vetted. We came up -- all of that is in our mark up, which you have in a written testimony of the governor's bill. But I just want to bullet point it for conversation sake.

The brief, the changes are allow for third party financing in either leases or power purchase agreements for long term contracts, allow for commercial, agricultural, municipal, and state to build, enter into financing or install virtual net metering facilities. But right now it's municipal only.

Virtual net metering credit, by our definition, would mean a credit equal to the retail cost per kilowatt hour the customers host may have otherwise been charged per kilowatt hour produced by a virtual net metering. So we're saying equal, apples to apples, rather than generation or distribution, the price is the price that they would pay on the retail market, okay. Credit that way.

Number four, allow for up to 10 beneficial

accounts as - as we say in our detailed attached markup, however we agreed that we believe there should be five additional beneficial accounts if (inaudible) is being utilized, so up to 15 if you're using micro grid, 10 if it's one host facility. Five ways to virtual net metering cap on 10 million dollars and actually we found it's more efficient to not look at it in a dollar value, but look at it as a percentage of utilities peak load. In this case two percent.

So it was 1 million, the governor raised it to 10 million, we're saying raise it to two percent of the said utilities peak load, two percent for UI, two percent for - - (inaudible). This is has been done in other states and it's a little bit easier to track. It also addresses the needs of that said utility.

That said, this was put together by a coalition of over 30 people. Solar Connecticut is well known, we're a growing organization. I think we had a (inaudible) member of companies recently. And we'd like to take this matter, while I have remaining time under the direction of my executive director Mike Treyhan, is to kind of respond a little bit to Este's earlier statement or whatever about that.

Somehow or another, virtual net metering will cost the ratepayers money. In some way or another that's what's going to happen. I think that's a confusing statement and I'll get to that in a second. One thing that's also very important that Solar Connecticut supports is the governor, Malloy and Commissioner Este have put a tremendous amount of time and emphasis into the micro grid program. And considering the weather and everything else going on, we also - - I think everybody supports that

program. Without virtual net metering, coupled with that program, micro grids will go nowhere, okay. Because you need a - - a good large scale fuel cells, solar farm, micro turbine, whatever you choose, technology agnostic to power those grids.

If the towns can't finance and if they can't spread that out to beneficial accounts, there's no point in having a micro grid. So the two are really one issue and we wanted to point that out. And I know that the governor and Commissioner Este are very passionate about the micro grid program. So we wanted to point that out as well.

Back to the CL&P issue, I find this confusing for a couple of reasons; one is in the earlier testimony and I had known this, because I've been in the business for over eight years now, they talk about these (inaudible) plants that have to go online to meet demand and that it cost us all millions of dollars, because (inaudible) and so and so on. Well, okay, so that's why they subsidized energy efficiency up to 50 percent on a comprehensive project, if you do HVAC, lighting, everything, deep - deep efficiency.

Well, virtual net metering meets that same demand. If you can put up a two megawatt, one megawatt solar farm on a few landfills without the state, does that not meet the same goal? So how are they willing to support energy efficiency, but they're saying somehow this costs more money. It's - - It's addressing the same goal of not firing up those coal plants.

Two is being in this business for awhile a couple of people have mentioned their own landfill projects. This is a fact that shocks most people; Connecticut has 250 closed and

capped landfills that have been close for over 20 years, 250. That's - - average it out, that's two per municipality.

REP. REED: Mr. Lafayette can you begin to summarize please.

NOEL LAFAYETTE: Yes I am, closing up. Brownfields, triple that number, okay. The DEEP has said to solar developers myself, make use of these properties, even when real estate was good and the economy was good, nobody wanted these properties, they cost municipalities money. Without a - - not just a virtual net metering program, a robust virtual net metering program. We can utilize all of them, okay.

Furthermore, one last thing, we ask that the bill give PURA the authority that whatever cap is finally decided upon and passed that when that cap reaches 80 percent of its capacity PURA has the regulatory authority to raise the cap. This has been done in Massachusetts, the reason is they had a 400 megawatt (inaudible), they're going to hit it a year and a half before they expected to. So that way the cap doesn't have to go to the legislative process again, PURA will have authority to raise the cap as it sees fit. Any questions about any of that?

REP. REED: Thank you. Any questions?

SENATOR DUFF: Can you repeat that one more time?

NOEL LAFAYETTE: I know I'm a little fast; I was trying to get home. Have a good night. Drive safely.

REP. REED: Thank you. Thank you for your testimony. Peter Cullin? No. Steve Stack?

And following Steve Stack, Bill Henderson, here you are, still here. Good evening.

SB839
HB6360

STEVE SACK: Good evening. It's late, so I'm just kind of summarize a few things quickly for you and - - and you have my written testimony. Let me just give you quick little background. I'm a fourth or fifth generation in the (inaudible) in the state of Connecticut. My office is located here in Hartford. I have about the largest distribution network of heating oil terminals in the state of Connecticut.

A lot of this talk on the natural gas issues are bothering me quite dramatically these days. The theories that have come out with these things about the natural gas expansion are - - are - - some are - - they're pipe dreams. A lot of this is on speculation about future pricing; I'm in the business, I watch the prices all day, I have no idea where it's going to be tomorrow or the next day, no less going out to 2050.

There's - - there's massive amounts of sophistication on tracking systems, but nobody really knows where it really is. If you're going to put a lot of money into a project like this based upon on some projections, all you're doing is speculating. If you're speculating, you're gambling on something to happen. And that's just completely wrong. It talks about that it's going to be a job creator, it's going to bring in business in Connecticut, manufacturers can't come, they can't get access to it.

Here in Hartford we have a ton of vacancies; Waterberg, Bridgeport, New Haven, Stanford, plenty of vacancies in buildings, manufacturing buildings, they all have natural gas.

Why haven't they come already? Adding more is not going to make people just all of a sudden decide to come here. They already have it; it's already available for them. One of the things we - - we are - - are against about - - against is the timeframe for the hurtle rate going out to 25 years is just, again that's all part of speculation, basing your pricing on going out that far.

You heard a little bit on ultra-low sulfur diesel, which is the 15 ppm product. As you've heard from previous testimony, it's in place in New York. When you take a ultra-low sulfur heating oil and combine it with a B15 or a B20 product, it is cleaner than natural gas.

Natural gas's key component is methane, which is 20 times more powerful greenhouse gas emission. I talked a lot about carbon dioxide, it is not a cleaner fuel. It is not a cleaner fuel, just go to the Environmental Protection Agency. I think that the utilities and the people that support them like to talk about it, but you've seen Connecticut clean water, Environment Northeast, the Sierra Club.

As I said, I've been coming here a long time and it always gets me a little nervous whether Roger Sherman and the heating oil industry agree. But it's true. They are not a cleaner fuel. And finally, the reason why there will not be a price dislocation if we went to a 15 ppm product is because the heating oil contract is expiring in May.

It will no longer exist. You will not be able to go to the Nymex and buy heating oil off of a contract, it is being merged into the diesel contract. There will be no price differential between on road diesel and heating oil. So we might as well get the cleaner product at the

same price as -- rather than continuing to have a dirtier product for the same price. So with that I have a lot more, I have several dozen pages of testimony that you can go through, there are charts in here that show that the diesel dissolute pool in the country in 2014 will be entirely 15 ppm expect for heating oil.

Heating oil is a regional product. It's time to go. It's time to have a cleaner fuel for Connecticut. Our customers deserve it and your environment deserves it. If you have any questions I'd be happy to answer them.

REP. REED: Thank you, Chris. He does. And you know, energy again. I just want to -- because I know that several have talked to certain home fuel business people who are saying that they are talking about creating their own signs, that they want to manage control of it, but that they are talking amongst themselves about contributing to a fund to be able to participate fully in ATS. Is that in fact true?

CHRISTIAN HERB: Yes, it is. We -- we recognize the most effective way to save money is through conservation. Not converting to another fuel that's the fad of the day. It's by using less of the fuel that you choose. so through that the ATS program has had tremendous success. I think Representative Miller accurately pointed out that people may not use all of the options that are available to them when they actually get the audit, but at least they -- awareness and education is the first step.

Our members recognize that the ATS program can be effective and it does accomplish the goals of reducing fuel consumption, so what we did is about a year ago when we had this debate with the legislature last year, we went to the

Federal Department of Justice and we asked them if it would be a violation of federal antitrust law to create a voluntary program where heating oil dealers contributed money to the association and the association could make a payment towards the ATS program so that home -- homes that heat with oil could have equal access to the ATS program.

The Department of Justice took quite some time but eventually approved our request. That request was secondly approved by the Connecticut Attorney General's office and we came up with a contract and we started to circulate that contract this winter. The program is in its infancy. It is voluntary. We can't require it, we can't coerce people to participate, but our board of directors approved this.

We've just started this it's going to take a like while to get up to assess the fee and collect the money. And like I said, as long as the state continues to honor what seems to be their more recent commitment to operating this fund we will make contributions. But because we are collecting it, we hold the checkbook.

If you guys start to allocate those towards deficit litigation, we would be able to pull it. So we do have a solution not this problem, we're just going to need a little bit of time. Commissioner Esty is aware of it. I was shocked at his comments earlier.

I've met with him personally a couple of times and I was surprised when he said that they had to get us in here and they need to do this additional fee on heating oil. He knows what our proposed solution is. As I said before, the -- our experience with the U.S. (inaudible) in $100 million taken out of the pockets of

local gasoline distributors serving on the same board as our home heating oil deals will not trust making contributions to the government for these activities.

REP. REED: Thank you.

REP. PISCOPO: I haven't spoken all day.

REP. REED: Representative Piscopo, go for it.

REP. PISCOPO: Thank you, Madam Chair. I'll try to be brief . But anyway, cause I just have -- I'm confused. We heard from the suppliers, the guys, the biggest suppliers in the Northeast, the guys who run the refineries saying that this 15 ppm fuel that they just can't do. They would not be able to meet the demand and it's a lot higher in cost.

So we've heard a number of oil companies, local businessmen saying that no problem, we'll go -- we'll go 15 ppm. I just don't -- I can't get my arms around that.

CHRISTIAN HERB: Well, let's start off with they're wrong and we're right, but aside from that, actually no disrespect to (inaudible) is a good friend and a tremendous advocate for his members but I will say that there is right now it is absolutely accurate that a 15 ppm product is slightly more expensive than a 3,000 ppm product.

But as I pointed out earlier in my testimony, with the heating oil contract expiring, there will be no way -- Nymex is the largest price discovery mechanism in the world. It is where everybody goes to determine the price of commodities, oil.

Now that that contract is going away it won't

exist so there will be no way for a heating oil dealer who is selling 3,000 part per million oil to be able to look to the Nymex and go that is the base price and then from there to chip at New Haven, marked up, that -- so the 3,000 ppm product will now on the Nymex be priced at the same exact price as 15 part per million diesel, which is what this bill is asking for.

So there will be no price dislocation in the marketplace based on that Nymex contract merging together. I think they were talking about today -- were talking about next heating (inaudible).

REP. REED: Thank you. Representative Miller.

REP. MILLER: Good evening, Chris. The assessment they want to put on the oil dealers, 2.5 cents a gallon, and they had a figure in there for $25 a year, only $25 a year. What's the average usage for a home, is it on a 1,000 gallons?

CHRISTIAN HERB: Well, we are extremely proud of it. I'm glad you brought that up. No other fuel source in the country can make the same claims as us. We've reduced fuel consumption 40 percent over the last four decades. That's 10 percent a decade, without one government dollar, without one government program, through greater technology, better training and technicals.

Dave Foster, who sits on the licensing board, better education programs. We have reduced consumption from approximately 1,300 gallons 40 years ago to just under 800 today.

REP. MILLER: And that's for an average home. But now we have a lot of large homes in the state. You know, 3,000 square foot, and their oil

consumption is not 800 gallons a year. It's more like you know, 2,000 gallons a year. So at 3.5 cents, you know, it starts to add up. It's not $25.

CHRISTIAN HERB: Yeah. The 800 gallons average use is based on a home of 1,500 square feet. That's DOE numbers. So I would agree, you know, obviously the bigger the house the more that their contribution would be. But again I would repeat my earlier testimony that for instance, I live in Naugatuck in a 1,500 square foot home.

I have electricity, I have a natural gas fireplace insert, we cook with gas, but I heat with oil. I'm contributing to this to have a program that discriminates me against the person who is contributing to the ATS program makes no sense. We understand that they want more money. Big surprise. Another government program that is starved for more money, and they want oil to contribute to it.

We are contributing half of the homes in Connecticut look more like my home than what the natural gas home or the electric-heated home. So we are contributing and as I said before, we think that it is a proportional contribution that we worked out last year that is in law is a fair way to do it.

Once we get our private program up and running hopefully we'll be able to contribute a little bit more to be able to expand it. We are trying to work with the legislature to make it a more workable program for more oil heated homes.

And I would also add finally we support CBIA's comments on the ATS program. Right now utilizes is the gatekeepers for the contractors

can enter the program to participate is very limited. It is hard. We have one of the largest DPI training schools to become an ATS contractor in Connecticut, our association.

Well, guess what? All the heating oil dealers were really excited about getting into this program until they went out, trained their people, invested in equipment. It was about a $30,000 investment. And then when they went to participate in the ATS program and I know that Representative Steinberg and I talked about this in the past, they were denied entry.

So they have equipment that they were trained on three years ago, they got the national certificate as required by the state, they bought the equipment. It's been mothballed in their office for three years now because the utilities won't let our members in the program.

I'll tell you, there's a good reason why we don't want to participate in ATS, or we don't want to contribute to ATS. They're not letting our contractors in. they're not letting us diversify, and then we're criticized for it. You know, we're being held out of this even though we're contributing to it. Again half the homes are contributing. I'm sorry.

REP. MILLER: Thanks, Chris. Thank you, Madam Chair.

REP. REED: Thank you. Representative Hoydick.

REP. HOYDICK: Still full of energy, nice job. Chris, when we met we were talking about dual -- dual -- burning boilers. And for residents, that's -- do you have any -- and I don't remember exactly your answer cause we were talking about commercial too but do you have any idea how long before that happened or if

the cost is just too prohibitive or if you could just share your thoughts?

CHRISTIAN HERB: Yeah, actually our meeting, we have a number of manufacturers who are members of our association and we did send out a request saying, you know, is this technology on the horizon? We got back different answers. Some of them were really looking at it, some of them weren't.

Right now dual fuel systems are primarily available in commercial industrial use, not in the home. So, you know, we'd be hopeful that that technology will be available in the future, but I can't tell you that I've heard any promises that that day is coming soon.

REP. REED: Thank you. Any more questions? Representative Yaccarino.

REP. YACCARINO: Thank you, Madam Chair. Thank you, Chris, for your testimony and waiting here all (inaudible) we're not voting. In your industry, how many jobs are out there created through your petroleum industry?

CHRISTIAN HERB: Our wage and benefits survey that we do shows that our members in total and that's all of them, employs 13,000 people in Connecticut. Of the 600 home heating oil dealers, about a third of them are only in the fuel delivery business, and that's why we're very sensitive to any policies that may tip the playing field in favor of utilities.

You know, it's not like they can just start doing something else, so we believe that it would be -- the energy plan not necessarily the legislation before you, but the comprehensive energy strategy ,would result in the loss of about 4,000 jobs in the first seven years if it

achieved a migration of 300,000 heating oil accounts to natural gas.

REP. YACCARINO: Yeah, that's my concern. I mean, I like the expansion of natural gas but I also like it naturally through the process of business in the free market. So I just was curious about how many jobs and I'm a little concerned that the rate payers would have to flip the bill for this, and that the shareholders really, it's their investment, they should -- in any other private investment they would actually pay the burden. That's a little concerning to me.

CHRISTIAN HERB: In my testimony, and I absolutely strongly urge -- and I know that you guys put a lot of time in all the bills that you hear and I know there's a lot of them, but in my testimony we included the work that PURA finished a couple of days ago making comments on it.

We are going to be delivering copies to every member of the legislature tomorrow. You need to take a look at their comments on the comprehensive energy strategy. I mean, I would call them scathing. I think you might call them enlightening. But this is really -- these are the people who are experts.

These are the people who are telling you that it's going to cost more. If you -- at least if we can agree that no one can predict the future price of energy I can't tell you who's going to be cheaper or more expensive in the future, I think at least this document shows that there is a guarantee that gas will cost more because of the investment. Someone has to pay for that and it shouldn't be existing rate payers.

One final point and I'll end it here. We also

have to be conscious that the federal government is still deciding on whether we're going to export natural gas. And we probably will eventually export it and that's going to drive the price up.

REP. YACCARINO: I'm not saying we shouldn't do this but we really have to look at all sides and again I believe in the free market for the most part. I do like natural gas. I have natural gas in my business but I have oil in my home. But I think we have to be careful, and I thank you for your testimony.

CHRISTIAN HERB: Well, we are aware that there are exporting facilities that are being permitted currently. One of the things that we do believe is that equilibrium will come to the market. I'm not going to say that natural gas prices in North America are going to suddenly rise to the price in Asia or Europe. But we do think that once these facilities are up and running that it will bring some equilibrium to the marketplace.

So to count on the natural gas is going to be cheaper through 2050 I think as Steve Sach said, a pipe dream. And by the way, the reason why I answer these questions so lengthy is to prove to my wife that I'm actually working and earning a living this late at night.

REP. YACCARINO: Thank you. Madam Chairman.

CHRISTIAN HERB: I love you, Lisa.

REP. REED: Thank you. Are there any more questions? Thanks Chris. Okay. We have Judith Allen, Ben Martin, Paul Pizzo. All right? And so is there anyone? Are we done? You need to reopen the -- since there are no other witnesses and we've gone through our

entire list I hereby declare this hearing adjourned. All in favor? Oh, and I have to? I'm in favor. We're adjourned.

Testimony of AARP
Before the Energy and Technology Committee
On SB 839, HB 6360, SB 1037, SB 1035 and SB 5590
March 7, 2013

I. Introduction

AARP submits the following testimony stating our position on several of the bills before the Committee for hearing today. AARP is a nonpartisan, nonprofit social welfare organization with a membership that helps people 50+ have independence, choice and control in ways that are beneficial and affordable to them and society as a whole. AARP is an advocate nationwide for the rights of people aged 50 and older. A substantial percentage of AARP's members live on fixed or limited incomes. A major priority for AARP is to protect consumers from utility expenses that may endanger their health and financial security.

Oppose S.B. 839

AARP has grave concerns with S.B. 839 which would require the Public Utility Regulatory Authority (PURA) to make decisions, including rate decisions, guided by the Comprehensive Energy Strategy (CES) the Integrated Resources Plan, the Conservation Load Management Plan and policies established by the Department of Energy and Environmental Protection, notwithstanding any other provision of law to the contrary This amendment would have the effect of letting the CES, IRP and other regulatory plans override policy adopted by the General Assembly. Current law does direct PURA to be guided by these plans, but does not include the "notwithstanding" language, which has the effect of allowing PURA to ignore state law. It is our understanding that the CES is a series of recommendations for a state energy plan, some of which can be implemented by PURA and some of which require adoption through the legislative process. AARP opposes any implication that the CES or any other plan, policy or decision of PURA or DEEP could override legislative direction on any energy or transportation topic. This provision is also included in S.B. 1037.

Opposed to provisions of H.B. 6360

H. B. 6360 is a bill for implementation of some provisions of the CES. AARP continues to oppose several provisions of the CES, which have not been adequately studied or pose risks to affordable home energy for consumers. See our comments on the CES which are attached.

AARP Opposes Section 1 (b) requiring full revenue decoupling for both gas and electric distribution utilities. Decoupling is a risk to consumers The PURA should be allowed to use its discretion, based on evidence, in approving decoupling as currently permitted under the law. Full revenue decoupling is just one type of decoupling. Decoupling is a much clearer benefit to utilities than to consumers, as decoupling provides revenue protection to the utility, regardless of the reason for lower sales. Thus, there is no direct link between giving a utility a so-called "incentive" to offer energy efficiency, and decoupling, which compensates for any and every lost sale. Further, adoption of revenue decoupling is not a necessary nor sufficient condition to increase energy efficiency, as is evidenced by the other proposals in the draft CES. Decoupling could also weaken the incentive for consumers to save energy, as consumers who decrease their usage do not necessarily see a corresponding decrease in their bills when decoupling adjustments are included. PURA should not be limited to full revenue decoupling. Other states have adopted other forms or decoupling and/or limited the rate impact of decoupling by adopting a cap on rate increases. PURA would be prohibited from adopting consumer protections on decoupling if this provision becomes law.

AARP opposes mandatory time-variant rates for residential customers. The draft CES recommended mandatory time-variant or "time-of-use" (TOU) pricing for CL&P and promotion of time of using pricing for UI. Although not currently included in this bill, AARP would like to be on the record with the General Assembly opposing this recommendation.

AARP agrees that utilities should be encouraged to offer a variety of rate options, after those options have been evaluated and determined to be cost effective and beneficial to customers with a wide range of usage profiles. Then it is the customer's decision whether a time-varying rate is preferable. Utilities should not be allowed to justify the cost of installing smart meters on the assumption that mandatory time-based pricing, such as TOU or Critical Peak Pricing (CPP) will result in future savings in generation costs. Any alternative to the current rate structure should be voluntarily selected by the residential customer.

There can be no denying that time-based rates will produce "winners" and "losers." However, the draft CES does not provide assumptions and analyses of the costs and benefits underlying this recommendation. There is no analysis of the experience with mandatory TOU rates in other jurisdictions and/or an analysis or the costs and benefits of mandatory TOU versus voluntary TOU. Those who argue that mandatory time-based rates are beneficial for most customers rely on a small number of short term pilot programs composed of volunteers. Customers who have already invested in energy efficiency, who already use minimal amounts of energy and those who rely on affordable electricity for health and safety will be losers under a mandatory TOU scheme. Further, they are for the most part not the customers who can make a difference in peak load through reductions in usage.

This is why major national consumer advocacy organizations including AARP, the National Association of State Utility Consumer Advocates (NASUCA), and the National Consumer Law Center (NCLC) have adopted policies that oppose mandatory or opt-out dynamic pricing.

An alternative to the mandatory "stick" approach of TOU rates would be to provide a "carrot" in the form of rebates or credits for allowing the utility to control key heating and cooling systems during critical peak periods. This is usually referred to as a "Peak Time Rebate". Those most able to shift usage will do so voluntarily, while those who need affordable energy to maintain safe temperatures, run medical equipment and other essential needs will not be penalized. A voluntary approach which rewards positive action (rather than punishing) is more likely to build public support and acceptance.

AARP opposes "auctioning" Standard Offer plan customers. Finally, the CES also recommends an "auction" of Standard Offer customers to competitive suppliers without their affirmative consent. AARP has testified in opposition to this proposal in Senate Finance. A copy of our testimony opposing Section 19 of S.B. 843 is attached.

Oppose S.B. 1037

This bill contains the same language as SB 839, which allows policies developed by DEEP to trump state law. State law should not be overridden by regulatory action.

Connecticut Chapter
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Martin Mador, Legislative Chair

Energy and Technology Committee
March 7, 2013

Testimony on Parts of
SB 839, SB 1037, HB 6360, HB 6530, HB 6531, HB 6533, HB 6535

I am Martin Mador, 130 Highland Ave., Hamden, CT 06518. I am the volunteer Legislative Chair for the Connecticut Chapter of the Sierra Club. I hold a Masters of Environmental Management degree from the Yale School of Forestry and Environmental Studies.

This committee will be considering a wide range of energy issues in 2013. Before commenting on specific bills on today's agenda, The Sierra Club wants to be clear about our priorities as we engage in this enterprise to craft our energy policy for the coming decades.

Efficiency

-Ensure all possible efficiency upgrades are available and feasible for all classes of energy users, and ensure funding is available to accelerate early adoption
-Maximize net metering opportunities for farmers and others regardless of any impact on the EDCs
-Require efficiency upgrades first in order to quality for state incentive payments, such as for conversions to natural gas
-Prioritize available funding for efficiency upgrades for oil heat customers
-Promote building efficiency upgrades through rating and disclosure, benchmarking, financial incentives, and immediate adoption of new building codes
-Ensure early adoption of new building energy codes

Renewables

-Identify and remove all barriers to installation of renewable generation
-Prevent inclusion of energy sources to RPS Class I which would compete with existing sources, such as large hydro
-Reject efforts to add sources to the RPS advanced for non-energy related purposes
-Utilize long term contracts to maximize renewable energy opportunities for the state
-Ensure RGGI caps are kept low enough for the program to achieve its goals

Fuel Choices

-Finance expansion of natural gas infrastructure such that ultimate conversions to renewable energy are not retarded by stranded costs
-Work cooperatively with PSEG to close the Bridgeport coal plant as soon as feasible
-Ensure a fuel neutral policy for all programs
-Give preference to fuels which create minimal greenhouse gases
-Provide no support in any way for nuclear power

Transport

-Promote TOD in order to minimize transportation energy
-Invest in infrastructure for electric vehicles

The Sierra Club offers these specific comments on bills on the hearing agenda. Sierra approves of each unless otherwise noted.

6360 AAC Implementation Of Connecticut's Comprehensive Energy Strategy

Sec. 2 adds plan for conservation of water resources. Water conservation is very important, but water needs its own comprehensive plan crafted by a range of stakeholders.

Sec. 6 Allows more extensive submetering, which will allow a customer in a submetered unit to monitor his energy consumption.

Sec. 10-16 requires energy benchmarking for commercial, residential and state owned buildings.

Sec 18. Accelerates the cap on sulfur in heating oil, and makes CT independent of the caps from other states.

839 AAC Statutory Changes To Advance Connecticut' Energy Policies

Sec. 3, 5 and 7 provide that PURA rulings must follow DEEP and state energy policies.

1037 AAC The Procurement Plan, Integrated Resources Plan And Comprehensive Energy Strategy And Minor And Technical Revisions To The Utility Statutes

Sec. 1 provides that PURA must be guided by state plans, as in SB 839.

Sec. 16 adds ductless heat pumps to the list of equipment eligible for residential financing.

6530 AAC Development Of Connecticut-based Renewable Energy Sources

PURA should open a docket about developing CT based renewable energy sources.

6531 AA Preserving And Retaining The Environmental Benefits Of In-state Resources Recovery Facilities (Oppose)

Trash to Energy facilities address solid waste disposal, not energy, issues. They have manifold environmental consequences, such as CO_2 emissions beyond even coal plants. Sierra is well aware of the financial difficulties facing municipalities, especially with the budget shortfalls of 2013. However, compromising our renewable energy policy is not an acceptable way to address this problem. Sierra opposes this bill. A far better solution to municipal waste would be moving as quickly as possible towards a Zero Waste policy and practice.

6533 AAC Hydraulic Fracturing

Sierra agrees that import of fracking wastes for disposal in Connecticut should be banned. We also strongly urge that a moratorium or ban on fracking in the Hartford Basin and elsewhere in the state should be imposed until the legislature finds that science has shown that the practice is environmentally safe.

6535 AA Redefining Class I Renewable Energy Sources

Sierra strongly supports anaerobic digestion of organic wastes, which produces methane for energy and fertilizer quality wastes with no significant environmental consequences. Sierra recommends it be assigned RPS Class II recs so as to not compete with wind and solar.

Connecticut Fund for the Environment

Save the Sound

Testimony of:
Connecticut Fund for the Environment

In Support of
S.B. No. 839, An Act Concerning Statutory Changes to Advance Connecticut's Energy Policies
S.B. No. 1037, An Act Concerning the Procurement Plan, Integrated Resources Plan and Comprehensive Energy Strategy and Minor and Technical Revisions to the Utility Statutes
H.B. No. 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy
H.B. No. 6533, An Act Concerning Hydraulic Fracturing

In Opposition to
H.B. No. 6531, An Act Preserving and Retaining the Environmental Benefits of In-State Resources Recovery Facilities.
H.B. No. 6532, An Act Concerning Certification of Class I and Class II Renewable Energy Sources and Class III Sources, Renewable Energy Credits and Alternative Compliance Payments
H.B. No. 6535, An Act Redefining Class I Renewable Energy Sources

Before the Energy and Technology Committee

March 7, 2013
Submitted by Mark LeBel, Energy Fellow

Connecticut Fund for the Environment (CFE) is a non-profit organization that, along with its regional program Save the Sound, works to protect and improve the land, air and water of Connecticut and Long Island Sound on behalf of its 5,500 members. We develop partnerships and use legal and scientific expertise to achieve results that benefit our environment for current and future generations.

Dear Senator Duff, Representative Reed, and members of the Energy and Technology Committee:

CFE submits this testimony in support of bills and policies that would move Connecticut forward to a clean energy future by improving the energy efficiency of our buildings, and by facilitating cleaner electricity generation and heating options. These policies have the potential to clean our air and substantially lessen our state's contribution to global warming. Natural gas can be an important part of this future but there are simple steps that Connecticut can take to ensure that this is a transitional fuel and optimize any build-out of new natural gas. We oppose the three bills that would weaken the Class I Renewable Portfolio Standard (RPS) or otherwise use the RPS for inappropriate purposes.

Advancing Energy Efficiency

H.B. 6360 contains an array of provisions that would enable Connecticut's energy efficiency efforts to reach the next level, further reducing local pollutants and greenhouse gas emissions and providing a wide range of local economic benefits. First, **Sections 10 through 16** are a comprehensive effort to bring energy usage into real estate transactions with benchmarking and energy use disclosure. These policies allow building owners and potential purchasers and tenants to

understand their energy costs and improve decision-making around energy. In addition, these policies benefit building owners who have installed energy efficiency measures by allowing them to fully incorporate these improvements into the value of their building. While we believe that these sections would be productive as written, there are alternative methods for achieving the same results. For example, with rental disclosure, Maine has developed a simple form that provides a prospective tenant with easily understandable information about the objective energy characteristics of the property. The Maine law and disclosure form are included as a part of electronically submitted testimony. Second, **Sections 2 and 3** would make important technical changes to the gas and electric energy efficiency programs to allow Connecticut to finally reach the statutory goal of all cost-effective energy efficiency measures and procedural changes to allow the planning for these programs to operate more smoothly. Third, **Section 1** would properly implement utility decoupling, an important measure which would make the utilities stronger partners in promoting energy efficiency programs. **H.B. 6360** does have one notable omission on energy efficiency, a permanent fix and funding stream to provide full access to energy efficiency programs for those who heat their homes with fuel oil. **S.B. 1037** does contain a partial fix for this issue, in **Section 17**, which would be necessary if the legislature declines to adopt a full and permanent resolution in this session.

Clean Energy Production

H.B. 6360 would also make significant changes to facilitate clean energy production, particularly localized generation from renewables and combined heat and power. **Section 4** would give the Department of Energy and Environmental Protection ("DEEP") additional authority to write regulations to achieve the goals of the Regional Greenhouse Gas Initiative, the important region-wide program to reduce greenhouse gases from the electric sector. **Sections 5 through 9** would all greatly improve the economics of localized clean energy production by increasing the rates for virtual net metering, allowing submetering at large while still protecting tenants, and expanding the allowable scope of microgrids. **Section 18** would move up the sulfur standard for heating oil from the middle of 2014 to the middle of this year. Such a change will reduce pollution from existing oil heating equipment and allow for the possibility of better oil heating technology. An important measure on this front is contained in **Section 16 of S.B. 1037.** This section would add ductless heat pumps to the list of heating technologies eligible for the residential financing programs.

Ensuring Optimal Natural Gas Expansion

Switching from fuel oil to natural gas can provide a number of environmental benefits, such as reductions in greenhouse gases and local pollutants. As a result, a prudent expansion of natural gas usage in Connecticut, as a transitional fuel, would be a welcome development. We should vigorously explore incorporating energy efficiency measures into each building converted in order to avoid wasting natural gas. **H.B. 6360, S.B. 1037, and S.B. 839** all contain provisions relating to the natural gas expansion contained in the 2013 Comprehensive Energy Strategy for Connecticut ("CES"). **S.B. 1037 and S.B. 839** both contain a provision which would allow a natural gas expansion plan for all sectors. This is a perfectly appropriate step to take. The CES contains many details on the substance of such a plan. Based on the information in the CES, the conversion of customers on existing mains from heating oil to natural gas should be pursued vigorously. The CES proposes a more detailed economic and environmental analysis to determine the proper scope of a build-out of new natural gas mains. It will be crucial that this analysis include additional heating investment alternatives beyond natural gas, such as new energy efficiency measures and ground source heat pumps. Comparable analyses must also be done for the employment impacts of these

alternatives. Only then will we be able to determine the appropriate scope for building new natural gas mains. In addition to the plan, **Section 19 of H.B. 6360** would make two permanent changes to the current regulatory framework. One of these changes is a twenty-five year payback period for connecting new customers to natural gas mains. The commitment to pay for these mains has the potential to inhibit the movement in decades ahead to even more environmentally friendly energy options. While we do not oppose all extensions to this payback period, there are sensible steps that could be taken to ensure that paying off natural gas mains does not interfere with Connecticut's long-run binding statutory targets for greenhouse gas emissions. This could include sunsetting the currently proposed increase in the payback period, requiring that all natural gas mains must be paid off by a particular year (e.g., 2037), or a more general requirement that any expansion of natural gas use must not interfere with the long-run targets. As a related matter, we also support the ban on the disposal, treatment, or other usage of hydraulic fracturing waste contained in **H.B. 6533**.

Renewable Portfolio Standard Bills

We must continue to encourage the growth of truly clean, regionally-produced renewable energy by protecting the integrity of the Renewable Portfolio Standard (RPS). Two bills under consideration at this hearing would directly impact the Class I RPS. **Sections 4 through 6 of H.B. 6531** would dilute and weaken the Class I RPS by reducing the alternative compliance payment. While such a step is generally counterproductive, this is particularly inappropriate when considering that DEEP is currently conducting a study around the economics of the RPS and this study has not yet been released in even draft form. **H.B. 6535** would dilute the Class I RPS by making new types of energy production eligible. While the intention of stimulating demand for anaerobic digestion and the other sources included is laudable, this bill could be rewritten to incentivize other forms of clean energy without lessening incentives for other Class I sources such as wind and solar. Lastly, we oppose **H.B. 6532**, which would increase subsidies for trash incineration facilities.

Thank you for your consideration.

Sincerely,

___/s/_____

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#19

ConnPIRG

Standing Up To Powerful Interests

Testimony of Abraham Scarr, Director Connecticut Public Interest Research Group (ConnPIRG)
in regards to
Governor's Bill 839 AAC Statutory Changes to Advance Connecticut's Energy Policies and Governor's Bill 6360 AAC Implementation of Connecticut's Comprehensive Energy Strategy and
in opposition to
Raised Bill 6531 An Act Preserving and Retaining the Environmental Benefits of In-State Resources Recovery Facilities

Chairperson Duff, Chairperson Reed and Members of the Committee: My name is Abe Scarr and I am the Director of the Connecticut Public Interest Research Group (ConnPIRG). Thank you for the opportunity to testify today in regards to Senate Bill 839 and House Bill 6360, regarding the Comprehensive Energy Strategy and in opposition to Raised Bill 6531, An Act Preserving and Retaining the Environmental Benefits of In-State Resource Recovery Facilities.

I. Regarding 839 and 6360 – Support Ehancing Efficiency Programs

Energy Efficiency is appropriately at the heart of the Comprehensive Energy Strategy. In 2007 and 2011 the state adopted laws to invest in all energy efficiency that costs less than alternatives. Governor Malloy has challenged the state to become the most efficient in the nation. To achieve this will require fully funding all cost effective energy efficiency programs – a doubling of ratepayer investments from $100 million to $200 million annually, and improving our programs to better serve customers. We have the opportunity to achieve much greater energy efficiency in the coming years, saving energy and money, and creating new jobs.

Connecticut has much to be proud of in its existing efficiency programs, which have delivered real savings for residents and businesses. As we move towards expanded efficiency programs we have a responsibility to address problems and deficiencies keeping ratepayers from achieving greater savings.

Critical issues including reforming the Home Energy Solutions program to achieve "deeper" efficiencies, rethinking marketing and outreach efforts to move beyond early adopters and reach customers who may be skeptical of utilities, and reevaluating the success of programs from the perspective of the customers they serve.

At the heart of problems with our programs is utility program administration and the fact that the volunteer Energy Efficiency Board does not have sufficient resources to adequately manage and monitor the utilities' performance.

The case for reforming program administration is twofold. First, there is the basic problem of incentives and organizational culture. Currently, utilities have more incentive to sell energy than to save it. Decoupling will begin to address the incentive problem, but even with decoupling, it will take time for the utility organizational culture to change. Second, as a result of the first problem, the utilities have demonstrated that they are either resistant or incapable of adapting and reforming programs to improve performance. There are well documented problems with a number of our rate-payer funded efficiency programs. No program is perfect, nor should we expect them to be especially as we create and experiment with new programs. But we can and should expect program administrators to react to market forces, learn from mistakes, transparently track and evaluate performance and implement reforms to improve performance. In this regard, our program administrators have failed.

In 2008, The Program Review and Investigations Committee conducted an investigation which highlighted problems in the administration of energy efficiency programs in Connecticut and recommended a different model for program administration. Unfortunately, those recommendations were removed from their final report.

In order to hit Connecticut's Energy Efficiency goals we must reform program administration and strengthen the Energy Efficiency Board.

Program Review

The first step to pursuing reform is a comprehensive review of programs and their effectiveness. The Program Review and Investigations report found that program evaluation was too closely tied to the utilities being evaluated. This has significantly improved since 2008, but we still lack a comprehensive evaluation of programs.

In addition to ongoing evaluations, the board should hire a third-party with no existing associations with the program administrators or board to conduct an independent top to bottom review every three years, with the first review in 2013. The review should assess overall energy savings achieved by each program vs. its goals; analyze residential, business and municipal customer and contractor satisfaction with the programs, provide feedback and recommendations to improve program processes for customers, assess progress towards achieving the goal of weatherizing 80% of residences by 2030, and recommend how to best manage program administration moving forward.

Program Administration

The Program Review and Investigations report recommends putting the administration of efficiency programs out to bid. We agree with this recommendation. One basic model for doing this would be for the Energy Efficiency Board to oversee a staffed agency responsible with putting program administration out to bid and monitoring the performance of program administration. CEFIA is a model as an agency overseen by a board. Whether we create a new agency or charge the board with doing so, while giving them the necessary resources, should be determined after the completion of a program evaluation, outlined above.

The board or agency could either put the entire program out to bid or separate out distinct programs to be performed by different vendors. Details of the requests for proposals should be left to the board or

agency but the General Assembly should specify certain critical criteria, which may depend on the program, including: marketing and customer acquisition, development of consumer financing options, data collection and data transparency, ability to innovate and respond to market dynamics, ability to work in community partnerships and efficiency contractor certification and evaluation.

Board Composition

The Energy Efficiency Board would be strengthened by adding the perspective of constituencies served by efficiency programs. Currently, the board has four "Business Consumer" representatives but only one "Residential Consumer" representative. The board would achieve parity by adding three additional residential consumer representatives, including a representative of municipal government or a municipal government association, a representative of a membership-based consumer advocacy organization, and a representative of difficult to reach residential constituencies, such as low income residents or seniors.

Heating oil efficiency

Finally, we encourage the General Assembly to establish a mechanism wherein oil and propane consumers contribute to the efficiency fund and have full access to efficiency programs.

II. Regarding 839 – Natural Gas

The majority of the Comprehensive Energy Plan's proposal for Natural Gas expansion will be carried out by the Department of Energy and Environmental Protection (DEEP) if granted the authority to by the General Assembly through 839. We maintain concerns regarding the aggressive nature of the current plan. As the finalized CES recognizes, small changes in the projection of either gas or oil prices will greatly affect the cost benefit analysis of building out new gas mains to Segment B as defined by the Plan. Further, if greater efficiencies are achieved, the cost benefit of building new mains to segment B drops further.

Considering the amount of rate-payer investment necessary to complete the natural gas plan, we encourage to General Assembly proscribe a conservative cost benefit analysis be used that accounts for improvements in efficiency and increases in natural gas prices as currently externalized costs of natural gas – such as the environmental degradation associated with fracking -are internalized into the cost of natural gas over time.

We also encourage the general assembly to require basic building efficiency measures to accompany gas conversions, to provide and incentivize a portfolio of home heating options for consumers and oppose extending the "hurdle rate" to twenty-five years. We support the more detailed recommendations made by our colleagues at Clean Water Action in these maters.

III. Regarding 6360 –Support Independent Distribution

Our experience over the past two years with extreme weather and extended electricity outages demonstrates the need for a more resilient and reliable electricity delivery system. We strongly support the provision in 6360 allowing municipal, state or federal entities operating a Class 1 renewable energy source, Class 3 energy source, or small generator connected to a municipal micro-grid to independently distribute electricity across public streets or highways. Allowing this independent distribution will incentivize micro-grids and distributed generation, which are critical to developing a more resilient and reliable electricity delivery system.

#28

March 7, 2013

Testimony of

DON DECESARE
President, Crossroads Communications, WLIS-AM and WMRD-AM
Past Chair, Connecticut Broadcasters Association

Before the

Energy and Technology Committee

concerning

S.B. NO. 1037 AND H.B. NO. 6360, ACTS CONCERNING IMPLEMENTING THE COMPREHENSIVE ENERGY STRATEGY FOR CONNECTICUT

Co-Chair Duff, Co-Chair Reed, Members of the Committee, thank you for the opportunity to provide the Connecticut Broadcasters Association's comments concerning the Comprehensive Energy Strategy for Connecticut (the CES). My name is Don DeCesare. I am Past Chair of the Association and the President and Licensee/Operator of WMRD-AM, Middletown and WLIS-AM, Old Saybrook. The Connecticut Broadcasters Association (CBA) membership comprises all of the FCC-licensed broadcast radio and television stations in Connecticut.

The "Executive Summary" of the CES states that the CES "covers all fuels **in all sectors** [*emphasis added*] ... to leverage private capital and market-based opportunities ... ." Nonetheless, despite being significant consumers of electricity—without electricity broadcasting could not operate—as well as innovators and First Response Partners, the State's Broadcasters are not mentioned in the plan either as to their use of energy or their potential to be significant contributors to the State's long-term energy strategy. This oversight, should it not be rectified, may well diminish the Strategy's effectiveness and credibility.

Connecticut's Broadcasters have already contributed and would enthusiastically further contribute to the State's Comprehensive Energy Strategy:

As innovators, and as regular disseminators of the information within the CES as well as the process for adding to it – through news coverage and other public affairs opportunities.

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PART 4
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2013

Broadcast Innovation

As the vital first step towards encouraging Broadcasters to innovate within the State's Comprehensive Energy Strategy, there should, within the Statue, be an expansion of the defined facilities in the definition of "microgrids" to include radio and television broadcast facilities. Well beyond the listed cell-phone towers, which offer only point to point communications, radio and television stations provide robust point-to-multipoint communications, which are always the most useful and efficient means of ensuring public awareness in time of crisis or emergency, as well as the more routine but nevertheless important needs for public awareness on a daily basis. Additionally, some radio and television stations (mine, for example) serve as host locations for cell phone towers. Truly, radio and television stations are "critical facilities like hospitals, public shelters, police and fire stations, water treatment plants, and telecommunications towers." (CES, page 101) Indeed, without the point-to-multipoint communications provided, at no cost to the State, by Broadcasters, crises and emergencies would be considerably more dangerous to the public. Information could not be efficiently distributed, and the ability of Public Officials to lead the public through a crisis would be disrupted. Indeed, it is inconceivable that emergencies within the State could be effectively managed without the invaluable contributions of Connecticut's Broadcast community. It is, therefore, in the State's best interest to include Broadcasters among the other "critical facilities" enumerated in the CES.

In those places where combining broadcast stations' microgrid capabilities with other "critical facilities" is not immediately practical, the CES should further encourage broadcasters to develop station-specific microgrids (by affording them access to the "Green Bank" (CEFIA) and the Commercial property (C-PACE) program). As just one example, doing so for my two stations could result not only in the uninterruptible, continued electrical service for the stations and the consequent ability for them to stay on the air and provide crucial emergency news and information, but also, in our cases, on-site alternative generation could power up to 2,500 and 1,500 nearby homes in Old Saybrook and Middletown, respectively. With more than one hundred radio and television stations in the State, the vast majority of which also have large acreages surrounding their transmitter sites, the possibilities for substantial additions to the State's alternative energy generation and distribution are huge.

Broadcast Communication

Furthermore, Broadcasters could, in various ways, engage with State Officials for "bully pulpit" promotion not only of the "Strategy" but of the deployment of alternative energy production under that Strategy. In partnership with State and local officials, Broadcasters could design new procedures for information dissemination during emergencies, particularly as the information relates to individual localities. For example, WMRD & WLIS have been in detailed conversations with Valley and Shoreline Emergency Management Directors with the goal of devising just such a plan, the first parts of which are already in place.

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Conclusion

In conclusion, the CES should not only recognize the significant past contributions of the State's Broadcasters but also assist them in becoming partners within the CES, both as energy consumers and as energy innovators, and, finally, take fuller advantage of the continued willingness of Connecticut's Broadcasters to provide public information and public service.

Thank you for your consideration and, we hope, positive response to our comments, respectfully submitted today.

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Legal Assistance Resource Center ❖ of Connecticut, Inc. ❖

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H.B. 5587 -- Submetering of apartment buildings and condos
Sec. 6 of H.B. 6360 -- Comprehensive Energy Strategy (CES)

Energy and Technology Committee public hearing -- March 7, 2013

Testimony of Raphael L. Podolsky

Recommended Committee action:
H.B. 5587 -- NO ACTION ON THE BILL
H.B. 6360 -- MODIFICATION OF SECTION 6

H.B. 5587 would allow submetering of electricity in apartment buildings and condominiums. We oppose the bill unless it provides occupants with protections at least as comprehensive as those which must be provided by electric companies. Section 6 of H.B. 6360 authorizes submetering in multi-family and mutli-use buildings in somewhat more limited circumstances. In particular, Section 6(a)(3) specifically allows submetering only where the power source is Class I renewable energy or a combined heat and power system. Section 6(a)(4) more broadly authorizes submetering if it "promotes the state's energy goals" as described in the CES, subject to termination of service protection. It incorporates the provisions of C.G.S. 16-19ff(b) concerning PURA regulatory authority.

From a consumer perspective, there are two types of problems with submetering. One is that entities that submeter often impose administrative fees (especially when a third-party company is used) that can add a significant amount to the consumer's bill. The other is that the full range of protections available to direct-service utility customers can be lost. Shutoff protection is one shut protection, but there are many others as well. As a result, we urge that any authorization of electric submetering incorporate at least the following (to the extent not already part of C.G.S. 16-19ff(b):

- No service fees: The occupant's liability is limited to the pro-rata share of the electric bill. Neither the property owner nor any service company should be allowed to add any extra administrative costs of the system onto the tenant through a submetering bill.

- No submetering unless electricity is delivered solely to an area within the exclusive control of the tenant: The owner cannot submeter unless it is first established that the submeter measures electricity going solely to the occupant's unit and not to common areas or any other unit.

- PURA regulatory control over submetering: There should be no submetering without PURA review of the plan and approval. The occupant should be assured access to PURA to resolve disputes with the building owner, to the same extent that the occupant would have access if electricity were provided directly by an electric company. The system should be subject to PURA review for accuracy

(continued on next page)

- No shutoffs by the owner or the electric company for submetering payment arrearages: Under existing law, an electric company in a master-metered multi-family building cannot shut off electricity to the building but must bring a receivership action. Because in a submetering arrangement the property owner remains the customer of the electric company, the occupants' protection against the electric company must be maintained and the owner must also be precluded from shutting off service. In addition, all rules concerning electric shutoffs should continue to apply, including warning notice, the right to enter into a reasonable amortization agreement, no winter shutoffs for hardship, and no shutoffs on certain days of the week. Occupants should be eligible for energy assistance and arrearage forgiveness programs. Discounted rates for low-income households should be available to the same extent they are available through an electric company.

- No submetering without clear disclosure: The lease must clearly disclose the existence of submetering. Submetering can be initiated only at the beginning of a new leasing term.

- Protection from excess charges due to miswiring or other defects in the submetering system for which the owner is responsible. The occupant tenant should be protected against liability for improper charges resulting from conditions beyond his or her control.

Testimony by Bruce Redman Becker, AIA, AICP
before the Energy and Technology Committee on

Proposed H.B. No. 5587 - An Act Concerning Submetering at Apartment Buildings and Condominiums, and

H.B. 6360 - An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

March 7, 2013

Mr. Chairman, Madam Chairwoman and Members of the Committee. My name is Bruce Redman Becker and I am pleased to have the opportunity to submit this written testimony regarding the Legislature's efforts to address sub-metering. By way of introduction, I am a Connecticut architect and developer of market-rate, affordable, elderly and supportive housing, and have helped create over 3,000 units of multi-family housing in Connecticut and New York, working in collaboration with many Connecticut not-for-profit clients, municipalities and private investors to meet the state's diverse housing needs. During my 25 years of practice as a licensed Architect, a Certified Planner, and a LEED Accredited Professional, I have frequently confronted utility regulatory matters in trying to make housing projects more energy efficient, affordable, and economically and environmentally sustainable. My firm, Becker and Becker Associates, Inc., recently designed and developed the largest apartment building in the State of Connecticut known as 360 State Street in New Haven, which is a 500-unit, LEED Platinum certified project and is the first apartment building in the world to be heated and powered with a fuel cell. We also designed and helped developed four supportive housing projects in Fairfield County, The Marvin Congregate Elderly and Child Day Care project in Norwalk, and The Wauregan Apartments in Norwich. And we are currently planning the largest apartment building in Hartford - the conversion the vacant Bank of America tower, adjacent to the Old State House, into 285 units of market rate and affordable housing.

First, I'd like to applaud the Governor and DEEP for realizing how important it is to permit apartment submetering in implementing an effective energy strategy for Connecticut. For the past six years my efforts to make housing more environmentally and economically sustainable have been severely thwarted by Connecticut's outdated submetering rules. Many states around the country embrace submetering, including New York State, which has encouraged and subsidized apartment submetering since 1988. Connecticut needs to join states around the country in encouraging submetering to foster multifamily housing which encourages conservation, energy efficiency, distributed and renewable energy generation, and use of combined heat and power. Failing to allow submetering needlessly blocks critical progress in all of these areas.

Connecticut's existing submetering regulations were written before electric restructuring, distributed generation, net metering, and many of the cutting-edge metering technologies were developed. As currently interpreted by the Connecticut Public Utilities Regulatory Authority ("PURA"), submetering is permitted only in campgrounds and marinas. This interpretation results in wasteful consumption of energy in adaptive re-use buildings and significantly limits—and in many circumstances outright prohibits—the deployment of distributed power generation and combined heat and power systems the state so earnestly seeks to support.

Over 500,000 of Connecticut's 1,495,000 housing units are in multi-unit buildings. Until submetering is permitted, all 500,000 of these housing units will be unable to effectively utilize distributed generation, on-site renewable energy, combined heat and power, and many apartment buildings are left with no means to encourage electricity conservation. The prohibition of submetering in apartments is a destructive and antiquated regulation that impedes economic and environmental progress. Eliminating this prohibition will encourage significant investment, job creation and environmental and economic benefits, at NO cost to the State. The timing is critical, as thousands of new apartment units are in the planning stages right now. Developers continue to immediately rule out of the use of combined heat and power, distributed generation and on-site renewable energy in planning their projects, merely because of this antiquated regulation. My own firm is planning the redevelopment of 777 Main Street (the Former Bank of America tower) into 285 units of market rate and affordable housing in downtown Hartford, and is currently unable to contemplate use of a fuel cell or combined heat and power unless the legislature acts to correct this problem. However if this prohibition is lifted, the largest apartment building in Hartford has the potential to be the most energy-efficient and environmentally sustainable housing in the region.

Submetering Encourages Conservation and Reduces Waste

Many of Connecticut's older apartment buildings and commercial complexes are master metered, meaning that individual tenants are not metered and billed separately for their utility use. The building receives one electric bill and the landlord includes the cost of electricity in the rent. Master metering however is inherently unfair because customers are not billed for their actual utility usage. This increases wasteful energy use, since tenants are not directly responsible for their bill. Because the electrical bill is averaged across all apartments in the building, tenants that actually make efforts to conserve energy subsidize those that waste energy.

The use of combined heat and power (also known as co-generation) captures the waste heat from power generation for use in space and water heating. This can increase the efficiency of energy use by up to 40% in residential buildings, and reduce

overall energy costs by up to 40%. However prohibiting submetering is the equivalent of prohibiting combined heat and power, since it is uneconomical for a building owner to supply electricity to tenants without the ability to recover costs through submetering. The result runs counter to the millions of dollars Connecticut spends annually on conservation programs, energy efficiency overhauls and other state supported measures to reduce energy consumption and lower Connecticut's historically high electric rates. It also prohibits thousands of building owners, including hundreds of non-profit affordable housing sponsors, from reducing their operating costs by utilizing the greater efficiency afforded by combined heat and power. Furthermore the prohibition marginalizes the use of fuel cells in apartment buildings, which would otherwise be the most effective, energy-efficient way to provide heat and power to residential buildings. This undermines the large commitment the State of Connecticut has made to fostering the fuel cell industry in the State, by eliminating one of the most valuable local markets for fuel cells.

Installing utility metering in existing housing or in an adaptive re-use conversion can add hundreds of thousands of dollars to an adaptive re-use project, and often space does not allow for locating standard utility meter rooms and meters. Without a progressive submetering policy, some adaptive re-use projects will not proceed. Many existing buildings will have to continue master metering (with electricity costs averaged and included in rent), which is proven to waste energy, is unfair to tenants who use energy wisely and fails to allocate costs fairly.

Submetering Makes Distributed Generation Possible for Apartments

In 2010, construction was completed on 360 State Street in New Haven, the first residential building in Connecticut to gain Leadership in Energy and Environmental Design ("LEED") Platinum status. The building employs numerous energy efficiency measures and includes a 400 kW fuel cell on site that produces clean, renewable power for the building's residents. Because on site distributed generation like this fuel cell must be "behind the meter," it cannot effectively distribute power to the 500 residential apartments if there are 500 separate residential utility meters. To use distributed generation, the fuel cell needs to be behind one utility meter that serves the building. Then, electricity from the fuel cell or the grid is measured in each apartment by a submeter. Today, owing largely to our inflexible submetering rules, that fuel cell is operated at half its capacity; and no electricity from the fuel cell is permitted to be used by the residential apartments.

On-site generation, whether through combined heat and power, or on-site renewable energy, can allow housing and mixed-use projects incorporating critical facilities such as shelters and grocery stores, to operate independently of grid outages. Because of this, eliminating the prohibition on submetering will make Connecticut less vulnerable to power outages. During recent storms such as Sandy and Nemo, Elm City Market, the full-service cooperative grocery store on the ground floor of 360 State

Street remained open to meet critical city needs when other stores were unable to, due to storm related power outages and access problems. If submetering is permitted, we would hope to provide similar facilities offering essential services at 777 Main Street in downtown Hartford, with grid independent power.

This mismatch in regulatory policy—encouraging development of on-site generation and fuel cells, yet simultaneously narrowing the scope of eligible projects—needlessly stymies the development of distributed generation and renewable energy projects in Connecticut.

Submetering Includes Consumer Protections

Consumer protections are easily incorporated into submetering policy. Meter accuracy, protection from shutoffs and the ability to challenge an inaccurate bill can all be part of proposed consumer protections, as they have been in New York State for decades. At the 500-unit Octagon Apartments project, which my firm developed on Roosevelt Island in Manhattan, there have been no consumer complaints in the 6 years since the property commenced operations. In contrast, both UI and CL&P have a long history of consumer complaints with metering.

Conclusion

Despite the benefits submetering multi-family properties offer, PURA's current interpretation of Connecticut's submetering rules limits submetering to campground and marinas. Accordingly, *it is critical that HB 5587 and HB 6360 make it clear that submetering is permitted in revitalized and new multifamily apartment buildings.* The Comprehensive Energy Strategy concludes that permitting submetering in residential buildings advances the energy goals of this state. For this reason, any legislative change should enable these buildings to implement submetering as of right.

Thank you for your consideration.

Testimony of

Joel M. Rinebold

Director of Energy Initiatives

Connecticut Center for Advanced Technology, Inc.

before

Energy and Technology Committee

March 7, 2013

regarding

Governor's Bill No. 6360

An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Introduction

The Connecticut Center for Advanced Technology, Inc. ("CCAT"), offers this testimony in support of Governor's Bill No. 6360 - An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

The Connecticut Center for Advanced Technology, Inc. (CCAT) is supportive of the concepts raised in the Governor's Bill that contains provisions that are favorable to the development and use of Class I renewable energy including fuel cells and advanced technologies that are or could be made in Connecticut. The components of this Bill that appear favorable include:

- ***Flexible implementation:***
  The proposed Bill expands the opportunities to develop Class I and Class III renewable energy technologies that are leased or in long-term contracts. CCAT supports this change to increase participation of the virtual net metering program, and provide more opportunities to deploy fuel cells that are manufactured in this state.

- ***Provides opportunities for Class I renewable energy sources for municipal, state, and agricultural customers:***
  The proposed Bill would expand the type of customers that would benefit from the development of Class I renewable energy facilities at a "customer host" to include municipal, state, and agricultural facilities. CCAT supports this change and suggests that this definition be further expanded to include commercial and industrial facilities that may have appropriate renewable energy resources, but lack electric demand sufficient to realize the total benefits of net metering. Expanding virtual net metering to commercial and industrial properties will help businesses reduce energy costs and remain competitive. In addition, this provision can be used as an economic development tool by the state for business recruitment and retention.

- ***Expand the development and use of Class I renewable energy capacity:***
  The proposed Bill would increase the nameplate capacity for Class I renewable energy sources from two megawatts to three megawatts. CCAT supports this proposed change to increase opportunities for the development of Class I renewable projects.

- ***Provide incentive for the development of microgrids for enhanced energy reliability:***
  The proposed Bill would increase the number of beneficial accounts from five to ten for municipal or state customers connected to a microgrid, or up to ten beneficial accounts at an agricultural host site. CCAT supports increasing the number of beneficial accounts to increase market opportunities for facility system development, and to improve energy reliability at microgrid applications.

- ***Market expansion:***
  The proposed Bill would increase the cap for credits provided to beneficial accounts from one million dollars per year to ten million dollars per year. CCAT supports increasing the cap for credits to beneficial accounts to improve the potential for facility development and to enhance the market for renewable energy technologies.

- ***Submetering will promote the state's renewable energy goals:***
  The proposed Bill would expand the types of customers that could be submetered to include commercial, industrial, multi-family residential, or multiuse buildings for electric power or thermal energy provided by a Class I renewable energy source. CCAT supports expansion of the submetering provisions to encourage the efficient development of Class 1 renewable energy facilities at appropriate end use sites.

- *Create jobs and encourage economic development:*
  Development of renewable energy facilities will create jobs and increase opportunities for economic development.

Conclusion

CCAT is supportive of the Governor's Bill that would encourage the development of Class I renewable energy resources, including fuel cell technology. Such development would support the state's RPS requirements, help to meet greenhouse gas reduction goals, provide high economic value to ratepayers, and create jobs.

CCAT will make itself available to the Committee and legislature upon request to assist in the refinement of this legislation.

Respectfully submitted,

Joel M. Rinebold
Director of Energy Initiatives

CCAT is a nonprofit corporation that provides services and resources to entrepreneurs and businesses and, through collaboration with industry, academia, and government, helps companies innovate and compete in the global market. CCAT implements programs that improve the economic competitiveness of the region through solutions that lower energy costs and increase long-term energy reliability. CCAT undertakes energy planning, and promotes renewable energy, including advanced technologies and sustainable fuels such as hydrogen.

Testimony of Stephen G. Rosentel before the Energy and Technology Committee on March 7, 2013 Re: H.B. No. 5589, S.B. No.839, H.B. No. 6360

Hello my name is Steve Rosentel. I am the President of Leahy's Fuels, a marketer of fuel oil and propane gas located in Danbury. We service and sell heating and hot water systems that run on oil, propane and natural gas.

I am also a board member of the CEMA, formerly known as the ICPA and currently serve as the Vice Chairman of the Board of the Propane Gas Association of New England.

HB No. 5589 An Act Establishing a Pilot Program for Natural Gas Transportation, I suggest it be amended to include a pilot program for propane autogas. This would allow all areas of the state including those not served by natural gas to receive the benefit of using a less expensive, cleaner and domestic motor fuel than gasoline or diesel. The fueling facility for propane is significantly less expensive which provides the opportunities for smaller fleets.

S.B. No. 839 An Act Concerning Statutory Changes To Advance Connecticut's Energy Policies, the changes proposed to Section 7 (b) states "The authority shall require the utilization of such new principles and structures to the extent that the authority determines that their implementation is in the public interest, as identified by the Department of Energy and Environmental Protection ....". I raise the issue that if the public interest is being determined by DEEP and the Comprehensive Energy Plan they publish and modify in the future, would this be undermining the public interest responsibility that currently rests with the utility commissioners at PURA?

H.B. No. 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. Section 18 will move us to 15 ppm sulfur heating oil which CEMA and I strongly support eliminating the adjoining state requirement. I would suggest that the interim step to 50ppm be eliminated by merely requiring the product imported into CT for sale meet the 15ppm standard effective June 30, 2013. This will be the most practical way to have the industry be compliant without the worry of what the blend might test out to on any given day. My company that also sells oil in NY has been selling only 15ppm product since July 1, 2012 and it works great!

Section 19 of H.B. No. 6360 would move the hurdle rate from 15 to 25 years. I would suggest that if this issue is going to be etched in State statue, then we should provide for a requirement that any expansion cost not actually recovered during the 25 year period be borne solely by the utility shareholders to protect the existing ratepayers from the dangers of 25 year projections. I make this suggestion after studying the table C-5 in the appendix to the 2013 Connecticut CES. It indicates a negative NPV for conversion from oil in the low oil price scenario. This happens when oil prices are in the range of $2.76 per gallon ($20 per MBTU) and the natural gas projection is correct. If the natural gas price projection is low, as today's NYMEX contract would suggest, the oil price per gallon could be higher and still represent no savings to the consumer and therefore no incentive to convert and therefore less recovery of the significant expansion cost. Since the CES itself identifies lower oil prices as a "High Risk" sensitivity, why should the CT ratepayers have to take this risk?

I would be happy to answer any questions.

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Fairvue Farms, LLC

Paul & Diane Miller
David Miller

199 Rte 171, Woodstock, CT 06281
Office 860-928-9483
Fax 860-928-5656

March 7, 2013

Chairman Duff, Chairman Reed and Members of the Energy and Technology Committee: HB# 6360

Fairvue Farms is a family owned dairy farm located at 199 Route 171, Woodstock, Connecticut. The farm has been owned by the Miller family since 1962. The property has been used for farming for over 200 years.

Fairvue Farms would like to construct an onsite anaerobic digester (AD) taking manure, food waste and crop residues, turning them into electricity, heat, fertilizer and a bedding source for our dairy cows. We would be able to generate over 20 times the electricity we would be able to use. We will be able to generate 2 mega watts of power which would be beneficial to the state grid and provide a local green energy source.

The Miller family is dedicated to develop sustainable practices that improve the overall economic prosperity of the farm. We are determined that reductions in operating costs and additional revenue streams must be created not only for long term success of Fairvue Farms, but for all agriculture in Connecticut. Renewable energy solutions that create both operation savings and additional revenue streams should be a priority for the State's future.

We need to have a net metering bill that makes sense, one that allows us to market all the electricity that we produce. To be able to attract the capital needed to construct the facility we need to be able to show a return. All we have to do is look to our European neighbors and see how we have fallen behind in our electrical and environmental needs. A good part of their electricity comes from farm generation. There are over 5000 digesters in Germany alone. We need to be looking at all the benefits of developing a clean energy for our state. We think we are a progressive farm that wants to develop a future for the next generation of farmers.

The benefits to Fairvue Farms and the surrounding community are as follows:

- Fairvue Farms will save over $150,000 in annual energy costs.
- Fairvue Farms will create additional revenue.
- The digestate by-product will be pathogen free, preventing harmful toxins from entering the local aquifers and drinking waters.
- The AD process will destroy methane, a harmful greenhouse gas.
- The construction and maintenance of the facility will create "green" jobs for the region.
- Fairvue Farms will serve as an Icon for the future of Connecticut Agriculture.
- The facility will serve as an important educational resource for surrounding communities.
- The facility will reduce odors and make us better neighbors.

The Energy Bills that you have before you go a long way to making this a reality. We would like our farm and the State of Connecticut to be a show place for these types of projects. This is a project we been working on for over 10 years. We hope this is the year.

Sincerely,
Paul J. Miller

#3

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

Public Hearing –March 7, 2013
Energy and Technology Committee

Testimony Submitted by Commissioner Daniel C. Esty
Presented by Deputy Commissioner Katie Dykes

Raised House Bill No. 6360 - AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Thank you for the opportunity to present testimony regarding Raised House Bill No. 6360 – An Act Concerning Connecticut's Comprehensive Energy Strategy. The Department of Energy and Environmental Protection (DEEP) offers the following testimony.

DEEP strongly supports this bill that promotes efficiency, allows the state to work in step with the region on a number of fronts, expands sub-metering for more informed decision-making, encourages micro-grids and requires the sale of cleaner low sulfur heating oil.

Section 1 of this bill amending section 16 -19tt(b) of the Connecticut General Statutes (CGS) to better ensure that a full decoupling of revenues and sales is implemented for our electric and natural gas distribution companies in order to eliminate any disincentive for them to promote efficiency and Without decoupling the utilities lose money when they promote conservation. PURA instituted decoupling fro United Illuminating on a pilot basis in and has continued that structure to date. However, full decoupling has not been implemented for the state's larger utility, Connecticut Light and Power or any of the three gas distribution companies. This is particularly important when conservation is increased outside of a rate case. Existing law provided options for effecting decoupling but the impact of trying to do such using the flat customer charge results in unacceptably high increases and provides no way for customers to reduce their costs by using less electricity or gas. Requiring the use of a fully reconciling mechanism within the distribution rates enables PURA to conduct a relatively simple true up that matches allowed revenues to actual sales. An added benefit is that since this is calculated on a kilowatt hour basis customers will pay less when they consume less, further supporting Connecticut's focus on driving efficiency.

Section 2 of this bill amending subsections 16-32f(b) and (c) of the CGS shifts gas conservation from an annual plan requirement to a three year plan that is a more efficient use of resources and creates more certainty for customers and vendors alike. DEEP recognizes that there will need to be annual filings to

measure performance to verify program effectiveness. This change also supports the current practice of developing a three year joint electric and gas Conservation and Load Management Plan

Section 3 of this bill amending section 16-245m of the CGS seeks to strengthen the State's commitment to prioritizing the procurement all cost effective efficiency when meeting the state's energy needs. Simply put, if funding efficiency to save a kilowatt of electricity is less expensive than buying that kilowatt hour of electricity or unit of gas, we should require the efficiency purchase instead of the energy purchase. Three consecutive Conservation and Load Management Plans have called for increasing the proportion of these "purchases" to those for energy supply, yet none of these additional cheaper expenditures have been approved by PURA. During that same time period our neighboring states have dramatically increased their investments in these cost effective, i.e. cheaper, investments. As our neighboring states become more and more efficient, Connecticut becomes less competitive and assumes a larger portion of the costs of running the ISO NE system and paying for the region's transmission since these charges are allocated on the basis of load.

Deep recognizes that a regulatory authority such as PURA has an important role to play in protecting ratepayer interests and would suggest some minor edits to the language in this section to ensure that that role is exercised within the construct of the State's strong commitment to making Connecticut as energy efficient as possible.

Section 4 is intended to give the commissioner of DEEP more flexibility with respect to the implementation of regulations for implementing the Regional Greenhouse Gas Initiative in coordination with other member states. We request that the committee review a drafting change that we suggest for this section to remove lines 388 through 417 of this bill and replace those lines as written with the following language:

Section 22a-174j of the general statutes is repealed and the following is substituted in lieu thereof (*Effective from passage*): [Not later than May 1, 2006, the Public Utilities Regulatory Authority shall complete an investigation of the potential impact on electric reliability and electric rates created by promulgation of the regulations under this section. If such investigation concludes that there is no negative impact on such reliability and rates, not later than July 1, 2006, the Commissioner of Energy and Environmental Protection shall, in conjunction with the Public Utilities Regulatory Authority and by regulations adopted] The Commissioner of Energy and Environmental Protection may adopt regulations, in accordance with chapter 54, to establish uniform emissions performance standards or other requirements to regulate emissions of carbon dioxide to the air from the generation of electricity in-state or imported for [supplied to] end use customers in this state. Such performance standards or other requirements shall, to the greatest extent possible, be designed to improve air quality in this state and to further [the attainment of the National Ambient Air Quality Standards promulgated by the United States Environmental Protection Agency] the goals of the Regional Greenhouse Gas Initiative Such performance standards [shall] or other requirements may apply to emissions caused by electricity generated[ion] in-state or imported for end use customers in Connecticut any location in North America used to supply end use customers in this state, [shall] and may limit emissions to levels consistent with those permitted from technically similar generators located in this state and [shall] may limit the amount of [air pollutants, including, but not limited to, nitrogen oxides, sulfur oxides and] carbon dioxide emitted per megawatt hour of electricity produced. Such performance standards or other requirements may provide for a program for purchase of offsetting reductions in emissions and trading of emission credits or carbon dioxide allowances.

Additionally, we request that the committee review a drafting change that we suggest for this section to add the following language:

Section 22a-200c of the general statutes is repealed and the following is substituted in lieu thereof (Effective October 1, 2013):

(a) The Commissioner of Energy and Environmental Protection shall adopt regulations, in accordance with chapter 54, to implement the Regional Greenhouse Gas Initiative.

(b) The Department of Energy and Environmental Protection, [in consultation with the Department of Public Utility Control,] shall auction all emissions allowances and invest the proceeds, which shall be deposited into a Regional Greenhouse Gas account established by the Comptroller as a separate, nonlapsing account within the General Fund, on behalf of electric ratepayers in energy conservation, load management and Class I renewable energy programs. In making such investments, the Commissioner of Energy and Environmental Protection shall consider strategies that maximize cost effective reductions in greenhouse gas emission. Allowances shall be auctioned under the oversight of [the Department of Public Utility Control and] the Department of Energy and Environmental Protection by a contractor or trustee on behalf of the electric ratepayers.

(c) The regulations adopted pursuant to subsection (a) of this section may include provisions to cover the reasonable administrative costs associated with the implementation of the Regional Greenhouse Gas Initiative in Connecticut and to fund assessment and planning of measures to reduce emissions, mitigate the impacts of climate change and to cover the reasonable administrative costs of state agencies associated with the adoption of regulations, plans and policies in accordance with section 22a-200a. Such costs shall not exceed seven and one-half per cent of the total projected allowance value. Such regulations may also set aside a portion of the allowances to support the voluntary renewable energy provisions of the Regional Greenhouse Gas Initiative model rule and combined heat and power.

(d) Any allowances or allowance value allocated to the energy conservation load management program on behalf of electric ratepayers shall be incorporated into the planning and procurement process in sections 16a-3a and 16a-3b.

***(NEW)(e)** On or before June 30th following the conclusion of each compliance period, the Commissioner may permanently retire all unsold emissions allowances or any portion thereof held by the Department of Energy and Environmental Protection. The Commissioner may adopt regulations, in accordance with chapter 54, governing the retirement of any unsold allowances.*

Section 5 of this bill amending section 16-244u of the CGS - will allow customers to benefit from net metering as was originally envisioned by the legislature when it passed PA 11-80. This section corrects an unintended limitation in that bill by making it clear that a virtual net metering facility may be leased or under long term contract to a customer host rather than literally owned by such. In addition it allows for agricultural net metering and allows governmental entities to virtually net meter with critical facilities on order to support the development of microgrids.

The section proposes another change critical to making the economics of many Class I and Class III projects viable. This revision will allow 80% of the distribution and transmission charges to be offset which provides needed support for these projects while also ensuring that these accounts are

contributing to the support of the overall electric grid. We would suggest that the language be amended to say that such credit should be applied to the *"volumetric portion"* of the distribution and other service charges billed to the beneficial accounts.

Section 6 of this bill amending section 16-19ff of the CGS – expands the scope of sub-metering eligibility to include commercial, industrial and multi-family buildings. This will allow tenants some equity and ensures proper billing, will create more incentive to conserve, and may encourage development of renewable resources. We recognize there are consumer protection issues that need to be addressed and propose that these be addressed by PURA through the application and approval process included in this proposal.

Section 7 creates a new section allowing electric customers to aggregate multiple meters if such are billed to the same customer so as to support renewable or combined heat and power (CHP) projects that can serve multiple meters billed to the same customer. For example, this provision would enable a farmer who has multiple buildings – and meters – on his farm to aggregate that usage for purposes of net metering; similarly a large commercial or industrial company may have many separate meters for different parts of a facility that could be served by a CHP system.

Sections 8 and 9 encourage micro-grids would increase options available for developing microgrids to improve resiliency and provide limited emergency electric service to critical facilities.

Sections 10 through 16 build on the State's efforts to promote efficiency improvements in public and private buildings through the use of energy rating systems and benchmarking that evaluates and rates energy consumption. Buildings consume 40% of the energy used in Connecticut and reducing that use will save the State and its businesses and residents millions of dollars while also reducing harmful air emissions. Providing standardized energy information to potential owners and tenants will enable them to make informed decisions regarding properties and incent owners to make efficiency investments to improve the desirability of their properties. For tenants who do not pay their utility bills, this information provides them a means to have some control over their energy expenses at the time they choose a place to rent or lease. As part of the administration's Lead By Example commitment the bill requires the State to benchmark its own properties first and then l appropriately proposes a phase in of these requirements beginning with the largest commercial properties. Additionally, DEEP would develop a voluntary program that would benchmark and disclose the energy use of residential properties.

Section 17 amending section 29-252 of the CGS – would add provisions for new transpiration technologies, such as hard wiring for electric vehicles, to the State building code.

Section 18 amending section 16a-21a of the CGS – reduces sulfur content in residential heating oil to 15 parts per million which is consistent with neighboring states. This reduction will significantly reduce harmful emissions while also improving the efficiency and life maintenance costs of heating equipment thereby saving consumers money. Section 19 would statutorily set what is termed the "hurdle rate" used to calculate cost allocation for new natural gas customers at twenty-five years. Currently PURA has set those times periods differently – from 15-20 years -for Connecticut's three gas utilities. In addition to establishing consistency, twenty five years more accurately reflects the life of the infrastructure investment and comes closer to that used by other states such as Massachusetts that uses a 33 year period. This change will make the upfront expense for new customers slightly less, while still ensuring that new revenues will exceed the cost of the investment after twenty-five years.

In closing, DEEP strongly supports this bill and believes that its enactment will enable the State to advance many of the recommendations set forth in the Comprehensive Energy Strategy with the goal of securing a cheaper, cleaner more reliable energy future for Connecticut.

Thank you for the opportunity to present testimony on this proposal. If you should require any additional information, please contact DEEP's legislative liaison, Robert LaFrance at 860-424-3401 or Robert LaFrance@ct.gov.

TESTIMONY

OF

UIL HOLDINGS CORPORATION

Regarding

Raised House Bill 6360

AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Before the
Energy & Technology Committee

Legislative Office Building
March 7, 2013

Senator Duff, Representative Reed and members of the Energy & Technology Committee. My name is Roddy Diotalevi and I'm Senior Director of Sales & Marketing for UIL Holdings Corporation (UIL). UIL is the corporate parent company of The United Illuminating Company (UI), The Southern Connecticut Gas Company (SCG) and Connecticut Natural Gas Corporation (CNG). On behalf of UIL and our operating companies I thank you for this opportunity to offer this comments in general support of **HB 6360 - An Act Concerning implementation of Connecticut's Comprehensive Energy Strategy.**

UIL supports the Comprehensive Energy Strategy (CES). The CES seeks to establish energy policy that will benefit Connecticut's energy consumers, the State's economy and the environment. The Strategy proposes to continue and enhance Connecticut's commitment to use energy in the most effective and efficient way possible. UI has been a strong proponent of energy efficiency and conservation, load management strategies and programs for many years. Our efforts were greatly enhanced since the adoption of electric restructuring in 1998 and the creation of the Energy Conservation Management Fund. CES provides for achieving all cost effective energy efficiency measures and also looks to provide increased funds to do so. The proposal also seeks to implement "all fuels" efficiency which will provide energy savings to all customers in the state. The expanded commitment to energy efficiency seeks to reach all sectors of the customer base and buildings that have not been fully reached in the past or have not chosen to take advantage of the available programs.

CES brings a new energy era for Connecticut. UIL strongly supports the provisions of the CES that provides Connecticut consumers with a once in a generation opportunity to switch to a cheaper, cleaner fuel source. Replacing fuel oil with domestically available natural gas offers Connecticut residents the prospect of lower energy bills while reducing the level of harmful air pollution. These positive attributes of natural gas have encouraged energy consumers, businesses and residents, within the cities and towns that we serve to ask the local gas distribution companies (LDCs) about natural gas availability in their vicinities. Every day we receive dozens of requests to provide natural gas service to families and businesses in our service territories.

The CES states "Only 31% of Connecticut homes heat with gas today, compared with 47% in Massachusetts and 48% in Rhode Island." This stark statistic shows the challenge ahead in providing Connecticut residents with the opportunity of more competitive energy choices. Compounding this challenge is the significant upfront costs that Connecticut residences incur when choosing to install natural gas heating equipment.

The CES encourages LDCs to expand the state's natural gas infrastructure to provide competitive energy choices to as many customers in a prudent manner over the foreseeable future. The Strategy also offers incentives to consumers, in the form of a tax credit, to help mitigate the cost of converting their heating equipment to natural gas (SB 843, currently being considered by the Finance, Revenue and Bonding Committee).

In order to enable Connecticut natural gas companies to expand their infrastructure, HB 6360 proposes a significant change to the so called "hurdle rate". The bill allows LDCs to use a twenty-five-year payback period in assessing the cost effectiveness of connecting a new gas customer by weighing the capital investment to do so against the future revenues, recovered through rates, of that customer addition. The bill also requires the Public Utilities Regulatory Authority (PURA) to develop a methodology that reasonably accounts for revenues that would be collected from additional customers connected for the same extension costs over a three-year period.

The proposed 25-year hurdle rate is a significant improvement to the current rate and the UIL natural gas affiliates strongly support the proposal. However, UIL companies also encourage the legislature and the Governor's administration to go beyond this well intentioned proposal to raise the rate to 25 years and increase the payback time period to approach or match that of our neighboring states. This change will serve to accelerate the infrastructure build out to bring natural gas supply to even more customers that are asking for it.

HB 6360 also includes other provisions dealing with energy efficiency, an improved climate for development of renewable energy resources and improved electric system reliability. The bill also seeks to provide an incentive to electric and gas utilities in Connecticut to encourage energy conservation and efficiency. It does so in Section 1 by requiring PURA to order the state's gas and electric distribution companies in their next general rate proceeding, to decouple distribution revenues from the volume of natural gas and electricity sales through a mechanism that adjusts actual distribution revenues to allowed distribution revenues.

Utilities typically make more money by selling more of their energy services and theoretically would have little incentive to promote a lesser use of their product. The theory behind decoupling is to remove this disincentive by "decoupling" their revenues from their sales volume while still providing the companies with the opportunity to achieve a reasonable opportunity to earn its allowed return on investments.

Current law requires PURA to consider decoupling for Connecticut utilities, yet only UI has a full decoupling mechanism and it is only on a pilot basis. The 2-year pilot was extended until the company's next general rate case. The DPUC earlier implemented decoupling for CL&P through rate design in 2007, but denied full decoupling in 2010. Connecticut's gas distribution companies have all requested the DPUC to implement decoupling mechanisms for them but the requests were denied.

The CES states that "Decoupling mechanisms need to be designed carefully and should include consideration of potential impacts on rates. But short-term impacts must not be used as an excuse not to undertake investments with long term benefits."

This proposal effectively provides an electric company the incentive to implement the state's energy conservation policies. However, in the CES, the LDCs are encouraged to improve and expand gas delivery infrastructure which will increase sales volume. A decoupling mechanism for gas companies must retain the incentive to increase sales and the revenues associated with new customer additions that are not included in sales forecasts used in the establishment of

tariffs and customer rates. Comingling new sales volume and revenue with existing volumes and revenues will act as a disincentive to cut back on expansion contrary to the intent of state energy policy and associated customer benefits.

There are two gas decoupling models that can be used to meet both the intent of the HB 6360 to remove the incentive to sell more gas to existing customers and enabling system expansion to provide a natural gas choice to new customers. The first model is a "use per customer" model. This model trues-up actual use to that allowed in rates on a per-customer basis. The model was proposed in 2008 by CNG and SCG and was rejected in favor of rate design changes by the then DPUC.

The second model is to clearly separate existing customers from new customers from system expansion for decoupled revenue true-up. Existing customers would be subject to a full revenue decoupling model, such as the existing UI decoupling mechanism. New customers would not be included in this calculation. Rather, their revenues would support a separate revenue requirements calculation for new business only. This "bright line" ratemaking is consistent with the ratemaking model proffered in the CES.

We suggest the following changes to the language of Section 1(b) of HB 6360 (***addition in bold italics***):

(b) In any rate case initiated on or after the effective date of this section, the Public Utilities Regulatory Authority shall order the state's gas and electric distribution companies to decouple distribution revenues from the volume of natural gas and electricity sales through a mechanism that removes any disincentive to support various state energy policy goals. ***For electric distribution companies, the adjustment of actual distribution revenues to allowed distribution revenues shall be the proper mechanism. For gas distribution companies, a decoupling mechanism that does not remove the incentive to support the expansion of natural gas use in accordance with the Connecticut Energy Strategy of 2013 shall be used, such as a mechanism that decouples distribution revenue based on a use-per-customer basis.***

We have submitted written testimony to the Committee on several issues that are highly technical, yet important for you to consider in your deliberations on HB 6360. The issues are as follows:

- **Expansion of Virtual Net Metering**
- **Expansion of Sub-Metering**
- **Aggregation of Accounts**
- **Microgrids**

UIL thanks you for the opportunity to offer these comments on **HB 6360 - An Act Concerning implementation of Connecticut's Comprehensive Energy Strategy.** I will try to answer any questions you may have.

EXPANSION OF VIRTUAL NET METERING

Virtual Net Metering (Section 5) also deserves another look by the Committee and the Administration. This section properly corrects an oversight of the original drafters of not including state and federal government in the measure. It also permits the government entities to either own or lease the generating facility at the host site. UIL supported these provisions in a proceeding before the PURA to implement municipal Virtual Net Metering (VNM). We do not oppose the inclusion of agricultural customers to benefit from generation resources powered with anaerobic digesters or the use of other farm waste to fuel electric generation for a farm through Virtual Net Metering. During the 2012 regular session UIL lobbyists attempted to work with representatives of the Connecticut farm Bureau and individual farmer in developing a framework to permit Agricultural Virtual Net Metering (AVNM). At the time we achieved consensus that the Company would not oppose VNM for a single farm with multiple meters within that farm as Beneficial Accounts. Any remaining VNM credits at the end of a 12-month period would be returned to the host account under normal net metering protocol.

While we do not oppose inclusion of agricultural customers to use net metering for their own farm, we cannot support several other provisions of the VNM proposals in HB 6360. The bill proposes to include 80% of the distribution and other rate charges as part of the credit for the host and the beneficial accounts. Under normal circumstances the host net t metering customer would not pay most costs billed to all other customers. Since the generating resource is located "behind the meter", the host does not pay any generation or delivery charges for the amount of energy produced by the generating resource. Beneficial accounts, however, only receive credit for the generation services charges on their account and would pay all distribution company delivery costs under the current VNM scenario. It is obvious that the host site is utilizing the electric distribution system to "deliver" the energy to the beneficial accounts, yet under this proposal, neither the host *nor* the beneficial accounts will pay for their full fair share of the costs of the electric system. In fact, under this legislative proposal the host account pays zero delivery charges and the beneficial account only pays 20% of the delivery charges. While with the decoupling mechanism envisioned in Section 1 the electric distribution company would be made whole, the costs avoided by the host and the beneficial accounts in the proposed virtual net metering process merely get shifted to those customers that are not participating in the net metering arena. If there is no full revenue decoupling, then the EDC would not recover its authorized revenue requirements and thus limiting the opportunity to earn its authorized rate of return on investments. The AVNM proposal will also increase the statewide cap on VNM credits by 10 times over the current level to a maximum $10 million. UI's share of the cap is approximately $2 million. Any credits given to VNM participants result in a cost-shift to other customers, since the credits must be recovered. Shifting those costs to all other customers will add about $0.28/month to the average residential customer's bill.

The AVNM proposal also goes well beyond what farmers were looking for in recent years, to allow them to apply net metering to other locations within a farm where the usage is not measured by the revenue meter associated with the generator site. The proposal would extend virtual net metering to 10 additional beneficial accounts (currently 5). However, the beneficial

accounts do not have to be accounts related to the host account. The only requirement is that they engage in farming within the same EDC service territory of the host. The host site would be, for all practical purposes, a generation company, delivering power to other farms using a delivery system that they would not pay for. The extension of an additional 5 unrelated beneficial accounts would also apply to governmental entity hosts and non-governmental beneficial accounts connected to a micro grid.

UIL would like to suggest that a Class I generator to be used in an Agricultural Virtual Net Metering situation be limited in size to permit most, if not all the energy produced to be consumed in the operations of a single farm, regardless of how many meters it has. Any energy credits remaining at the end of a yearly period can then be returned to the host account, as is done under existing net metering rules.

EXPANSION OF SUB-METERING

We also respectfully suggest the Committee give careful consideration Section 6 which would considerably expand sub-metering. The provisions of Section 6 will permit sub-metering to occur in any commercial, industrial or multi-family facility where the electric power or thermal energy is provided by a Class I renewable energy source or a combined heat and power system, or in any other location as approved by PURA where sub-metering promotes the state's energy goals, as described in the Comprehensive Energy Strategy. The proposal does not appear to consider an extensive body of regulatory orders and pronouncements, as well as many court decisions in both the State and Federal levels. Over the last several years, UI has itself been a party or intervenor in several proceedings before the DPUC and PURA dealing with sub-metering in various situations. The regulatory body has consistently ruled against the proponent of the sub-metering proposal.

Current state law permits sub-metering for campsites and marinas. The existing statute recognizes the transient nature of the users of these facilities. The same statute imposes certain rate limitations to the boat and recreational vehicle users of the sites. The operator of a marina or campground cannot charge rates greater than the residential rate of the incumbent utility. The proposal includes some restrictions on rates and termination of service, yet, there are other sub-metered customer issues that are not included. The DPUC has determined that restructuring required that the delivery, metering and billing of all customers remains with the electric distribution company. The same restructuring legislation requires retail choice for generation service. Under the proposed expanded sub-metering scenario, the customer of a sub-metered building would be denied the choice of generation supplier. Those tenants of a sub-metered facility are not customers of the electric distribution company. Sub-metered buildings and the general customer populations would have two distinct set of rules for generation service.

It is not unusual for the generating capacity of the resource to be sized exactly to serve the full energy needs of all the tenants and the common areas of the building. If the machine is too large the building owner would get compensated for the excess energy at currently approved tariff rates. However, if the generating resource is too small, then the owner of the building would

have to purchase generation services and delivery service from the electric distribution company and resell it to the tenants. This last situation can also occur whenever the generating resource is unavailable due to a scheduled or unscheduled outage.

In this last instance, the sub-metered facility is venturing away from its internal resource to secure generation. The purchase of generation service by the owner, either from the EDC or another supplier, appears to be wholesale transaction since the generation will not be consumed entirely by the purchaser, but rather by an entity that is not connected to the EDC's system (the tenants). It will be resold to the tenants, who would be the ultimate end users of the electricity. It would be a sale for resale which may fall under Federal jurisdiction, specifically the Federal Energy Regulatory Commission (FERC) and not State regulation. The General Assembly should further investigate potential federal preemption and jurisdictional issues before embarking on a substantial expansion of sub-metering as contemplated by Section 6 of HB 6360.

AGGREGATION OF ACCOUNTS

The Company's understands the purpose of Section 7 that customers will be allowed to "aggregate" their accounts and be billed by the EDC as though the consumption occurred under one account. Implementation of this scenario would also result in shifting costs for support of the electric distribution system from aggregating customers to all nonparticipating accounts.

When retail rates are designed, there is an assumed number of "billing units" over which the approved revenue requirement is collected. The billing units are different for each component of a customer's bill. There are "demand units" that represent the greatest consumption by the customer in any 15-minute period during a billing cycle. These units are known as kilowatts. The 'kilowatt-hours" unit represents the total consumption for all hours during a billing cycle. The "customer service charge" unit is designed to recover the various fixed and other system costs that are not easily measured by the normal variable measurement unit of usage, the kilowatt-hour. These include costs such as metering, billing, customer service, etc.

By aggregating multiple accounts of the same customer, the total number of demand units and the basic customer service charges that would be billed by the Company to all accounts would be reduced by those charges not being properly billed for the aggregated accounts. The revenue received from demand and customer charges would be reduced. Again, in a scenario where there is full decoupling, the EDC would be held harmless and other customers would pay for this revenue shortfall. In a scenario where there is no decoupling, the EDC has a revenue shortfall until such time as the EDC files its next rate case. At that time, the retail demand rates and possibly customer service charges would need to be increased to recognize that here are fewer billing units over which to collect the allowed revenue requirements. This also results in other customers paying a higher rate for the benefit of the aggregating customers. In other words, the aggregation of accounts results is subsidization by all other customers for the benefit of the aggregating customer.

MICROGRIDS

UI is keenly aware and supportive of the need and importance of back-up generation for critical facilities during severe weather events. UI has been working diligently with the Department of Energy and Environmental Protection (DEEP) on the deployment of a pilot to test the practicality of the concept of a microgrid. This pilot program will be critical in determining the appropriate cost allocations between those who benefit from the microgrid, and other customers.

UI believes ongoing utility involvement in microgrids, including owning, operating and maintaining some critical aspects of the microgrids is critical to insure the safety and reliability of not only the microgrid, but the utility system and the public at large. We suggest that the utility own and operate the interconnection facilities for the microgrid and the critical facilities to be served. This can be done without passing on the costs to all ratepayers. The developer of a microgrid could be required to pay for interconnecting facilities, and that those facilities are transferred to the utility when the microgrid becomes operational as it currently occurs with interconnections for distributed generators. The assets would be in rate base a zero cost and thus would not earn the utility a return. The facilities would then fall under the operational control of the Company and allow for periodic testing of the microgrid interconnecting devices and insure operational readiness.

There is great promise in microgrid technology as a tool to improve reliability of critical facilities. The DEEP pilot is the proper vehicle to determine where microgrids are the best solution, and where individual emergency generators or strengthened distribution facilities may provide the best, most economical solution for reliable power at critical facilities. The results of the pilot should provide a template that will allow development of microgrids where they provide the economic solution to emergency power.

If there are additional questions please contact Carlos Vázquez, UIL's Senior Director-Government Relations at 203-521-2455.

Testimony of NRG Energy, Inc.

To: Joint Committee on Energy and Telecommunications

From: Raymond G. Long, Vice President, Government Affairs

Date: March 7, 2013

RE: H B No 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. (ET)

NRG Energy, Inc. (NRG) is a national developer and operator of power plants. NRG operates a portfolio of 8 facilities in Connecticut in the communities of Middletown, Norwalk, Montville, Milford, Branford, Cos Cob and Torrington. Several of these power generation facilities use low sulfur oil, referred to as number 2 heating oil, for starting up.

As required by Connecticut statute, NRG presently utilizes low sulfur number 2 oil. The current statutory regime requires that NRG switch to an ultra low sulfur oil of 15 parts per million on July 1, 2014.

Section 18 of HB 6360 would, among other things, change the implementation date for the use of the ultra low sulfur oil one year earlier – to July 1, 2013. Moving the implementation date up by one year is very problematic. NRG has already purchased and stored the low sulfur oil at tanks at two of NRG's Connecticut facilities. This oil was purchased in reliance on the current statute. NRG has always planned to comply with the July 2014 date for implementation of the ultra low sulfur oil obligation.

Moving the compliance date up by one year – with only four months notice – would require NRG to purchase new inventory, and to spend unnecessary funds to truck our existing inventory out of Connecticut and try to either resell it or blend it with other oil products.

I respectfully request that if the Committee plans to move forward with Section 18 of this legislation, that power generation facilities be exempted from the earlier compliance date. NRG is prepared to comply with the State's current statute by utilizing ultra low sulfur oil beginning on July 1, 2014.

Please feel free to contact me directly with any questions you may have.

Thank you for your time and consideration.

Sack Distributors

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

My name is Steve Sack, I own and operate a home heating wholesale company located in Hartford. Sack Distributors is more than 100 years old and I am the 4th generation to work at the company. I am submitting testimony in support of section 18 and in opposition to section 19 of H.B. 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Every day since I began working in my family's business I have watched the energy markets. Despite new technology, sophisticated financial instruments and access to practically every piece of relevant data when it comes to energy, it is still impossible to predict future prices. And when I say future prices, I mean what the price of fuel will be tonight, tomorrow, next week let alone in 2050 like DEEP's Comprehensive Strategy attempts to do.

I have to believe that the language in section 19 is there because the state thinks that it knows natural gas will be cheaper than heating oil well into the future, or they would not have proposed to increase the hurdle rate to 25 years to help incentivize consumers to switch to natural gas. Well I can tell you as someone who has spent his entire life participating in, and observing energy markets - that is pure speculation!

I know that there has been a lot of talk about the benefit of bringing more natural gas to parts of Connecticut where it does not exist today so that businesses can come to our state. Well that is a pipe dream that will only end in failure. I am very familiar with the real-estate market in the greater Hartford area, and I can tell you that there is abundant commercial and industrial space available that is hooked up to natural gas mains.

The same can be said of Bridgeport, New Haven, Waterbury and virtually every city in the state. If natural gas is the key to economic development, then why do we have so many vacant factories in our cities? By the way, the same natural

gas that this bill wants to provide incentivizes for is available in other states that may have a more business friendly environment.

Adjusting the hurdle rate to lure consumers to switch from home heating oil to natural gas is nothing less than picking winner and losers. Our industry has no problem if the natural gas monopolies want to use their shareholders money to expand their business, but we do have a problem when the state proposes to change the hurdle rate to help our competitors take our customers from us.

As for section 18 of the bill, I am a big advocate to move to an ultra low sulfur heating oil! Going to a 15ppm product will bring a cleaner burning fuel to homes and businesses while making the off-road diesel market more competitive and vibrant.

I ask that the Energy Committee amend the language in H.B. 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY to prohibit monopolies from recovering their costs from their existing ratepayers when they expand their infrastructure.

I would be happy to answer any questions you may have at this time.

Thank you.

Respectfully,

Steve Sack

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MEMC

SunEdison

Written Testimony of SunEdison LLC

In Support of Governor's Bill No. 6360 – An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Fred Zalcman, Managing Director of Regulatory Affairs – Northeast States

March 7, 2013

Senator Duff, Representative Reed, and members of the Joint Energy Committee, it is a privilege to be here today testifying in support of Governor's Bill No. 6360 and the numerous other bills introduced this session to expand opportunities for virtual net metering.

My name is Fred Zalcman and I am the Managing Director of Regulatory Affairs for SunEdison, LLC, North America's leading solar energy services provider. Founded in 2003, SunEdison currently employs 600 people in our Belmont, California headquarters facility and in our regional operation centers throughout the world. SunEdison is a wholly owned subsidiary of MEMC[1], a global leader in the manufacture and sale of wafers, the basic building block to the semiconductor and solar industries.

SunEdison currently has over 1,000 MW of solar capacity under management. Here in Connecticut we operate 16 rooftop solar facilities, providing over 3 MW in clean and predictably priced solar capacity to our commercial and municipal customers, including the City of Stamford, Staples, Kohls and Whole Foods. SunEdison is also partnering with the Connecticut Conference of Municipalities (CCM) to offer solar energy as an energy option to cities and towns across the state.

SunEdison appreciates this opportunity to comment on the legislative package to advance a Comprehensive Energy Strategy for Connecticut, and we applaud the Malloy Administration for its leadership in offering solar policies and programs to reduce the cost and increase the deployment of this clean, abundant, local and renewable energy technology.

[1] Listed on the New York Stock Exchange under the ticker symbol "WFR" and included in the S&P 500 Index.

Specifically, we support GB 6360's provisions to remove the impediments to municipal virtual net metering, and to expand eligibility to other customer groups. Properly structured, virtual net metering opens up new opportunities for towns to deploy solar generating systems on available roof space and idle land - such as landfills, brownfields and parking lots – to meet the electricity needs of remote loads at school complexes, police and fire stations, and town halls that might not otherwise be amenable to on-site solar generation because of shading or structural issues. Enabling towns to control their energy costs with virtually net metered solar generation will help ease municipal budget constraints, and flow through electric bill savings to local businesses and residents in the form of lower taxes.

Over the past year, SunEdison responded to several RFP's issued by Connecticut municipalities for virtual net metered systems at town landfills. Unfortunately, we are not aware of any of these projects moving forward - not because of waning enthusiasm for solar energy, but because the current virtual net metering regime embodied in Section 121 of P.A. 11-80 has proven to be simply unworkable.

Section 5 of GB 6630 would modify the existing virtual net metering framework in three specific ways to serve as a more effective vehicle for large-scale municipal solar installations.

- First, the current requirement that municipalities **own** the virtual net metering system presents an insurmountable barrier since cash-strapped towns do not have the upfront capital to invest in large-scale solar systems. Moreover, municipally-owned systems cannot leverage the 30% federal investment tax credit since they are not taxable entities. Section 5 would remove this barrier by allowing third party ownership models, used in the vast majority of municipal projects, to be eligible to qualify for virtual net metering.
- Second, the existing $1 million annual statewide cap on virtual net metering credits is prohibitively small and even under the best of circumstances cannot support more than a handful of projects statewide. GB 6360 would raise the cap, however given the strong and widespread community interest we are seeing in virtual net metering, we would recommend that this cap be further raised, or better yet, shifted to an installed capacity metric that is set at a percentage of the utility's historic peak load.[2]
- Third, the current valuation of net excess generation at wholesale is insufficient to offset the incremental cost of capacity required to serve satellite accounts, and in all likelihood does not fully capture the economic, environmental and grid-supporting value of solar energy generation. We believe GB 6360's revisions to value the virtual net metering credits at full energy plus 80% of all fixed charges is fair and reasonable, and adequately

[2] This and other proposed modifications to GB 6360 are detailed in the attached matrix and bill mark-up, offered by an *ad hoc* group of developers of distributed renewable technologies and supported by SunEdison.

compensates the utility for the minimal usage of the utilities' distribution network to serve satellite accounts.

Lastly, while we believe the virtual net metering provisions of the Governor's bill will serve as an important catalyst to landfill-based solar development in Connecticut, the state's comprehensive strategy should go further if solar is to become a meaningful part of the state's overall resource mix. Specifically, we support the many measures referred to this committee to reduce the crushing burden of property taxes on non-residential solar energy systems. Our position on this issue is detailed in the written testimony we submitted on Senator Looney's bill (SB 203) to provide a property tax exemption for solar systems serving commercial and industrial consumers.

Thank you for your consideration of our views. We look forward to working with the members of the Joint Committee and the Administration as these important policies move forward.

Fred Zalcman
Managing Director of Govt. Affairs, Northeast States
SunEdison LLC
16 Windaway Road
Bethel, CT 06801
(301) 974-2721

VIRTUAL NET METERING

COMPARISON TABLE – EXISTING TO PROPOSED

PARAMETER	SECTION 121	GB 6360	COALITION PROPOSAL
Eligible segments	Municipalities only	Municipalities, state govt., agricultural customers	Same as GB 6360 plus commercial
Eligible systems	Class I	Class I, III	Same as GB 6360
System size	2 MW	3 MW	Same as GB 6360
Beneficial accounts - number	5 accounts	5 accounts; 10 for microgrids and agricultural net metering	10 accounts; 15 for microgrids and agricultural net metering
System ownership	Host must own	Own, lease, or long term K	Same as GB 6360
Value of NEM credits	Generation only	Generation plus 80% of all non-energy charges	Same as GB 6360
Aggregate cap	$1 million in annual NEM credits statewide	$10 million in annual NEM credits statewide	2% of utility peak load

PROPOSED REVISIONS TO SECTION 5 OF GB 6360

Red denotes proposed revisions to GB 6360

Sec. 5. Section 16-244u of the general statutes is repealed and the following is substituted in lieu thereof (*Effective July 1, 2013*):

(a) As used in this section:

(1) "Beneficial account" means an in-state retail end user of an electric distribution company designated by a customer host or an agricultural customer host in such electric distribution company's service area to receive virtual net metering credits from a virtual net metering facility or agricultural virtual net metering facility;

(2) "Customer host" means an in-state retail end user of an electric distribution company that owns, leases or enters into a long-term contract for a virtual net metering facility and participates in virtual net metering;

(3) "Agricultural customer host" means an in-state retail end user of an electric distribution company that uses electricity for the purpose of agriculture, as defined in subsection (q) of section 1-1, owns an agricultural net metering facility and participates in agricultural virtual net metering;

[(3)] (4) (A) "Unassigned virtual net metering credit" means, in any given electric distribution company monthly billing period, a virtual net metering credit that remains after both the customer host and its beneficial accounts have been billed for zero kilowatt hours related [solely] to the generation service charges and eighty per cent of the distribution and other service charges on such billings through virtual net metering;

(B) "Unassigned agricultural virtual net metering credit" means, in any given electric distribution company monthly billing period, an agricultural virtual net metering credit that remains after both the agricultural customer host and its beneficial accounts have been billed for zero kilowatt hours related to the generation service charges and eighty per cent of the distribution and other service charges on such billings through agricultural virtual net metering;

[(4)] (5) "Virtual net metering" means the process of combining the electric meter readings and billings, including any virtual net metering credits, for a municipal, commercial, state or agricultural customer host and a beneficial account related to such customer host's account through an electric distribution company billing process related [solely] to the generation service charges and eighty per cent of the distribution and other service charges on such billings;

[(5)] (6) "Virtual net metering credit" means a credit equal to the retail cost per kilowatt hour the customer host may have otherwise been charged for each kilowatt hour produced by a virtual net metering facility that exceeds the total amount of kilowatt hours used during an electric distribution company monthly billing period; and

[(6)] (7) (A) "Virtual net metering facility" means a Class I renewable energy source or a Class III source that: [(A)] (i) Is served by an electric distribution company, owned, leased or subject to a long-term contract by a customer host and serves the electricity needs of the customer host and its beneficial accounts; [(B)] (ii) is within the same electric distribution company service territory as the customer host and its beneficial accounts; and [(C)] (iii) has a nameplate capacity rating of [two] three megawatts or less; and

(B) "Agricultural virtual net metering facility" means a Class I renewable energy source that is operated as part of an agricultural business, as defined in subsection (q) of section 1-1 that: (i) Is served by an electric distribution company on land owned or controlled by an agricultural customer host and serves the electricity needs of the agricultural customer host and its beneficial accounts; (ii) is within the same electric distribution company service territory as the agricultural customer host and its beneficial accounts; and (iii) has a nameplate capacity rating of three megawatts or less.

(b) Each electric distribution company shall provide virtual net metering to its municipal, [customers] commercial, state or agricultural customer hosts and shall make any necessary interconnections for a virtual net metering facility. Upon request by a municipal, commercial, state or agricultural customer host to implement the provisions of this section, an electric distribution company shall install metering equipment, if necessary. For each municipal customer host, such metering equipment shall (1) measure electricity consumed from the electric distribution company's facilities; (2) deduct the amount of electricity produced but not consumed; and (3) register, for each monthly billing period, the net amount of electricity produced and, if applicable, consumed. If, in a given monthly billing period, a municipal, commercial, state or agricultural customer host supplies more electricity to the electric distribution system than the electric distribution company delivers to the municipal, commercial, state or agricultural customer host, the electric distribution company shall bill the municipal, commercial, state or agricultural customer host for zero kilowatt hours of generation and assign a virtual net metering credit to the municipal, commercial, state or agricultural customer host's beneficial accounts for the next monthly billing period. Such credit shall be applied against the generation service component [of] and eighty per cent of the distribution and other service charges billed to the beneficial [account] accounts. Such credit shall be allocated among such accounts in proportion to their consumption for the previous twelve billing periods.

(c) An electric distribution company shall carry forward any unassigned virtual net metering generation credits earned by the municipal, commercial, state or agricultural customer host from one monthly billing period to the next until the end of the calendar year. At the end of each calendar year, the electric distribution company shall compensate the municipal, commercial, state or agricultural customer host for any unassigned virtual net metering generation credits at the rate the electric distribution company pays for power procured to supply standard service customers pursuant to section 16-244c, and eighty per cent of the distribution and other service charges.

(d) At least sixty days before a municipal, commercial, state or agricultural customer host's virtual net metering facility becomes operational, the municipal, commercial, state or agricultural customer host shall provide written notice to the electric distribution company of its beneficial accounts and the percentage of virtual net metering credits it wishes to allocate to each beneficial account and the percentage of virtual net metering credits it wishes to allocate to each beneficial account. The municipal, commercial, state or agricultural customer host may change its list of beneficial accounts not more than once annually by providing another sixty days' written notice. The municipal, commercial, or state customer host shall not designate more than ten [five] beneficial accounts, except that for facility accounts connected to a microgrid, the municipal or state customer host may identify up to five additional nonstate or municipal critical facilities, as defined in subdivision (2) of subsection (a) of section 16-243y. The agricultural customer host shall not designate more than ten beneficial accounts each of which shall use electricity for the purpose of agriculture, as defined in subsection (q) of section 1-1.

(e) On or before February 1, 2012, the [Department of Energy and Environmental Protection] Public Utilities Regulatory Authority shall conduct a proceeding to develop the administrative processes and program specifications, including, but not limited to, a cap of [[one] ten million dollars per year apportioned to each electric distribution company based on consumer load for credits provided to beneficial accounts pursuant to subsection (c) of this section and payments made pursuant to subsection (d) of this section] two percent of each electric distribution company's 2012 peak demand. When eighty percent of this cap has been reached, the Public Utilities Regulatory Authority shall conduct a proceeding to determine whether the program should be expanded beyond the two percent cap.

(f) On or before January 1, 2013, and annually thereafter, each electric distribution company shall report to the [department] authority on the cost of its virtual net metering program pursuant to this section and the [department] authority shall combine such information and report it annually, in accordance with the provisions of section 11-4a, to the joint standing committee of the General Assembly having cognizance of matters relating to energy.

CONNECTICUT AFL-CIO

56 Town Line Road, Rocky Hill, CT 06067
860-571-6191 fax 860-571-6190

#28

Testimony of Todd Berch

Before the Energy and Technology Committee

Thursday March 7, 2013

Good Afternoon Senator Duff, Representative Reed, and members of the Energy and Technology Committee. My name is Todd Berch and I am with the Connecticut AFL-CIO.

I am here today to testify on behalf of the 900 affiliated local unions representing members from all 169 cities and towns of Connecticut in **support of the Governor's Bill Number 6360 – An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.**

Attached to this testimony is a resolution passed by the delegates at the 2012 Connecticut AFL-CIO convention. This resolution is in alignment with the goals of the proposed bill to reduce energy costs for residences and businesses. This bill also achieves environmental goals and creates local green jobs.

An estimated 7,000 jobs will be created to build approximately 900 miles of gas mains and upgrading aging infrastructure that is need of repair. There will also be a demand for installers of high efficiency equipment that will reduce energy consumption and energy costs of the consumer.

The Connecticut AFL-CIO, its affiliates, and the central labor councils are poised and ready to educate our members and community outreach programs on conservation, energy alternatives, and choices of energy conversion and equipment upgrades.

We firmly believe that making energy conservation choices will lead to lower demand and lower costs when coupled with weatherization and energy audits.

This energy strategy will also make Connecticut manufacturers and other business more competitive by reducing energy costs that are burdensome to Connecticut's economy and job growth.

We are also committed to seeking renewable and alternative forms of energy technologies by prioritizing the development and manufacturing of these technologies here in the State of Connecticut.

We appreciate the committee holding this public hearing and would be happy to address any questions.

Thank You

PRESIDENT
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Michael Petosa
Ronald Petronella
Roberta Price
Robert Proto
Peter Reilly
Carmen Reyes
David Roche
Edward Sasso
Patrena Smith
Valerie Stewart
Ray Soucy
James R Wallace, Jr
Paul Wallace
Kurt Westby

RESOLUTION 4: **SUPPORT DIALOGUE FOR A CLEAN ENERGY ECONOMY THAT CREATES JOBS**

WHEREAS, global warming poses a direct threat to the well-being of the lives and livelihoods of working people in Connecticut, the United States, and the world, and

WHEREAS, labor must take a leading role in addressing this local, national, and global threat, and

WHEREAS, a respectful and productive dialogue with our religious, environmental, community and other allies is crucial for this effort, and

THEREFORE BE IT RESOLVED that the Connecticut AFL-CIO enthusiastically endorse the joint gathering of Connecticut labor, religious, environmental, and community groups and allies on June 26, 2012 to initiate such a dialogue,

THEREFORE BE IT FURTHER RESOLVED that the Connecticut AFL-CIO pledge to participate in a future on-going dialogue to work together for a clean energy economy that creates green jobs that fights climate change by reducing greenhouse gas emissions to a scientifically safe level.

Submitted by the Legislative Resolutions Committee

Convention: APPROVE REJECT

#34

Connecticut Farm Bureau Association
775 Bloomfield Ave., Windsor, CT 06095-2322
(860) 768-1100 • Fax (860) 768-1108 • www.cfba.org

March 7, 2013

Testimony in support of: HB No. 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY and HB 6535 AN ACT REDEFINING CLASS I RENEWABLE ENERGY SOURCES. and in opposition to HB 6532 AN ACT CONCERNING CERTIFICATION OF CLASS I AND CLASS II RENEWABLE ENERGY SOURCES AND CLASS III SOURCES, RENEWABLE ENERGY CREDITS AND ALTERNATIVE COMPLIANCE PAYMENTS

Submitted by: Henry N. Talmage, Executive Director, Connecticut Farm Bureau Association

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The following testimony is submitted on behalf of the Connecticut Farm Bureau, a statewide nonprofit membership organization of over 5,000 families dedicated to farming and the future of Connecticut agriculture.

Senator Duff, Representative Reed, members of the committee,

Connecticut agriculture is a $3.5 billion industry comprising over 20,000 jobs to the states economy according to a 2010 University of Connecticut study. There is significant interest in local foods and farm products and the Governor's Council for Agricultural Development has spent the last year focusing on the potential for growth in agriculture as a legitimate economic development strategy. In particular the Council is charged with making recommendations on how to increase the amount of CT grown food consumed by the residents of the state from less than 1% to not less 5% by 2020. While consumer demand for Connecticut Grown products is high year round, Connecticut's natural growing season is short, which limits supply in late fall, winter, and spring. Connecticut already has the infrastructure of a large, established greenhouse sector that could potentially produce much more food year round through controlled-environment cultivation. However Connecticut's high energy costs limit this opportunity to compete with other states, Canada, and Europe, which have much lower energy costs and currently supply much of our fresh, greenhouse-grown produce during the off-season. Connecticut farmers and agricultural experts have identified the very high energy costs as a significant impediment to growing our industry and creating new jobs

A key initial recommendation of the Governor's Council on Agricultural Development is to encourage the state to develop an agricultural-friendly energy policy that includes agricultural net-metering and encourages on-farm renewable energy generation to lower production costs and provide additional revenue to farmers. Anaerobic digestion and on-farm combined heat and power projects offer enormous potential for Connecticut's farms to use waste products such as manure and food waste and Connecticut grown renewable fuels and turn them into clean energy.

In Europe on-farm energy generation has become commonplace. In the Netherlands for example 20% of their domestic power generation comes from farms. They have recognized the significant benefits of having a strong local agricultural base and the economic and environmental benefits it provides to their rural communities.

The Connecticut Farm Bureau supports HB 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. We are particularly pleased with the inclusion of the agricultural virtual net metering provisions in the bill. We are however concerned with the limitation of 10 agricultural beneficial accounts for anaerobic digestion projects. In the case of anaerobic digestion, it would not likely be possible to use the excess power generated by utilizing only 10 beneficial agricultural accounts because of the scale of the projects and the relatively limited power usage of farms. For these type projects we would like to see the beneficial accounts expanded to match the project power outputs.

We also support HB 6535 AN ACT REDEFINING CLASS I RENEWABLE ENERGY SOURCES. this important bill as it clearly establishes anaerobic digestion as a Class I renewable source. We encourage that provisions be included to clearly allow for the use of source separated organic food waste from supermarkets, restaurants, and other sources in agricultural anaerobic digesters.

We oppose HB 6532 AN ACT CONCERNING CERTIFICATION OF CLASS I AND CLASS II RENEWABLE ENERGY SOURCES AND CLASS III SOURCES, RENEWABLE ENERGY CREDITS AND ALTERNATIVE COMPLIANCE PAYMENTS. This bill would provide for a reduction in the RPS alternative compliance payments from 5.5cts / kwh to 3.33 cts / kwh. We believe that this would only make it easier to source non-Connecticut generated power and will have the effect of driving down the value of Renewable Energy Credits. This would make local power generation projects less likely to be built and would cost jobs and local economic development.

The Connecticut Farm Bureau applauds the Governor, DEEP and the Energy Committee for recognizing the importance of sound agricultural energy policy and we appreciate the opportunity to provide you with this testimony.

#34

Green Power Solutions, Inc.

Unlocking the power of biomass

TESTIMONY OF WILLIAM REES, PRESIDENT

GREEN POWER SOLUTIONS, INC.

before the

ENERGY & TECHNOLOGY COMMITTEE

HOUSE BILL 6360: AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Senator Duff, Representative Reed, Senator Chapin, Representative Hoydick and Members of the Energy & Technology Committee:

My name is William Rees and I am President of Green Power Solutions, Inc., a biomass development company focused on turning biomass into energy and value. GPS is working with connecticut farmers to construct on-farm anaerobic digesters (AD) facilities. These systems generate clean energy biogas/electricity, Cogen Heat, & fertilizer from the processing of manures, food and AG wastes

I am here to testify in support of House Bill 6360, specifically Section 5, which includes agricultural customer hosts to employ virtual net metering (VNM).

The Fairvue Farms Woodstock AD is expected to secure $15 million dollars in private investment with six similarly sized projects around the state expecting to construct facilities in the near future. Securing this equity requires s favorable value for the energy and renewable attributes. This Bill offers a VNM solution that gives value to Farm Energy. It is essential that agricultural energy producers receive both the generation charges and 80 percent of the distribution value of their beneficial accounts.

As a result of the VNM credit structure contained within the bill, Connecticut agriculture is anticipated to see an initial investment boost of **more than $100 million dollars** from private sources throughout the value chain of the industry.

There is one section of the bill that it still causes problems for Agricultural customers participating in VNM for AD is Section 5(d), which limits the amount of beneficial accounts to ten. Unfortunately, agricultural customers in Connecticut do not have enough demand to offset all of the generation from the AD projects they host. In order to make up the difference between what can be produced and consumed, we suggest that agricultural hosts be permitted to add state agencies and municipalities, which are already permitted to participate in VNM, to their list of beneficial accounts. Another option may be to open the agricultural beneficial accounts to include commercial food system accounts, such as food manufacturers, distributors

and retailers, including supermarket chains with large refrigeration demands This way, beneficial accounts will include agricultural-related food suppliers along with farms themselves.

Thank you for the opportunity to appear here today and speak in support of this important bill for Connecticut farmers that advances the State's renewable goals.

Regards,

William Rees
Green Power Solutions, Inc.
PO Box 501
Woodstock CT 06281

#33

Connecticut Light & Power

The Northeast Utilities System

The Northeast Utilities System

TESTIMONY OF JAY FLETCHER
THE CONNECTICUT LIGHT AND POWER COMPANY
and YANKEE GAS SERVICES COMPANY

Energy and Technology Committee
March 7, 2013

RE: GOVERNOR'S BILL NO. 6360, *AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY*

Good afternoon. My name is Jay Fletcher, Director of Regulatory Policy for Northeast Utilities Service Company. I am appearing on behalf of The Connecticut Light and Power Company and Yankee Gas Services Company. Here with me today is Stephen Gibelli, Assistant General Counsel for NUSCO.

The proposed legislation implements several of the items contained in the Governor's Comprehensive Energy Strategy ("CES"). While we support many of the principles in the CES, there are some aspects of this legislation, however, where we offer suggested changes for your consideration. We would like to highlight those that we support as well as those that concern us.

Section 1 of the bill authorizes PURA to implement full decoupling at the time of the utility's next rate case. Decoupling is critical to ensure that the utilities can implement many of the programs outlined in the CES, without concern for lost revenues. We have long supported decoupling, and support the language of Section 1.

Section 19 of the bill contains language legislating certain provisions of the gas companies' existing "hurdle rate" model. The hurdle rate model is used by the gas companies to evaluate the cost effectiveness of adding additional customers. The provisions of this section extend the time horizon over which the model is analyzed. This provision will enable more customers to "pass" the hurdle rate model, therefore eliminating the need for those customers to make an upfront payment to the gas company prior to receiving service. We have found that, generally speaking, once a customer converts to natural gas that customer will most likely remain a customer for a

very long time, most often in excess of 25 years. So, it is logical to align the hurdle rate model accordingly.

The last sentence in this section provides for PURA to allow gas companies to forecast revenues that would reasonably be anticipated to occur up to three years after a gas line is constructed in a given neighborhood. Currently, only the revenues from the customer for whom a gas extension is run count in the hurdle rate model, yet history has shown that, once the line is built, other customers will also convert. This provision allows for those incremental revenues to be counted in the hurdle rate model, thus making it easier for that initial customer to receive gas service. The alternative would be that the first customer would have to bear the entire cost of the line and, most likely, would choose not to make that investment. While three years is helpful, allowing the gas companies to reasonably forecast revenues for up to five years would be an added benefit and allow even more customers to convert to natural gas. We support this section and believe our suggestions will be beneficial.

Section 5 of the proposed legislation expands the virtual net metering provisions currently in statute, allowing state and agricultural facilities to participate in a virtual net metering program. We are concerned about this provision for several reasons. First, and foremost, the credits given to the beneficial accounts designated by the host net metering facility will end up being subsidized by all of our other customers. Expanding the subset of customers who can take advantage of virtual net metering, and by increasing the cap from $1 million to $10 million annually, this subsidy will grow larger. These subsidies are unfair to non-participating customers and will result in higher rates to these customers to support this program.

Second, while the bill increases the program cap from $1million to $10 million, it does not provide for the timely recovery of these costs by the electric distribution companies. Section 5 also introduces a credit of a portion of the host customer's distribution charges as part of the virtual net metering credit. It is not clear to CL&P from reading this legislation how this will work. However, this credit to distribution charges is a direct erosion of CL&P's approved revenue requirement. CL&P requests that the bill provide for cost recovery of the program and lost distribution revenues through the non-bypassable federally mandated congestion charge pursuant to Conn. Gen. Stat. §16-243p.

In summary, we oppose Section 5 of the bill.

Section 8 of the bill pertains to microgrids. We support microgrids and DEEP's microgrid pilot program. We have worked with DEEP and potential microgrid owners on designs that will benefit the state, that live within the specific parameters created by DEEP for the purpose of developing this program and do not infringe upon the electric distribution companies' franchise rights. We would suggest that the legislature allow DEEP to complete its pilot program, which is currently underway, before any further changes are proposed to statute in regards to microgrids.

This section allows microgrids to cross the public rights of way. We, as the franchise utility, regulated by PURA, have the responsibility to safely and reliably distribute electricity to our customers. This provision begins to dismantle that covenant. There is also a public safety concern with allowing non-utility entities, not regulated by PURA, to distribute electricity across public rights of way. In daily operation, and, more specifically during an electric outage, the delivery and restoration of power is complicated and requires great coordination and synchronization of systems. CL&P is very concerned that allowing other entities to either build their own or utilize existing distribution facilities will cause confusion. This confusion has the potential to jeopardize the safe and reliable distribution of electricity.

For the aforementioned reasons, we feel that the language of Section 8 is unnecessary and we oppose its inclusion in this bill. While we do not support Section 8 as written, we are supportive of microgrids and will continue to work with DEEP through the implementation of its ongoing pilot program.

Section 6 of the bill contains an expansion of the current allowances for submetering. While there are certain protections afforded to submetered customers in this section, they fall short of the numerous protective statutes and regulations that protect non-submetered customers. As written these customers will have no regulations protecting them with respect to termination, late payment charges, meter testing, and termination notices, among many others. Existing legislation already allows PURA to grant exemptions to the submetering prohibition. Therefore, we believe this section is unnecessary.

Section 7 of the bill is vague, as written we have questions regarding the intent of this section. If the intention here is to allow customers to aggregate bills to avoid certain charges such as the customer charge, then we are deeply concerned that this would be a direct erosion of our revenue requirement which will ultimately cause other customers' costs to increase. If the intention is to simply allow for administrative ease, the printing of bills into a single statement, keeping all charges from the original bills intact, then our concerns are lessened. Such a provision could require costly changes to our computer systems to allow these bills to be combined.

Thank you for the opportunity to provide testimony on this bill.

#26

MICHAEL D. GAYDA, PRESIDENT
PBF ENERGY TESTIMONY: H.B. NO. 6360
CONNECTICUT GENERAL ASSEMBLY ENERGY AND TECHNOLOGY COMMITTEE
THURSDAY, MARCH 7, 2013

Members of the General Assembly Energy and Technology Committee·

I am Michael D. Gayda, President of PBF Energy, the fifth largest independent U.S. oil refiner; the largest refiner on the East Coast, with refineries in New Jersey and Delaware; and the largest manufacturer of conventional heating oil (HO) in the northeast. Our employees are proud to manufacture the fuels and products that help provide the highest standards of living and mobility in history.

Thank you for providing this opportunity to testify on House Bill 6360. Although we support the decision by states in the northeast to lower the sulfur content in heating oil, we do not produce ultra-low sulfur heating oil and cannot convert our refineries to produce ultra-low sulfur heating oil in time to comply with the schedule proposed in H.B. 6360.

However, the record shows our management team's consistent commitment to a cleaner environment. For example, we managed the first refiner to support lower sulfur gasoline and removing MTBE from gasoline. In 1999 we were the first to supply 15ppm ultra-low sulfur diesel (ULSD) to New York, seven years before ULSD was required by law nationwide.

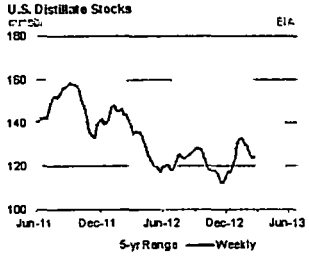
I am testifying because we believe there are serious negative consequences for Connecticut in the proposed bill. I want to increase your awareness of the market dynamics and potential impacts that H.B No. 6360 could have on consumers of heating oil here in the State of Connecticut if you approve the accelerated implementation schedule you are considering today. Instead, you should consider and approve a schedule that moves to 500ppm sulfur heating oil in 2016, and then 15ppm Ultra-low Sulfur Heating Oil (ULSHO) in 2018. This is consistent with the Connecticut Department of Environmental Protection's (DEEP) preliminary schedule, in line with other states in the region, and would prevent Connecticut from being potentially disadvantaged by market factors.

In weighing your vote on this legislation, please consider the following points:

- Under current pricing/supply dynamics, this bill would increase heating oil prices in Connecticut
  - ULSHO costs more to refine - more expensive than conventional HO.
  - The latest state government figures, dated February 14, 2013, show an average 12.3¢/gallon difference in price between HO in Connecticut and ULSHO in New York State.
  - Using 2011 federal estimates of HO sales in Connecticut of almost 550 million gallons as a baseline, Connecticut HO consumers would pay an extra ~$67 million if ULSHO were mandated.
- Switching to ULSHO in 2013 could result in supply constraints.
  - U S. distillate stocks are at their lowest level in many years.
    - Since 2009, 16 refineries have been shut down in the Atlantic Basin, resulting in the loss of 2.575 million barrels per day of refining capacity.
  - ULSHO and ULSD consumers would be competing for the same limited supply.
  - Neither we nor other local suppliers can make more Ultra Low Sulfur Distillates.
  - Due to demand for Ultra-low Sulfur Distillates in Europe, non-North American sources cannot be counted on to supply the U.S. with these fuels.
  - Colonial pipeline is at capacity so additional supplies cannot move by pipe from the US Gulf Coast refiners.
  - Shipping by vessel from the US Gulf Coast is very expensive because of the Jones Act.

MICHAEL D. GAYDA, PRESIDENT
PBF ENERGY TESTIMONY: H.B. NO. 6360
CONNECTICUT GENERAL ASSEMBLY ENERGY AND TECHNOLOGY COMMITTEE
THURSDAY, MARCH 7, 2013

- There is no federal environmental requirement that mandates a change to ULSHO.
  - Connecticut meets the federal EPA clean air standard for fine particulate matter.
- We are taking steps to both increase ULSD production and begin producing ULSHO at our East Coast refineries.
  - Doing this requires projects involving large investments over time ... years rather than weeks ... and PBF Energy is preparing to meet the original target of 15ppm ULSHO by 2018, not an accelerated schedule



Bearing out market forces at work, this US Energy Information Agency (EIA) chart shows U.S. distillate stocks have fallen over the past year - http://www.eia.gov/petroleum/heatingoilpropane/. There are also other logistical factors to consider, some of which were cited by other states when developing their transition to ULSHO. For example, both New Jersey and Pennsylvania cited lack of refinery desulfurization capacity to manufacture an adequate supply of Ultra-low Sulfur Distillates.

Because of market dynamics, we are unable to forecast with any certainty whether there will be enough ultra-low sulfur distillate available to avoid market disruptions and/or price volatility in the future in Connecticut. However, what I can tell you is that since ULSD was required nationwide in 2006, there has been a historical differential between the price of conventional and Ultra-low Sulfur Distillates like the ULSHO you would require this year in Connecticut under this legislation.

In closing, I have laid out a number of logistical and market-based reasons that support rejecting the proposed accelerated implementation plan for ULSHO outlined in H.B No. 6360, and ask that you consider adopting a more measured transition schedule for moving to 15ppm ULSHO that takes these factors into consideration.

I am pleased to have had this opportunity to share PBF Energy's perspective with you. Thanks again for this opportunity and I welcome your questions at this time.

Michael D. Gayda, President
PBF Energy Inc.
1 Sylvan Way, 2nd Floor
Parsippany, NJ 07054
973-455-7500

Horsky Kathy

From:	*Joyce A~R *soulprints* <soulprints@netzero.net>
Sent:	Thursday, March 07, 2013 1:32 AM
To:	ETTestimony
Cc:	colinthegreat@gmail.com; soulprints@netzero.com; annberman@optimum.net; ahulick@cleanwater.org; seastwood@cleanwater.org
Subject:	Testimony February 7, 2013, Support of Comprehensive Energy Strategy f or CT

CONNECTICUT GENERAL ASSEMBLY
Hearing Before Energy & Technology Committee
On This Day of February 7th, 2013
In Support of Connecticut's Comprehensive Energy Strategy
Joyce Acebo~Raguskus, Chair Diesel Cleanup, Environmental Concerns Coalition, Clean Water Action, Advocate, Coalition for A Safe & Healthy CT, 350CT HB 6360

Good Day. Thank you for this opportunity to be heard. My name is Joyce Acebo~Raguskus, from Milford, Connecticut, Chair Diesel Cleanup, Environmental Concerns Coalition, Advocate with Clean Water Action, Coalition for A Safe & Healthy CT, and 350CT. **I fully support Governor Malloy's signing a strong Comprehensive Energy Strategy for Connecticut set forth by DEEP.**

Milford is still recovering from the effects of Climate Change with coastal damage from 2012's hurricanes and our recent unprecedented 38 inches of fresh snow! I'm still recovering from weeks of bronchitis. Our contribution to high CO2 levels does not discriminate if we own a pair of human lungs. We all want to breathe easy, stay warm in winter, and not have to depend on candlelight, when our energy resources fail.

As our own Gina McCarthy, now head of Environmental Protection Agency shares when entering her new post this Monday, there is no discussion about if, Climate Change is. The discussion put forth will be only 'what are we going to do about it?"
Action is the operative for our government and our state of Connecticut, Climate Action.
Governor Malloy comprehends the decades of dependency on fossil fuel has contributed to 'serious air pollution problems and the build up of greenhouse gases, and other harmful emissions in the atmosphere."
Integrated levels of strong Comprehensive Energy Strategy long term, must prevail.
I fully support the words of the Governor, CT must strengthen, become more resilient and renewable power, cost effective."
Our citizens future in Connecticut must present a climate safer, stronger and healthier. We must work together to plan energy strategy that compliments the earth with the well being of its inhabitants, help to balance with nature.
I fully support Governor Malloy in strong and essential energy plan for Connecticut's Climate Action.

Joyce Acebo~Raguskus
174 Eastern Parkway
Milford, Connecticut 06460

TESTIMONY OF THE
NEW ENGLAND CLEAN ENERGY COUNCIL

Regarding
H.B. No. 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy and Related Bills

Submitted by
Janet Gail Besser
VP, Policy and Government Affairs

Chairman Duff, Chair Reed and Members of the Energy and Technology Committee:

The New England Clean Energy Council (NECEC or Council) greatly appreciates the opportunity to comment on H.B. No. 6360, *An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy* (CES or Strategy) and related bills being heard today.

HB6532

The New England Clean Energy Council is a clean energy business association whose mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies. The Council's members and sponsors include clean energy businesses, services and technology companies, venture investors, major financial institutions, universities, industry associations, utilities, labor and large commercial end-users. They span the broad spectrum of the clean energy sector, including energy efficiency, renewable energy (e.g., solar, wind, hydro, anaerobic digestion), combined heat and power (CHP), biofuels, advanced and "smart" technologies (e.g., smart grid, fuel cells, storage, batteries, materials), among others. A cross-section of our members are operating and investing in Connecticut and more are interested in doing so.

Implementation of the Comprehensive Energy Strategy is an opportunity for Connecticut to provide national leadership in advancing clean energy, while stabilizing and lowering Connecticut's energy costs over the long term and reducing the environmental impacts of its energy use. Thoughtful legislation that makes a sustained commitment to clean sources of energy will be needed to provide the necessary legal and regulatory framework to guide implementation of the Strategy and to realize its objective of a "cheaper, cleaner and more reliable" energy future for Connecticut – saving customers money, creating well-paying jobs, making the energy system more resilient, as well as improving the environment.

The New England Clean Energy Council looks forward to working with the Energy and Technology Committee as it undertakes the important task of enacting this legislation. To that end, we offer these brief comments on H.B. No. 6360. We will follow up with more detailed comments and information on this and the other bills being heard today.

ENERGY EFFICIENCY

The New England Clean Energy Council applauds the energy efficiency provisions in H.B. No. 6360. With this bill, Connecticut will join other New England states in a commitment to invest in all cost-effective energy efficiency. Moreover, the legislative directive to decouple utilities' revenues from energy sales, removing an obstacle to their aggressive pursuit of all cost-effective energy efficiency, moves Connecticut to the forefront of energy efficiency policy. Additional provisions for three-year efficiency plans, fully reconciling conservation adjustment mechanisms, building thermal efficiency and coordination among the various state entities involved in energy efficiency will further ensure that Connecticut is capturing the benefits of all cost-effective energy efficiency for its citizens.

In addition, establishing a permanent oil heat efficiency funding mechanism and efficiency investment requirements for customers converting to natural gas would reduce costs for all energy users. It would also maximize the value and minimize the costs of gas conversions over the long term. We respectfully urge you to incorporate these elements into the appropriate bills under consideration.

RENEWABLE ENERGY

The New England Clean Energy Council is pleased to see the provisions for virtual net metering in H.B. 6360 and will be offering some additional language for the Committee's consideration to ensure that implementation takes full advantage of renewable and clean energy opportunities in Connecticut. We also recommend that the Committee modify H.B. 6532 to maintain incentives and support for a broad range of renewable and clean energy under the Renewable Portfolio Standard (RPS) and will offer some language for your consideration here as well.

In addition, we respectfully urge the Committee to consider legislation to establish a long-term contracting process for energy as well as Renewable Energy Certificates (RECs) as a way to reduce the cost of renewable and clean energy for Connecticut's citizens, businesses and industries. Competitively bid long-term (e.g., 20+ year) contracts have proven effective in encouraging renewable energy development in a cost-effective manner.

Finally, while not directly addressed in the bills being heard today, as the Committee considers changes to Connecticut's RPS, the New England Clean Energy Council strongly the Committee *not* to include large hydro as a qualifying technology. Large hydro can play an important role in diversifying Connecticut's energy mix, reducing its costs and achieving its greenhouse gas reduction goals. However, inclusion of large hydro in the RPS will undermine achievement of its objective – encouraging deployment of new renewables using market mechanisms that increase competition and bring about price declines, along with local economic development benefits. The New England Clean Energy Council would welcome the opportunity to work with the Committee to identify an appropriate way to capture the benefits of large hydro for Connecticut without undermining the great progress it has made and can continue to make in supporting cost-effective clean energy development.

Thank you very much for the opportunity to provide these comments on H.B. 6360 and the other bills before you today. As background information, I have attached a short

summary of the New England Clean Energy Council's comments on the draft Comprehensive Energy Strategy, dated January 24, 2013; our detailed comments on the draft, dated December 14, 201;, and our letter to Governor Malloy and Commissioner Esty on the final version of the Strategy, dated February 19, 2013. As you move forward with legislation to implement the Comprehensive Energy Strategy, the Council urges you to take the steps needed to invest in clean energy sources today to ensure that they provide lower cost energy for Connecticut tomorrow and over the long term, taking into account the security, diversity, economic and environmental benefits they can provide.

Sincerely,

Janet Gail Besser
VP, Policy and Government Affairs

CC: Peter Rothstein, President
New England Clean Energy Council

new england clean energy council

December 14, 2012

Commissioner Daniel C. Esty
Connecticut Department of Energy
and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Dear Commissioner Esty:

The New England Clean Energy Council (NECEC) greatly appreciates the opportunity to offer these comments on the Connecticut Department of Energy and Environmental Protection's (DEEP) draft 2012 Comprehensive Energy Strategy (Strategy) for Connecticut, dated October 5, 2012. NECEC would like to commend Connecticut and DEEP's leadership in developing a comprehensive energy strategy.

NECEC is a membership organization whose mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies. NECEC's members and sponsors include clean energy businesses, services and technology companies, venture investors, major financial institutions, universities, industry associations, utilities, labor and large commercial end-users. They span the broad spectrum of the clean energy sector, including energy efficiency, renewable energy (e.g., solar, wind, hydro, anaerobic digestion), combined heat and power (CHP), biofuels, advanced and "smart" technologies (e.g., smart grid, storage, batteries, materials), among others A cross-section of our renewable, biomass, thermal, efficiency and energy services members are operating and investing in Connecticut and more are interested in doing so.

NECEC notes that The Comprehensive Energy Strategy is an opportunity for Connecticut to continue to provide national leadership in clean energy. A sustained commitment to clean sources of energy will accomplish the Strategy's objective of a cheaper, cleaner and more reliable energy future for Connecticut – saving customers money, creating well-paying jobs, making the energy system more resilient as well as improving the environment. The draft Strategy contains many great ideas to accomplish these goals. NECEC offers these comments to improve and build upon them.

NECEC looks forward to working with Connecticut policymakers, legislators and regulators to finalize the Comprehensive Energy Strategy and move forward with implementation of its recommendations.

Sincerely,

Peter Rothstein
President

Janet Gail Besser
Vice President, Policy and Government Affairs

cc: Debra Morrell

new england clean energy council

INTRODUCTION

The New England Clean Energy Council (NECEC) greatly appreciates the opportunity to offer these comments on the Connecticut Department of Energy and Environmental Protection's (DEEP) draft 2012 Comprehensive Energy Strategy (Strategy) for Connecticut, dated October 5, 2012.

The Comprehensive Energy Strategy is an opportunity for Connecticut to continue to provide national leadership in clean energy. A sustained commitment to clean sources of energy will accomplish the Strategy's objective of a cheaper, cleaner and more reliable energy future for Connecticut – saving customers money, creating well-paying jobs, making the energy system more resilient as well as improving the environment. The draft Strategy contains many great ideas to accomplish these goals. NECEC offers these comments to improve and build upon them.

NECEC is a membership organization whose mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies. NECEC's members and sponsors include clean energy businesses, services and technology companies, venture investors, major financial institutions, universities, industry associations, utilities, labor and large commercial end-users. They span the broad spectrum of the clean energy sector, including energy efficiency, renewable energy (e.g., solar, wind, hydro, anaerobic digestion), combined heat and power (CHP), biofuels, advanced and "smart" technologies (e.g., smart grid, storage, batteries, materials), among others. A cross-section of our renewable, biomass, thermal, efficiency and energy services members are operating and investing in Connecticut and more are interested in doing so.

NECEC seeks to provide education and insight on issues vital to the clean energy technology sector. We advocate for policies that are critical to ensure consistent market signals to drive investment and economies of scale in this young and rapidly growing industry – one which is already bringing energy, economic and environmental benefits to Connecticut's and New England's citizens, businesses and industries.

NECEC would like to commend Connecticut and DEEP's leadership in developing a comprehensive energy strategy. The energy industry has and will continue to be extremely capital intensive, with assets and infrastructure that remain in place for 40 or 50 years and beyond. Many of the investment choices made today will have implications for decades to come. DEEP's effort to step back and take a broad and long view of the energy landscape, present and future, is very constructive and should help to ensure that the strategy achieves the goal of a cheaper, cleaner and more reliable energy future for Connecticut.

NECEC offers comments in the following areas: Energy Efficiency and Incentives; Smart Grid, including dynamic pricing; Renewable Energy, including Renewable Portfolio Standards (RPS) and Long-Term Contracting; the Regional Greenhouse Gas Initiative (RGGI); Natural Gas; Innovation and Transportation.

ENERGY EFFICIENCY AND INCENTIVES

NECEC strongly supports the draft Comprehensive Energy Strategy's focus on investing in all cost-effective energy efficiency. Efficiency is the cheapest and cleanest energy resource and should be the "first fuel." Policies and a regulatory framework that encourages aggressive pursuit of all cost-effective energy efficiency should put Connecticut back at the top for energy efficiency policy in the US.

It will be critical to ensure adequate funding to achieve the goal of implementing all cost-effective energy efficiency. Broader and deeper energy efficiency will require a sustained commitment from the Governor, Assembly, DEEP and Public Utilities Regulatory Authority (PURA). Connecticut's electric and gas utilities should be required to develop long-term plans for achieving all cost-effective energy efficiency to be filed with the PURA for review and approval. PURA should act to ensure adequate utility funding for energy efficiency over a reasonably long time frame (e.g., three years). The draft Strategy appropriately recognizes that aligning utility incentives with achieved efficiency savings and removing disincentives will be necessary to encourage aggressive utility pursuit of energy efficiency. The PURA should move forward quickly to decouple utility revenues from sales to accomplish this.

As the draft Comprehensive Energy Strategy notes, the funding for all cost-effective energy efficiency can and should come from a variety of sources. Connecticut should continue and build on its innovative and nation-leading approach of using public money to leverage private investment. This is embodied by the Connecticut Clean Energy and Financing Investment Authority (CEFIA.) Innovative financing mechanisms such as the Commercial Property Assessed Clean Energy program (C-PACE) will also make good use of public dollars. CEFIA should explore other models of encouraging third party investment energy efficiency and demand response, too.

The focus on efficiency in affordable housing will help to ensure that all Connecticut citizens have the opportunity to benefit from energy efficiency investments and that energy costs will be reduced for the most vulnerable customers. C-PACE will help with these efforts.

One area that deserves greater attention is heating oil and/or propane efficiency. DEEP should work with the Assembly to consider a heating oil efficiency funding mechanism, such as a systems benefit charge (SBC) and/or expanded use of electric SBC funds to serve the thermal efficiency needs of heating oil and/or propane heating customers. Approximately 670,000 households (about 50% of the homes) in Connecticut currently heat with oil but have very limited access to existing efficiency programs, such as the

Home Energy Solutions (HES) program to improve the thermal efficiency of their homes. Although the conversion of customers on existing natural gas lines and expansion of gas lines where economic is a laudable statewide policy, it is not practical to assume that most of the oil heat customers can be served by such expansion plans in the near future. We estimate that approximately 13,000 of those homes need a new heating system each year.[1] Oil heating customers should be encouraged and provided incentives to install the most efficient oil or propane fueled furnaces and boilers if they do not have access to natural gas, as these are long-term investments.

DEEP should also explore tightening building codes standards as a relatively low cost way of capturing more energy efficiency. A building benchmarking and disclosure program or building rating system, which would provide more and better information to customers and the market about the energy costs of "operating" a building, should also be implemented.

Finally, natural gas efficiency will be especially important given the draft Strategy's focus on expanding natural gas use for heating. Customers should be encouraged and provided incentives to install the most efficient gas furnaces and boilers, as well as process equipment, as a condition of conversion, since these are long-term investments. There will be a significant lost opportunity if the most efficient gas equipment is not installed at the outset of a gas conversion and expansion effort. In addition to high efficiency equipment such as furnaces, boilers, and air-conditioning equipment, it is imperative that the building thermal improvements such as insulation, air-sealing, and duct sealing are adequately funded.

SMART GRID

While smart and advanced grid technology improvements are referenced, the draft Strategy should be revised to recognize the integrative function of the "smart" grid; it is not a stand-alone activity. There is value in making connections between state energy policy objectives and the ways in which advanced grid capability can help fulfill them. The functional value that smart grid can provide customers can include lower costs due to automation and improved restoration. Smart grid investments can also enable customers to reduce peak demand, thereby improving system load factor, which should reduce costs for Connecticut electricity customers. NECEC urges Connecticut to explore the wide range of new technologies that can help to achieve this goal and to analyze and compare the costs (and benefits) of deploying advanced metering that can enable dynamic price signals that lead to shaving peak demand versus using additional generation and transmission to meet peak needs.

[1] Source: Conservation Services Group, from http://www.fossil.energy.gov/programs/reserves/heatingoil/index.html; http://www.heatingnews.org/heatingoilbasics.php; http://zipatlas.com/us/ma/city-comparison/percentage-households-fuel-oil-heating.htm

Dynamic Pricing

The draft Strategy recognizes that the ability to implement dynamic pricing in a manner that will benefit customers depends on the metering and communications infrastructure in place and appropriately proposes to make rate design changes for Connecticut's two major electric utilities, Connecticut Light and Power and United Illuminating, based on their infrastructure. Establishing the goal to move ahead with time of use or dynamic pricing, in conjunction with smart grid investments, is important though so that customers will have the information they need to manage their energy use and reduce their costs. Dynamic pricing and metering that can provide two-way information can facilitate demand response and customer installation of renewable and clean distributed generation, enabling customers to manage and reduce their energy costs. It can benefit all customers, even small residential and low income customers who may make limited changes to their own usage, as it leads to system peak reductions and/or substitutes for generation, distribution and transmission investment that may otherwise be needed for reliability.[2]

RENEWABLE ENERGY

Streamlining Permitting

The draft Strategy talks about steps to remove obstacles to customer adoption of renewables, such as streamlining permitting and siting to reduce cost. NECEC strongly supports these efforts.

Virtual Net Metering

NECEC also supports the expansion of virtual net metering to promote deployment of renewables, CHP and other clean, efficient distributed generation. Net metering is a regulatory concept that enables a customer of an electric utility to generate and consume electricity from a facility located on its own premises and deduct "net" those kilowatt-hours from the bill it would otherwise pay the distribution company.

However, under current law, Connecticut's virtual net metering is limited in size, available only to municipalities and contains other restrictions which limit its effectiveness.

- Limitations on size to $1 million annually – Basing a cap on dollar size may cause the program size to fluctuate year to year with changes in electricity rates. A solution would be to base the program on a percentage of load as has been done in other states. An absolute MW cap could also be established.

[2] Faruqui, Ahmad, Sergici, Sanem and Akaba, Lamine, Dynamic Pricing of Electricity for Residential Customers The Evidence from Michigan (June 1, 2012) Available at SSRN. http://ssrn com/abstract=2072658 or http //dx doi org/10 2139/ssrn 2072658; and other related articles by Faruqui.

- Restrictions to municipalities only – Limiting virtual net metering to municipal accounts while excluding commercial projects limits the number of eligible, renewable projects, thereby undermining the intent to encourage deployment of renewable and clean distributed generation.
- Requirements for municipal ownership – Requiring a municipality to own the generating facility subjects it to both capital costs and operating risks. Instead of requiring that the generating facility be owned by the municipality, it should be sufficient to require that 100% of the output (net of parasitic load) be sold to the municipality.
- Restriction to generation only charges – While net metering credits are accumulated by the customer host and applied to the host's account at the full retail rate, virtual net metering credits assigned by a customer host to a beneficial account may be applied only against the generation service component of the beneficial account's bill. This is inconsistent and undermines the effectiveness of providing for a "virtual" net metering credit at all.

NECEC therefore recommends that expansion of virtual net metering should be based on a percentage of load rather than a dollar value, should be available to private as well as public customers, should provide flexibility with respect to ownership, and should consistently provide for netting at the retail price.

Microgrids

Microgrids present another opportunity for renewable project development. As Connecticut pursues their deployment, the state should take advantage of clean energy technologies. The state may want to research how the Department of Defense has been looking at clean energy technologies as way to improve energy security and resiliency. The value of these technologies should be recognized and balanced against their costs on a life-cycle basis.

RENEWABLE PORTFOLIO STANDARD (RPS)

NECEC understands that DEEP is undertaking a study of Connecticut's Renewable Portfolio Standard (RPS) in parallel with the development of the Comprehensive Energy Strategy and that this study will consider raising the target, broadening what counts as "renewable," and expanding in-state clean power generation. NECEC looks forward to the opportunity to review and provide stakeholder input to the study. In the meantime, as the approach to and results of this RPS study will significantly affect the draft Strategy, NECEC offers the following comments.

Inclusion of Biofuels

The definitions of qualifying Class I Renewable Energy Sources should be expanded to include biofuels. These can include bio-diesel for transportation, biofuel blended heating oil, and wood pellet heating boilers. Clean energy applications such as

biomass-based heating and cooling systems, using wood pellets, bio-diesel (blended with heating oil), or biogas from anaerobic digestion or landfill gas capture projects, as well as solar water heating and geothermal heating and cooling, increase efficiency and reduce environmental impacts. Biogas, biodiesel, and wood pellets are all eligible to create RECs when used as a fuel to generate electricity and should be eligible for RECs for their thermal applications.[3] The inclusion of thermal Renewable Energy Certificates (RECs) could also reduce the costs of RPS compliance. Depending on the allowed types and percentages of thermal credits, the greater supply of credits could also reduce the costs of RPS compliance helping to achieve the objective of a "cheaper, cleaner and more reliable" energy future for Connecticut.

Inclusion of Anaerobic Digestion

Anaerobic digestion should also be included in the definition of a Class I Renewable. A Class I Renewable Energy Source is defined by Ch. 277 § 16-1(a)(26) as energy derived from solar power, wind power, a fuel cell, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, certain hydropower facilities, and certain biomass facilities. The definition of Class I Renewable Energy Sources does not include anaerobic digestion as an eligible distributed renewable energy generation technology. Uncertainty about the status of anaerobic digestion as a Class I renewable discourages investment.

Anaerobic digestion easily falls within the legislative definition of a Class I Renewable Energy Source. As with other biofuels, biogas from anaerobic digestion is derived from the same organic wastes that generate methane gas in landfills – an approved Class I energy source – yet is typically cleaner, recovered more quickly, and yields higher energy content. For these reasons, several agricultural anaerobic digestion projects have already been classified as Class I Renewable Energy Sources by the PURA. Proposed developers of these facilities should not be discouraged by the uncertainty and expense of seeking an administrative determination of whether they qualify for Class I.

Moreover, support for qualifying anaerobic digestion as a Class I Renewable Energy Source is found in the DEEP Enabling Act (at §103 of P.A. 11-80), which establishes a grant program administered by CEFIA to award loans, grants or power purchase agreements to Connecticut farms and other businesses that specifically use organic waste and on-site anaerobic digestion facilities to generate electricity and heat. The express intent of this legislation is to promote sustainable practices and economic prosperity, including electricity generation by anaerobic digestion.[4]

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[3] The Connecticut Thermal-Renewable Energy Coalition estimates that these fuels are up to 3 5 times more efficient if used to generate heat in thermal applications than if used to generate electricity.
[4] However, while PA 11-80 directed CEFIA to establish a three-year pilot program to promote AD, it limited it to on-site generation For a variety of reasons, there are few economically viable AD opportunities in Connecticut for on-site generation via AD The on-site restriction prevents use of the

Appropriate Role for Canadian Hydro

NECEC recognizes that large Canadian hydro can add another resource to Connecticut's energy portfolio, with the potential to help reduce costs and achieve the state's greenhouse gas reduction goals. A Clean Energy Standard (CES) or a separate RPS class may offer an appropriate way to incorporate large hydro into Connecticut's energy mix. However, it should not be added to Class 1 of the existing RPS.

Large hydro is a mature technology that does not need and should not be eligible for financial support provided by RECs. Moreover, it is important to recognize that the inclusion of large hydro in the RPS, even without the financial support of RECs, will dilute the existing REC market and undermine achievement of the objective of the RPS – encouraging deployment of new renewables using market mechanisms that continue to increase competition and bring about price declines in renewables, along with local economic development benefits. Even if the existing RPS target is increased before allowing large hydro to qualify, it will undermine the market for RECs by reducing the demand that can be met by the renewable resources the RPS was intended to promote.

NECEC understands that the interest in exploring the addition of large hydro to the RPS flows from a view that it will reduce the costs of RPS compliance. This view may be shortsighted. Dollars spent on large hydro from Canada leave the state and region, rather than recirculate in the local economy, providing less economic development here. A better way to reduce the costs of compliance with the RPS is to offer long-term contracts for both energy and RECs.

Long-Term Contracts

Long-term contracts for RECs have encouraged renewable development in Connecticut. Support for renewables could be increased and the costs decreased by expanding long-term contracts to the energy produced in addition to the RECs. NECEC therefore urges DEEP to consider expansion of long-term contracting to include both the energy and the RECs. In addition, extending the term of contracts from 15 to 20 years would reduce costs to customers by reducing the cost of financing for developers.[5] Long-term contracts are one way to reduce the costs of compliance with the RPS.

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program to support the organics diversion objectives embedded in PA 11-217. As a consequence, when CEFIA issued a grant RFP under its §103 authority, there were no proposals. Section 103 should be amended to remove the requirement that digesters be "on-site."

[5] NECEC notes that it appears inconsistent and confusing for Ch 283, the RPS statute, to specify 15-year contracts while authorizing DEEP to pursue longer 20-year contracts. This could be remedied by the following amendments. "Ch. 283 § 16-245a(a)(g)(1) - The electric distribution companies may enter into long-term contracts for ~~not more than fifteen~~ for up to twenty years to procure such renewable energy certificates;" and P A. 11-80 § 110 - . "each electric distribution company shall solicit and file with the Public Utilities Regulatory Authority for its approval one or more ~~fifteen-year~~ twenty-year power purchase contracts with owners or developers of generation projects . ." Note also that Massachusetts recently recognized the value of longer-term contracts and in July, 2012, amended M.G.L. 169, the Massachusetts

Tranche for Emerging and Diverse Technologies

As DEEP moves forward with the RPS study and consideration of expansion of eligible renewables, NECEC urges it to consider the establishment of a tranche or category of long-term contracts for small, emerging or diverse renewable and clean distributed generation. These new and diverse technologies would compete among themselves rather than against renewable and clean technologies that are more advanced in their development. The objective would be to encourage innovation in the renewable and clean energy sector and to capture the benefits of deploying that innovation for Connecticut energy customers. The RPS study should include an assessment of the benefits and costs of supporting this segment.[6]

REGIONAL GREENHOUSE GAS INITIATIVE (RGGI)

NECEC commends Connecticut for its leadership on RGGI. The draft strategy endorses tightening the cap on emissions and seeking to include other states in the program. We urge DEEP and Governor to speak out publicly on this issue and to act to reduce the cap as it deliberates on the RGGI program moving into 2013. NECEC further notes that re-investment of RGGI funds in energy efficiency and clean energy is providing significant economic benefits to Connecticut.[7]

NATURAL GAS

The draft Strategy appropriately includes plans to take advantage of low natural gas prices by connecting customers already on gas mains (i.e., Segment A). Connecticut should take full advantage of currently low natural gas prices. To maximize the value and reduce future risk associated with conversions as gas prices change in the future (as they will certainly do), Connecticut should require (and support through energy efficiency programs) the installation of high efficiency heating equipment and building efficiency measures. The purchase of heating equipment is a long-term investment and the opportunity to install the most efficient equipment should not be lost.

The benefits and costs of building out mains (Segment B) should be evaluated carefully to ensure that investments are made strategically and benefits are maximized. Again, energy efficiency should be built in as a prerequisite for the investment.

Green Communities Act, by Senate Bill 2395 § 36, raising the permitted renewable energy contract term from 15 to 20.

[6] DEEP may want to look at Senate Bill 2395 § 36, creating 10% tranche for long-term contracts for small, emerging and diverse technologies

[7] The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States, Analysis Group, November 15, 2011.

INNOVATION

In addition to the proposal to launch an Advanced Energy Innovation Hub at the University of Connecticut to support basic research on topics such as fuel cells, batteries and storage, microgrid engineering, and small-scale hydropower, NECEC recommends support for moving the most promising of these innovations from basic research to proof of concept and early commercialization. Valuable research needs pathways to commercialization to return value to the Connecticut and broader economy, and solve clean energy market needs. Connecticut Innovations, other appropriate state agencies, and innovation acceleration and investment partners in the private sector should also be supported to engage in helping commercialize the most promising advances from this new Energy Innovation Hub.

TRANSPORTATION

Connecticut is taking a leadership role in proposing to build out electric vehicle (EV) charging and natural gas fueling stations. In addition to these advanced technology transportation options, NECEC suggests that Connecticut should also consider a broad range of advanced transportation technologies and adoption approaches, and not limit transportation considerations to EVs. Progress in advanced biofuels from cellulosic feedstocks and waste streams, new approaches to replicate photosynthesis going directly from sunlight to fuels, use of natural gas converted to methanol liquid fuel, and tax and support efforts could all provide accelerated adoption of electric and hybrid vehicles that could be part of the transportation mix.

CONCLUSION

NECEC again commends DEEP for its leadership and thanks it for the opportunity to offer these comments on the draft Comprehensive Energy Strategy and looks forward to working with Connecticut policymakers, legislators and regulators to finalize it and move forward with implementation of its recommendations.

#35

Home Energy Resource Sheet

Compiled by Connecticut Clean Water Action/ Clean Water Fund

CT Energy Efficiency Fund (CEEF) 1-877-WISEUSE www.ctenergyinfo.org
Utility-administered conservation programs funded by natural gas and electric ratepayers

1. **Whole house conservation programs** (*sign up by calling 1-877-WISE-USE)*

- **Home Energy Solutions (HES)** $99 co-pay (homes with oil/propane heat); $75 (homes with gas/electric heat) for energy-saving services which include air sealing, hot water and lighting improvements, plus rebates and financing for insulation, appliances. Open to renters and owners Insulation rebates for attic, walls: as of 2013, $1 00/sq.ft for all heating fuels.
- **HES Income Eligible**- free in-home energy saving service open to all heating fuels
- **Other income-eligible programs**- http://www.citizensenergy.com/english/pages/116/connecticut
- **New construction program**- call 1-877-WISEUSE for home energy rating and rebates.

2. **Efficient Lighting** including **LED**, is discounted in participating retail stores and through the Smart Living Catalog: http://www.efi.org/smartliving/ or order toll-free at 800-527-4448

3. **Appliance Discounts** *(For details, call 1-877-WISE-USE or ask a Home Energy Solutions contractor)*

- **High efficiency gas furnace**- $600 rebate ($1000 through HES) for Energy Star and 95% AFUE
- **Natural gas boiler with water heater**- $750 rebate ($1500 through HES) for EnergyStar 90%AFUE
- **Natural gas hot water heaters**- $200 rebate for tankless .82EF
- **Oil Furnace**- $200 for 86% AFUE; **Propane Furnace** $200 for AHRI rated 95% AFUE
- **Heat pump water heater** (to replace electric water heater)- $400 rebate for EnergyStar EF > 2.0
- **Central air conditioning & heat pump**- $250 rebate (up to $500 through HES) for certain systems
- **Ductless heat pump heater**- $250 rebate ($1000 for electrically heated homes)
- **Geothermal heat pumps**- $500 per ton (up to $1500) that meet Energy Star 2012 criteria

4. **Energy Efficiency Financing** (800) 992-3665 http //www chif org/page/borrower-information-and-application
A. Insulation loan pilot-$1000-$2500, 0% interest until 6/30/13. Repayment on electric bill
B. Insulation and Appliances- Low-interest (2.99% or 4.99%) loans for measures recommended by Home Energy Solutions $2,500 to $20,000 loans for insulation, heating/ cooling systems, water heaters

Federal Energy Tax Credits http://energytaxincentives org/
30% credit for renewable systems through 2016. Efficiency tax credits 10% up to $500 for 2012, 2013.

Clean Energy Finance and Investment Authority (860) 563-0015 http://www.ctcleanenergy com/
Quasi-public agency funded by electric ratepayers to support renewable electricity

- **Solar photovoltaic (power) incentives**. Also no sales/property tax. www ctcleanenergy com/solarhome/
- **Solar hot water heating rebate**- www ctcleanenergy.com/YourHome *Limited funding remaining*

CT Clean Energy Options and CT Clean Energy Communities
Website: www.ctcleanergyoptions.com and www.ctcleanenergy.com/communities/
Sign-up to support clean, renewable electricity for just a few dollars per month. Residential sign-ups help earn free solar panels for towns which join the Clean Energy Communities campaign.

Questions? Contact Roger Smith of Clean Water Action/ Clean Water Fund
Call 860-232-6232, email hartcwa@cleanwater.org and visit www.cleanwater.org/ct/muni

Revised 1/22/13

Teresa Eickel
478 Prospect Ave, Apt 5, Hartford, CT 06105
Interreligious Eco-Justice Network

Re: Comprehensive Energy Strategy & Governor's Bill 6360

My name is Teresa Eickel and I would like to thank you for hearing my testimony today. Today I would like to comment on the Comprehensive Energy Strategy & Govern or's Bill 6360. I am the Executive Director of the Interreligious Eco-Justice Network, a faith-based environmental group working to empower religious communities in CT to be faithful stewards of the earth. In my capacity as Executive Director and representing hundreds of faith communities, I would like to comment today.

There are a few aspects of the Comprehensive Energy Strategy that I would like to highlight. First, I believe that we should secure funding for energy efficiency measures for all fuels. I do a lot of presentations on climate change with a special emphasis on reducing carbon footprints through energy efficiency measures, such as the Home Energy Solutions program The fact that oil funding is neither as secure or as comprehensive as the funding for natural gas and electric is both detrimental to the program and morally wrong. Many of the faith communities that I work with provide services and support to people in their community – service and support that these people wouldn't be able to get elsewhere. But instead of being able to allocate more funds to help their brothers and sisters, many of these communities struggle to pay their heating bills. I've talked to churches that go through thousands and thousands of oil each season and are still cold all winter long. It isn't right. It is time to make the oil companies participate in energy efficiency funding and I urge you to make that part of this bill.

I would also like to state my support for preserving the integrity of Class I Renewables. The Interreligious Eco-Justice Network does not support diluting the portfolio with Canadian hydro or trash incineration. Renewable energy is supposed to be a clean, eco-friendly energy source - to include either Canadian large-scale hydro or trash incineration makes a mockery of what renewables are supposed to stand for.

Finally, I would like to urge caution when it comes to developing natural gas. It is very easy to think, because natural gas is cheaper than oil, that it is a solution to our energy problems. It is a very short-term solution, at best. When we consider natural gas, we should also consider the environmental and climate impacts from extracting and burning it. Instead of putting our eggs into another fossil fuel basket, CT should lead the way on renewable energy, by removing barriers to renewable energy installations and signing long-term contracts for renewable generated in New England.

Connecticut has the opportunity to be a true leader in the fields of energy efficiency, renewable energy, and climate justice. I urge you to move us in the direction that will ensure a clean, just, and sustainable future for all of God's creation. Thank you.

Roger Smith #35

Testimony on Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

March 7, 2013

Dear Senator Duff, Representative Reed, Members of the Energy & Technology Committee,

Thank you for the opportunity to offer comments on Bill 6360. Please know that I am a proud volunteer for and supporter of Clean Water Action, and fully endorse their positions 1) urging caution against relying on natural gas, 2) in favor of expanding energy efficiency, 3) maximizing the deployment of local clean energy (while keeping that definition honest!), and 4) advocating for a fuel oil based funding source for energy efficiency to complement those for natural gas and electricity.

Concerning a large scale expansion to Natural Gas

If I recall the year correctly, in 2005 supplies of natural gas were tight, and during a very cold spell one winter we came very close to having to choose between sending that fuel to the plants that produce electricity and the homes that use it for heat. So, in my opinion it's unwise to become more dependent on this fuel. Hydraulic fracking, sometimes promoted as having the potential to make natural gas more plentiful, is a solution laced with problems. And the bottom line is that it is still a finite fuel source. We'd be better served to think of this as a 'last ditch' option.

Energy Efficiency

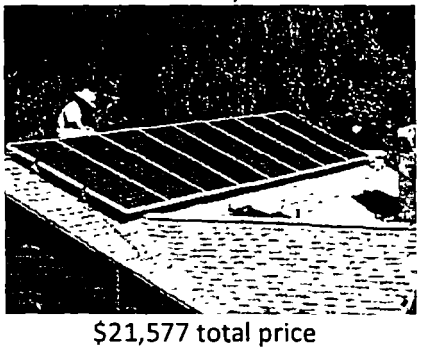
I would imagine those who serve on this committee have, like me, come to understand that Energy Efficiency is the fastest way to realize energy savings and reduce fuel use at the same time. In Portland, as in many towns, people rave about the Home Energy Solutions program, how their homes are tighter, warmer, and especially how they think more about reducing energy use even further. If we take that mentality to the state and regional level and reduce electricity consumption by 500Mw, that would be the equivalent of not having to build another power plant. So I'm asking you to support full funding for all cost effective energy efficiency.

Renewable Energy

Compare these solar installations, one in 2006 and also last fall through the SolarizeCT program:

2006

2.4 Kw PV System



$21,577 total price
(**$8.60** per watt)
$10,764 CCEF incentive
(**52%** of system cost)

2012

10 Kw PV System

$39,600 total price
(**$4** per watt*)
$15,000 CEFIA incentive
(**38%** of system cost)

The Co-Benefits are: Steadily increasing system efficiencies, steadily decreasing price, not only steadily decreasing government subsidies but also movement away from government funding to private sources of funding, locally produced energy, good jobs, boosts to our state's economy and best of all, slashing harmful greenhouse gases & other harmful emissions.

These benefits are a package that we don't get from a move to natural gas, and elevating trash-to-energy or Hydro Quebec to Class I of the Renewable Portfolio Standard would only serve to delay those benefits to CT ratepayers.

Establishing an Energy Efficiency Funding source for Oil and Propane Users
This is simply a question of fairness. Oil and Propane users benefit from funds from Natural Gas and Electricity users, its only right they contribute also. We need a stable funding source for oil efficiency.

Thank You again and please accept my wishes for a smooth and productive session.

Andy Bauer,
Portland Clean Energy Task Force
256 Old Marlborough Tnpk, Portland, CT 06480
860 342-1379

*SolarizeCT had a bonus mechanism that lowered the final price even further. This discount was offered and absorbed by the solar installer and did not affect the CEFIA rebate.

A Geothermal Snapshot

Account	Read Date	Usage	Number of Days	Usage per day	Charge	Read Type	Average Temperature
5 15E+10	6/27/2011	374	33	11 33	$78.01	Actual Read	70
5.15E+10	5/25/2011	258	20	12 9	$53 45	Estimated Read	60 7
5.15E+10	5/5/2011	4	9	0 41	$5 40	Estimated Read	57 4
5.15E+10	4/26/2011	13	33	0 4	$18 21	Estimated Read	47 2
5 15E+10	3/24/2011	364	28	13	$76 36	Actual Read	38.4
5.15E+10	2/24/2011	278	30	9 27	$62.08	Actual Read	27.4
5 15E+10	1/25/2011	331	29	11 41	$71 58	Estimated Read	25.6
5 15E+10	12/27/2010	406	34	11.94	$89.36	Actual Read	31.9
5.15E+10	11/23/2010	304	28	10.86	$70 93	Actual Read	47
5 15E+10	10/26/2010	344	32	10.75	$78.16	Actual Read	57.1
5.15E+10	9/24/2010	287	30	9.57	$67.87	Actual Read	68 9
5 15E+10	8/25/2010	470	30	15 67	$100.92	Actual Read	74.4
5.15E+10	7/26/2010	609	32	19 03	$125 98	Actual Read	78 2
	Total for June 2010- June 2011 before geothermal:				**$898.31**		
5 15E+10	6/25/2012	428	32	13.38	$80.42	Actual Read	68 8
5.15E+10	5/24/2012	273	28	9 75	$57 09	Actual Read	59.4
5.15E+10	4/26/2012	363	31	11.71	$70.63	Actual Read	51.7
5 15E+10	3/26/2012	610	31	19.68	$107 81	Actual Read	46.4
5 15E+10	2/24/2012	899	30	29.97	$151.31	Actual Read	37 1
5 15E+10	1/25/2012	955	29	32 93	$161.72	Actual Read	32 7
5 15E+10	12/27/2011	1077	34	31.68	$194 39	Actual Read	40 7
5 15E+10	11/23/2011	769	29	26 52	$143.36	Actual Read	45.7
5 15E+10	10/25/2011	424	28	15 14	$86.23	Actual Read	58 7
5.15E+10	9/27/2011	392	33	11 88	$80 93	Actual Read	69 2
5 15E+10	8/25/2011	434	29	14 97	$87.88	Actual Read	74.5
5 15E+10	7/27/2011	371	30	12 37	$77 45	Actual Read	76.6
	Total for June 2011- June 2012 after geothermal:				**$1,299.22**		

An increase of $400 per year in electricity, offset by a savings of $2,500+ by getting off oil.

Re Governor's Bill 6360 / Comprehensive Energy Strategy (CES)

Dear Members of the Energy and Technology Committee·

By way of introduction, my name is David Mann and I am the Chairperson of the Town of Westport, Connecticut's Green Task Force and I teach in the Building Efficiency and Sustainable Technology (BEST) program at Norwalk Community College Among the courses I teach in the BEST program is Alternative & Renewable Energy – our fundamental look at the relationship between Energy and Environment.

I am greatly pleased to see the Governor and the State seriously addressing energy policy in a "comprehensive" manner Furthermore, in my courses I teach and we carefully evaluate that each energy technology or source has its own inherent issues and therefore, I appreciate the Governor's stated approach to "not pick winners " With that in mind, I think that it is also important that we as a state understand the most current science and seriously consider the long term environmental and economic ramifications of the investments we make today and for the foreseeable future under this policy and do not support and publicly finance "losers "

Given its simple chemical structure and thus cleaner profile traditionally extracted natural gas has often been seen as a "bridge fuel" to help mitigate the environmental impacts (particularly climate forcing) of oil and coal. Hydraulic fracturing (fracking) has driven a boom in the availability of low cost natural gas over the past several years and has resulted in a price decoupling of natural gas and oil The result has been conversion of facilities to natural gas has generally been economically advantageous The Governor's proposed plan seeks to extend this trend in committing Connecticut to an energy policy that is heavily dependent on natural gas via a massive ($1 5 billion) investment in new natural gas infrastructure.

However, there is a significant flaw to this approach in that it does not consider the environmental costs associated with a decades long financial commitment to natural gas in Connecticut Recent studies have demonstrated that fraked natural gas has a markedly different environ,mental impact than traditionally extracted natural gas To that end, three major effects are just starting to be clearly understood·

1 Methane is among the most potent of greenhouse gases and due to 4% to 9% methane leakage in the fracking process, fraked natural gas does not provide the carbon reduction we have associated with natural gas in the past and may even be worse than coal (*see National Oceanic and Atmospheric Adminstration (NOAA) studies published in the Journal of Geophysical Research, Tollefson in the Journal of Nature, Wigley in the Climate Change, and Howarth, Santoro & Ingraffea in Climate Change*) Note, if the methane leakage issue is addressed through tight regulation of extraction procedures, natural gas could be attractive, but as Connecticut is not a gas producing state, we have little to no control over the enactment of such critical regulation
2 It has become increasingly clear that fracking wastewater is hazardous. A May 2012 report by the Natural Resources Defense Council (*http://www.nrdc.org/energy/files/Fracking-Wastewater-FullReport.pdf*) urges a halt on expanding fracking without a close examination of the issue and tighter controls to address problems with both "flowback" and "produced water" that have demonstrated levels of potentially harmful pollutants, including salts, organic hydrocarbons, inorganic and organic additives, and radioactive material (NORM) Note, again Connecticut is not a gas producing state, but our increased consumption of natural gas would certainly lead to more fracking and fracking waste water The prohibition of the

processing and disposal of fracking wastewater within our state is one possible method to begin addressing this concern.

3. Geophysicists and other scientists have been able to directly tie fracking and the re-injection of fracking wastewater to increased seismic activity opening a host of questions related to the advisability of this increasingly prevalent energy extraction technique.. (*see survey work by the U S Geological Survey*) Note, again Connecticut is not a gas producing state and has no direct control over legislation or regulation to address this issue and common sense dictates that our increased consumption will necessarily exacerbate the problem

In summary and to mix metaphors, the jury is out and the early results are not good Natural gas at present looks less like a bridge fuel and more like a bridge to nowhere.

Next, any energy policy must start with efficiency Almost 40% of energy usage and greenhouse gas emissions are associated with buildings. Existing buildings represent about 90% of what we can reasonable anticipate of building stock will be comprised of in 25 years and critically, they still largely remain inefficient and a great opportunity to reduce energy consumption Investments through CEEF has proven among the best any quasi governmental agency can make, returning three dollars for every dollar invested As our stated CEEF policy notes: "The least expensive kilowatt-hour is the one not used. " With this in mind, despite the strong evidence against a rush to natural gas, should the state elect to proceed with an investment in expanded natural gas infrastructure, any facility's conversion to natural gas should require and offer State investment in efficiency improvements to the buildings shell and HVAC equipment upon conversion.

Lastly, in examining the State's recent initiatives with on site clean and renewable energy generation through the recently established state "green bank" CEFIA, we have seen great progress in leveraging rate and tax payer money to accelerate the roll-out of proven and increasingly competitive clean energy solutions Programs such as the reverse Z-REC auction and Solarize Connecticut have proven and as C-PACE promises market economies will join hands with State initiatives to create a vibrant and transformative market in our state providing jobs, energy security and an improved environmental footprint We should note that a host of additional tools can be tapped to accelerate this process Of particular note is an expansion of virtual net metering to facilitate solar gardens and an extension of the State's property tax exemption of residential renewables to commercial properties.

I ask that in considering a Comprehensive Energy Strategy, the committee consider both the most recent science related to the effects of natural gas extraction and it's environmental impacts and what is the highest and best use of such a large scale capital investment and make distributed, clean, renewable energy generation and energy efficiency the cornerstones of our State's policy.

Thank you for your consideration.

Most sincerely yours,

David Mann

#42

cema
CONNECTICUT ENERGY MARKETERS ASSOCIATION

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

We are submitting testimony on **sections 18 and 19 of H.B. 6360**, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY and **sections 3(m) and 7(b) of S.B. 839**, AN ACT CONCERNING STATUTORY CHANGES TO ADVANCE CONNECTICUT'S ENERGY POLICIES.

The Connecticut Energy Marketers Association (CEMA) represents 576 petroleum marketers, principally made up of home heating oil dealers and gasoline distributers, located in Connecticut. CEMA members employ over 13,000 people in our state.

CEMA **supports the language in section 18 of H.B. 6360** that would reduce the sulfur content of home heating oil from 3000ppm to 15ppm, and removes the language in the law that would require Connecticut to wait for the states of New York, Massachusetts and Rhode Island to have a similar standard. We ask that the committee work with us on language that would add a requirement so that a renewable content could also be added to heating oil.

Studies show that a 15ppm heating oil with a 15% to 20% bio component (ULSD B20) would make it the cleanest burning fossil fuel in the country. Requiring this fuel would result in a reducing the sulfur content of heating oil by 99.93%. This reduction would leave heating oil with a sulfur content that is 75% less than natural gas.

CEMA is **opposed to section 19 of H.B. 6360** that proposes to set into law a 25 year "hurdle rate" In 2012 PURA rejected a similar proposal to increase the hurdle rate in what we believe was an effort to protect ratepayers from higher natural gas rates.

In the past the hurdle rate was reviewed by DPUC/PURA and more recently they made adjustments allowing the utilities to increase it to 20 years for SCG and

CNG. A technical review (by PURA) of the impact that an extended hurdle rate would have on ratepayers is the only responsible way to determine what it should be set at.

Setting the hurdle rate in statute is inappropriate and lacks the expertise required to find out what the real cost would be to ratepayers. DEEP stated on page 143 of their draft Comprehensive Energy Strategy (CES) that *"expanding the hurdle rate payback period to 25 years would increase the rate base of the gas companies by approximately $339 million."* On page 15 of PURA's comments in response to the draft CES a utility employee was quoted saying *"If anyone thinks we are going to implement this plan without increasing rates or having to charge more, then, you know, let's just kind of all leave, because that ain't happening."*

Our association does not have expertise in setting utility rates, but we would ask that the committee allow the specialists at PURA to do their job so that ratepayers are not overly burdened with costs that they will incur if the hurdle rate is set in statute.

We recommend that language be added to this section that prohibits the utilities from passing the cost of expanding their infrastructure to existing ratepayers. We ask this in response to a "data request" from PURA (attached) that suggests a *"new rate"* would need to be created to pay for the expansion of their gas lines. In that same document the utilities acknowledge that the expansion will require *"new long term capacity"* so that they can provide *"reliable service"* at *"higher rates"*! And all these new costs and higher rates without any guarantee that natural gas will remain less expensive in the future. If you want o see a quick example of this, take a look at table C-5 in the appendix of DEEP's 2013 CES, which indicates a negative NPV for conversion from oil to gas.

If my math is correct, and you allow the hurdle rate to be expanded, you get 2 NEW natural gas rates (one for new customers and one for existing ratepayers) and higher base costs so that the utilities can provide reliable service.

CEMA absolutely agrees with Governor Malloy when he states that he wants a ***"cleaner, cheaper and more reliable"*** fuel to our state. The only problem is that natural gas is not that fuel. A 15ppm B20 heating oil is cleaner that natural gas! 24 out of the last 28 years oil has been less expensive than gas and since no one can predict future energy prices natural gas does not meet the "cheaper" test! Finally, the utilities even admit that their existing supply can not support the expansion of 300,000 new customers not to mention ISO New England's warnings about the "overreliance" on natural gas. Now that does not sound very reliable!

Connecticut needs fuel neutral energy policies that promotes conservation not fuel conversion. If the utilities want new customers make them go out and pay for it with their shareholders money – not your constituents money.

Sections 3(m) and 7(b) of S.B. 839 would diminish the Public Utility Regulatory Authority's (PURA) autonomy by requiring them to follow policies that are developed by the Department of Energy and Environmental Protection (DEEP) through the CES and other plans. The language in these sections should be removed so that PURA can make decisions based on the impact that proposed policies would have on ratepayers. A totally independent PURA ensures that ratepayers are protected.

3(m) Notwithstanding any provision of the general statutes, the decisions of the Public Utilities Regulatory Authority, including, but not limited to, decisions relating to rate amendments arising from the Comprehensive Energy Strategy, the Integrated Resources Plan, the Conservation Load Management Plan and policies established by the Department of Energy and Environmental Protection, **shall be guided by such strategy, plans and policies.**

7(b)...The authority shall require the utilization of such new principles and structures to the extent that the authority determines that their implementation is in the public interest, as identified by the Department of Energy and Environmental Protection in the Integrated Resources Plan and the Comprehensive Energy Strategy, and necessary or desirable to accomplish the purposes of this provision without being unfair or discriminatory or unduly burdensome or disruptive to any group or class of customers, and determines that such principles and structures are capable of yielding required revenues. In reviewing the rates and rate structures of electric and gas companies, the authority shall [take into consideration appropriate energy policies, including those of the state as expressed in subsection (c) of this section] be guided by the goals of the Department of Energy and Environmental Protection, as described in section 22a-2d, the Comprehensive Energy Strategy...

When local family owned home heating oil dealers want to expand their businesses they have to do so without the benefit of increasing costs to their customers. We ask that the committee allow for a level playing field so we can fairly compete.

CEMA asks that the Energy Committee amend the language in **H.B. 6360**, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY and **S.B. 839**, AN ACT CONCERNING STATUTORY CHANGES TO ADVANCE CONNECTICUT'S ENERGY POLICIES to reflect the changes we have suggested in our testimony.

Respectfully,

Vice President

Docket Public Act 11-80 - Sec. 51 - Comprehensive Energy Plan

Data Request PURA-01
Dated: 12/31/2012

Q-DR-051
Page 1 of 4

Witness: Camilo Serna, Gregg Therrien
Request from: Public Utilities Regulatory Authority

Question:
(REGULATORY CHANGES) Draft CES, Natural Gas Sector Strategy, pp. 143-148. Discuss each of the regulatory changes proposed by the draft CES in this section and include the potential impact on ratepayers. Include resource cites.

Response:
The LDCs provided a set of detailed comments to DEEP on their proposed regulatory changes. Below is a copy of the comments provided on December 21,2012 by the LDCs.

"The Draft proposes the establishment of a planned natural gas expansion process, to more effectively help potential customers switch to natural gas over a seven year time period. The goal of this program would be to provide customers who can cost-effectively switch to natural gas the choice to switch more quickly and efficiently, and cut their heating bills significantly. Savings that, in all likelihood, will flow back to the local Connecticut economy. To accomplish this, the Draft proposes a set of regulatory changes and economic incentives that, when implemented as part of a coordinated natural gas expansion process, can reduce the costs of fuel switching, ensure a more reliable gas supply, and help more Connecticut homeowners and businesses take advantage of fuel savings.

The level of potential gas conversions envisioned in the Draft represents a significant increase compared to current levels. The Gas LDCs stand ready to invest the required capital and resources to ramp-up conversions and meet the targets laid out in the Draft. In order to ensure the opportunity can be captured as quickly as possible to deliver the customer, economic and environmental benefits identified in the Draft, the Gas LDCs have developed four very specific recommendations that, if adopted in the final CES, will significantly increase the chances of success.

1. Strengthen new project evaluation guidelines (hurdle rate model)
   The Gas LDCs support DEEP's recommendations to introduce changes on how the hurdle rate model is used and calculated (recommendations 7 & 9), including the use of a 25 year timeframe for all types of customers and allowing greater flexibility when calculating customers' main extension costs by allowing a "portfolio view" and allowing the Gas LDCs to forecast revenues. This support hinges upon the ability of the Gas LDCs to recover prudent capital investments in a timely manner, outside of a rate proceeding. Details of such rate recovery should be included in the planning document with PURA, but should be fundamentally supported by DEEP as part of this expansion strategy.

The Gas LDCs propose the following additional recommendations on this topic:

- Using 3 years of potential revenues from adjacent prospects who are likely to switch to natural gas once the new main is installed. When forecasting revenues, the Gas LDCs will include magnitude and certainty of potential load additions over time and the level of prospects' motivation to convert.
- Expand evaluation metrics to include societal considerations such as jobs created, savings to the State, economic development opportunity and others jointly identified and quantified with DEEP. In addition, the Gas LDCs recommend including an assessment of environmental benefits and benefits from economies of scale for each of the potential expansion projects.
- Focus on the following types of projects to consolidate:
    - Downtown areas without access to natural gas
    - Road reconstruction being planned by the local government or by DOT
    - Business parks and industrial parks
    - Multi-family housing, including HUD managed facilities; and
    - Residential neighborhoods with high level of interest as evidenced by factors such as high call volume, letter of interests, etc.

2 Implement a new rate design to fund system expansion

Changing the landscape to allow more customers to have access to natural gas will require enhancing the current regulatory framework. The Draft provides an initial outline of a new rate design that will allow the expansion of the natural gas distribution system (recommendations 8, 10 & 11). The Gas LDCs believe that these recommendations need to be enhanced in the final CES in order to provide greater clarity and certainty on how this new rate design will help fund the system expansion envisioned in the Draft.

The Gas LDCs agree with DEEP that the recovery of the revenue requirements associated with the expansion plan (return of and on capital investment, depreciation expense, associated incremental O&M costs, uncollectibles, income and property taxes) be done on a timely manner and propose that this be set via an annual tracker that is fully reconcilable. Gas LDCs also recommend that target return on equity ("ROE") for the expansion program needs to be sufficient to attract incremental capital and shall be based on the gas LDCs existing ROE and include an additional variable ROE component based on certain pre-defined performance goals to be agreed upon with DEEP.

In order to recover these revenue requirements, the Gas LDCs propose that a new rate design should be put in place. This new rate design would have two different rate components. First a "Shared Savings Rate" that would have the following characteristics:

- New customers would be placed on a different rate schedule (e.g., rate schedule 2A for a residential heating customer) that in effect will have its distribution rates increased by a pre-determined percentage.
- This rate may take the form of an increased monthly customer charge, an increase on the volumetric charge or a combination of the two
- A separate Shared Savings Rate would be established for different classes of customers (e.g., residential, small business, and large business) since the economics for different classes may be different.
- The Shared Savings Rate will be calculated to allow each class of customers to retain the majority of the differential between oil and gas prices. In this manner, the proposal allows customers to recoup their initial investment over time.
- The duration of the new rate schedule would be linked to the size of the program.
- The rate schedule would remain with the premise for its required duration, transferrable from one occupant/owner to the next.

Second. the revenue requirements dollars not collected through the Shared Savings Rate would be collected monthly from all existing customers through a new rate, the "System Expansion Rate". The System Expansion Rate would be:

Reviewed annually and trued up at the end of the expansion program;
Have a duration linked to the size of the program.

The System Expansion rate mechanism provides benefits not only to the participating customers, but to all other customers as well. Those benefits are enumerated below:

- Provides participating customers with a level of certainly around achieving a payback for their investment.
- All customers receive the benefits of greater economic activity, more jobs, and a cleaner environment.
- As gas expansion occurs, economies of scale are realized as the LDCs fixed costs of providing delivery service will be spread among greater volumes and customers.

The Gas LDCs request that DEEP considers and studies this proposed new rate design and incorporates it into the final CES in order to ensure the Governor and DEEP's public policy goals are attained in a timely manner.

3. Support Implementation of new customer financing options by Gas LDCs

The Gas LDCs concur with DEEP in its assessment that providing financing options to customers is a critical success factor in meeting the goals outlined in the Draft (recommendation 3). The Gas LDCs stand ready to support the State in providing these new financing options to customers. As such, the Gas LDCs advance the following specific recommendations to kick start the efforts as soon as the CES is finalized:

- The Gas LDCs propose to launch a gas conversion financing program focused on the residential segment to fund initial customer conversion costs (equipment and labor). The program would be administered directly by the Gas LDCs to ensure it is quickly implemented and linked to the expansion plan envisioned by DEEP.
- The Gas LDCs believe that commercial and industrial customers have multiple alternatives to finance a conversion, including C-PACE, CL&P's Small Business Program, the recently launched C&I Altus Conversion Financing and traditional private financing.
- The Gas LDCs would develop partnerships with third parties willing to finance the conversions such as credit unions, local banks and private investors. The Gas LDCs will be replicating similar models used in Massachusetts by Northeast Utilities' subsidiary NSTAR.
- The key feature of the program would be an interest rate buy-down to bring customer financing rates to 1%. The Gas LDCs propose to fund the buy down from a funding pool created through the allocation of a portion of certain purchased gas adjustments ("PGA") credits such as interruptible sales margin, capacity release margin, off system sales margin and pipeline refunds as outlined by DEEP in the Draft (recommendation 11). The Gas LDCs believe that the use of these credits to buy down the interest rates can have a significant impact on establishing a sustainable financing program. For example a $15 million annual fund, could support close to 15,000 residential buy downs Assumes buying down rates from 7% to 1%, for an average loan of $5,625 (75% of the conversion cost of $7,500) and paid over 5 years
- Interest rate buy-downs could also be offered under a tiered structure, where customers that choose more energy efficient equipment would got a lower interest rate than those selecting less efficient heating equipment.
- The Gas LDCs would offer an on-bill repayment option if so desired by third parties and end-customers and after such an option is proven to be operationally and technically feasible.
- The buy-down program could be adjusted to offer longer-term payment schedules for low income customers and/or landlords with 2-4 units.

4 The support of Gas LDC capacity acquisitions is necessary to ensure sufficient flexibility and reliability exists in portfolio to meet firm growth scenarios

The process of adding interstate pipeline infrastructure represents a significant undertaking for pipelines, gas utilities, energy policy makers and regulators. The project sponsor applies significant capital and resources to a project. The regulated structure of the natural gas industry requires long term contracts supporting such capacity prior to its construction. Any project must be deemed to be in the "public convenience and necessity" to comply with the Natural Gas Act and the Federal Energy Regulatory Commission ("FERC") must give formal approval of all aspects of an expansion, after rigorous review.

Currently the Connecticut LDCs project a need for new long term capacity in order to continue to provide reliable service to growing firm markets. These commitments will require long term contracts (generally 15 years) at higher rates than "rolled in" contracts. The addition of capacity to the region reaches back decades and is the reason the current infrastructure is in place. Significant state benefits accrue as a result of adding capacity into Connecticut by enabling the ability to expand utilization of natural gas to leverage the economic and environmental advantages natural gas can bring to a heavily oil dependent state.

The Gas LDCs are dedicated to fulfilling DEEP's gas expansion goals and intend to make necessary long term capacity commitments to ensure that the gas policy objectives can be achieved, and not be limited by inadequate capacity. After weighing the pros and cons of capacity decision strategies, aggressive and proactive capacity decisions are deemed integral to the fulfillment of the State's energy goals. The need to make a pipeline project commitment will be necessary prior to the development of the gas expansion plan envisioned by DEEP in the Draft. As such, in the final CES, DEEP should indicate its support of the Gas LDCs to:

- Plan on a best cost basis using the growth projections outlined in the Draft.
- Take into account where potential system growth will occur as well as existing system constraints to identify capacity commitments.
- Enter into the necessary commitments and agreements in order to ensure that DEEP's policy objectives can be achieved, and not be limited by inadequate capacity.
- Work to get the necessary support from PURA for capacity commitments.

4. The support of Gas LDC capacity acquisitions is necessary to ensure sufficient flexibility and reliability exists in portfolio to meet firm growth scenarios
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- Enter into the necessary commitments and agreements in order to ensure that DEEP's policy objectives can be achieved, and not be limited by inadequate capacity.
- Work to get the necessary support from PURA for capacity commitments."

http://www.clean-diesel.org/nonroad.html

Locomotive, marine and non-road diesel fuel standards begin at later dates (except in California).

EPA fuel standards for locomotive, marine and non-road diesel fuel engines and equipment, such as farm or construction equipment, become effective at dates later than those for highway vehicles:

- Diesel fuel intended for locomotive, marine and non-road engines and equipment is required to meet the Low Sulfur Diesel fuel maximum specification of 500 ppm sulfur in 2007.
- By June 2010, the ULSD fuel standard of 15 ppm sulfur will apply to non-road diesel fuel production.
- Beginning in 2012, locomotive and marine diesel fuel must meet the ULSD fuel standard of 15 ppm sulfur.

Click here for EPA Winterization Standards Letter 11-30-07 (PDF).
Click here for Non-road ULSD Use Fuel Sheet (PDF).
Click here for Non-road Diesel Pump Labels (PDF).

Non-road Diesel Fuel Standards										
Who	**Covered Fuel**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Large Refiners & Importers	NON-ROAD	500+ ppm	500 ppm	500 ppm	500 ppm	15 ppm	15 ppm	15 ppm	15 ppm	15 ppm
Large Refiners & Importers	LOCOMOTIVE & MARINE	500+ ppm	500 ppm	500 ppm	500 ppm	500 ppm	500 ppm	15 ppm	15 ppm	15 ppm
Small Refiners & Other Exceptions	NON-ROAD, LOCOMOTIVE & MARINE	500+ ppm	500+ ppm	500 ppm	500 ppm	500 ppm	500 ppm	500 ppm	500 ppm	15 ppm
Except in California, compliance dates for Non-Road, Locomotive and Marine fuels in the years indicated are: June 1 for refiners and importers, August 1 downstream from refineries through fuel terminals, October 1 for retail outlets, and December 1 for in-use.										
In California, all diesel fuel transitioned to ULSD in 2006. Locomotive and Marine diesel fuels were required to transition to 15 ppm ULSD effective January 1, 2007.										

Connecticut Full Fuel Cycle Efficiency and Carbon Emissions

Residential Hydronic Heating and Domestic Hot Water Systems

Energy Efficiency and Life Cycle Carbon Emissions

A Consortium of State Oilheat Associations commissioned a Greenhouse Gas Project to study[1] the full fuel cycle efficiency to determine the energy efficiency and GHG emissions impact for hydronic heating systems which also provide domestic hot water. The research concluded that focusing on sustainability in the built environment requires life cycle assessments of operational building energy systems. Sustainable energy production and consumption should also require life cycle assessments from wellhead to burner tip.

Fuel Mix

Connecticut is projected to experience significant changes in its natural gas supply mix by 2020. Connecticut will see a significant decrease in gas from Western Canada and the Gulf Coast, increase in gas from the Rocky Mountains, Midcontinent and the Southwest, increase of Gulf Coast LNG and LNG shipments into regional terminals.

Fuel Cycle Emissions

Figure 1 shows the fuel cycle emissions in pounds of CO_{2e} per MMBtu of fuel delivered (not including end-use equipment efficiency) for each fuel type in 2006 and 2020. This graph provides CO_{2e} emission up to the burner tip and gives an emissions impact understanding of potential changes in fuel mix between 2006 and 2020. Marginal comparisons between heating oil and biofuel blends should be made versus the marginal LNG supply. Figure 1 shows that delivered bio-blends can provide less CO_{2e} emissions than marginal LNG without taking into account system efficiencies.

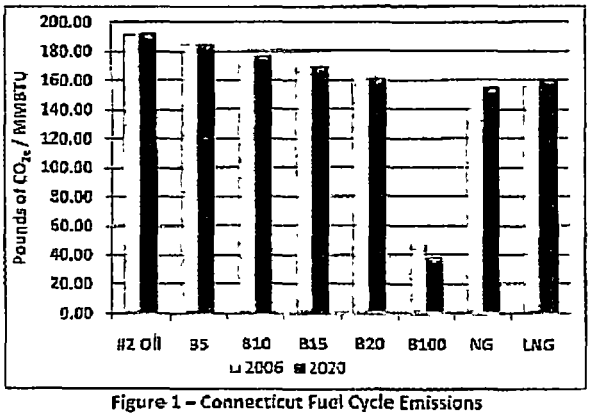

Figure 1 – Connecticut Fuel Cycle Emissions

[1] "Final Report Resource Analysis of Energy Use and Greenhouse Gas Emissions from Residential Boilers for Space Heating and Hot Water", Bruce Hedman and Anna Hampson, CF International, August 2008.

System Energy Efficiency (Resource Conservation)

Brookhaven National Laboratory[2] (BNL) developed an accurate method to determine system efficiency for integrated heating and domestic hot water residential systems[4]. The BNL model is more accurate in predicting actual building heating and DHW performance and the commonly used AFUE methodology. Three boiler configurations were examined, an average boiler currently sold, a high efficiency boiler and a condensing boiler. The comparison was performed on a 2,500 ft² ranch home with a basement with typical "code" construction. Figures 2 and 3 provide the total annual resource energy requirements to provide heating and hot water services to the modeled 2,500 square foot house (including energy use along the fuel cycle and end use equipment efficiency). Total energy requirements to provide the annual heating and hot water services is higher for natural gas for both the average, high efficiency non-condensing units in 2006 (Figure 2), reflecting two important factors: 1) large amount of Gulf Coast and Western Canadian gas supply, and 2) the appliance and system efficiency advantage oil and biofuel blends have versus natural gas and LNG through less water content[3].

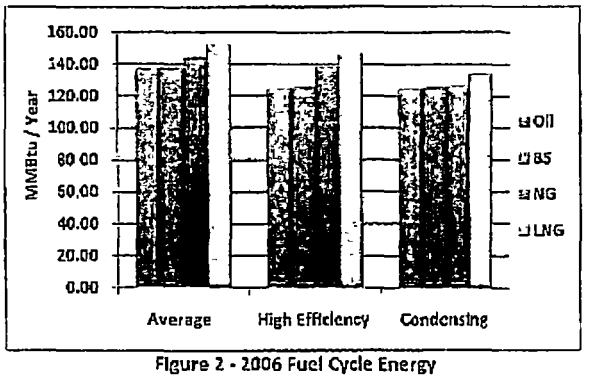

Figure 2 - 2006 Fuel Cycle Energy

Figure 3 shows that ultra low sulfur diesel (ULSD) and B20 have higher source energy efficiency than the natural gas supply and marginal LNG across the board in 2020.

[2] Performance of Integrated Hydronic Systems, Project Report, May 1, 2007, Thomas A. Butcher, Brookhaven National Laboratory.

[3] AFUE leads to low estimates of the energy savings potential of modern integrated systems, particularly where advanced controls are used.
With respect to current non-condensing appliances - natural gas maximum boiler AFUE efficiency is 83% and oil maximum boiler AFUE efficiency is 88% with the reason for this differential being the water content in the fuel and resultant combustion gas dewpoint affecting performance.

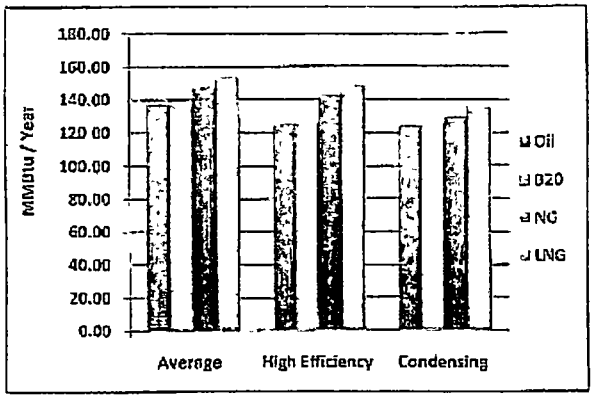

Figure 3 - 2020 Fuel Cycle Energy

Life Cycle Emissions Comparison

Figures 4 and 5 show a condensing boiler using marginal LNG supply produces 8% less CO_{2e} per year than heating oil in 2006 and only 6% less CO_{2e} emissions than ULSD in 2020. Remarkably, if you compare a high efficiency non-condensing boiler using LNG supply you find it produces 4% less CO_{2e} per year than heating oil in 2006 and 2% more CO_{2e} emissions than ULSD in 2020. In 2006, a high efficiency B10 boiler produces the same CO_{2e} emissions per year as a high efficiency boiler using LNG and in 2020 a condensing B20 (ULSD) boiler produces 2% less CO_{2e} emissions per year than a condensing boiler using LNG.

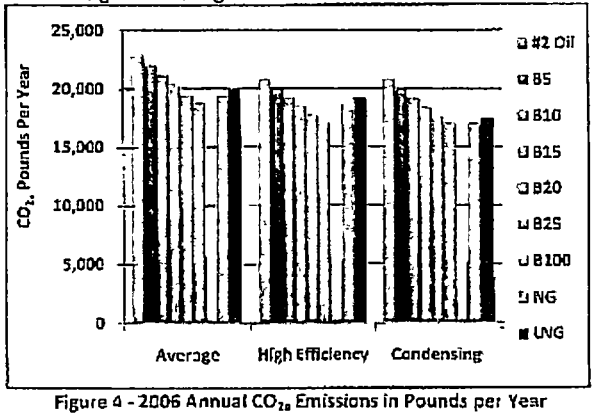

Figure 4 - 2006 Annual CO_{2e} Emissions in Pounds per Year

Life Cycle Emissions Planning

Fuel delivery characteristics will vary dramatically over time, as supply sources vary and sustainable alternatives enter the market, creating complexity regarding fuel switching policy designed to reduce carbon emissions. Figure 6 assumes a linear shift in emissions from 2006 to 2020. The liquid fuel bio-blend (between B10 and B15) is projected to emit less CO_{2e} emissions than LNG going forward from around 2015 based upon this projection.

Clearly, today's policies and regulations must take future fuel diversity into account to prevent unintended consequences and to deliver the lowest potential emissions solutions

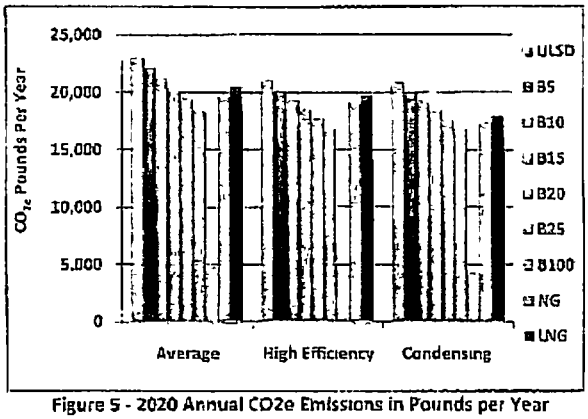

Figure 5 - 2020 Annual CO2e Emissions in Pounds per Year

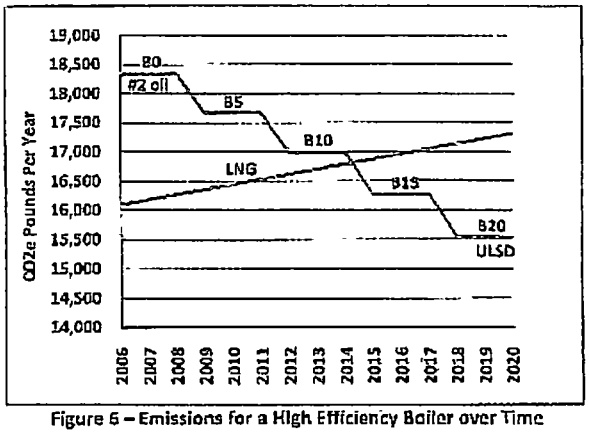

Figure 6 – Emissions for a High Efficiency Boiler over Time

Conclusions

Resource energy analysis and full fuel cycle emissions analysis are more comprehensive and accurate methods to assess the total energy and emissions impacts of residential energy consumption. Site energy analysis only takes into consideration the ultimate consumption stage. Significant energy is consumed, with resulting CO_{2e} emissions, during all stages of energy use

There are strong energy and environmental reasons, for combined hydronic heating and DHW systems, to encourage the development and/or use of.

- Sustainable biofuels – B5 today, B10 in the near future and B20 as supply and technology permit
- ULS Diesel as it becomes available
- High efficiency non-condensing oil-fired boilers
- Condensing gas and oil-fired boilers

Care should be taken selecting policy approaches that provide either regulatory mandate or consumer incentive to change behavior that may foreclose future innovation. Eliminating oilheat dealers of today will also eliminate the B20 dealers of tomorrow.

March 4, 2013

Commissioner Daniel Esty
CT Department of Energy & Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Senator Bob Duff, Co-Chair
Representative Lonnie Reed, Co-Chair
Senator Clark Chapin, Ranking Member
Representative Laura Hoydick, Ranking Member
Energy and Technology Committee
Room 3900 Legislative Office Building
Hartford, CT 06106

Re: Draft 2012 Comprehensive Energy Strategy for Connecticut

Public Act 11-80, An Act Concerning the Establishment of The Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future §51, codified as §16a-3d of the General Statutes of Connecticut (Conn. Gen. Stat.) directed the Commissioner of the Department of Energy and Environmental Protection, in consultation with the Connecticut Energy Advisory Board to prepare a Comprehensive Energy Strategy (CES) plan. In that same statute, the Public Utilities Regulatory Authority (Authority or PURA) was tasked with commenting on the proposed plan's "impact on ratepayers."

The Authority appreciates the opportunity to comment on the draft CES. In the attached comments, the Authority does not attempt to argue the merits of the many issues addressed in the CES, but rather to assess the impact on ratepayers. As a regulatory and rate-setting authority, the PURA does not have broad authority to allow ratepayer funds to be used for non-utility related purposes. Ratemaking principles generally do not allow recovery of investment that is not currently used and useful. However, much of the CES is aimed at societal benefits and investing in the future. The PURA leaves those important issues to the wisdom of the Legislature.

In complying with Conn. Gen. Stat. §16a-3d(b) directing PURA to comment on the proposed plan's impact on ratepayers, the Authority interprets the directive as intended to measure the impact on ratepayers as ratepayers not the impact to the general citizenry.

Sincerely,

Kimberley J. Santopietro
Executive Secretary
PUBLIC UTILITIES REGULATORY AUTHORITY

cc: Mailing List

STATE OF CONNECTICUT

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
BUREAU OF ENERGY AND TECHNOLOGY POLICY

COMMENTS ON THE DRAFT COMPREHENSIVE ENERGY STRATEGY

FROM THE PUBLIC UTILITIES REGULATORY AUTHORITY

March 4, 2013

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PURA COMMENTS ON THE DRAFT COMPREHENSIVE ENERGY STRATEGY

EXECUTIVE SUMMARY

The draft Comprehensive Energy Strategy for Connecticut (CES) enumerates many societal goals and concurrently has the potential to cost ratepayers more for service than they currently pay. Many of the CES proposals rely on assumptions that must be closely reviewed to avoid uneconomic outcomes. In some instances, many costs are not considered when evaluating the appropriateness of investment, and details are not provided to support conclusions.

The PURA addresses the impact that the CES will have on the general body of ratepayers or non-participants who are unable to, or choose not to, participate in any of the initiatives. One of the aims of the CES is to lower utility bills for Connecticut residents and businesses. In the long term, such reductions may be possible, but in the near term, the effects of the CES and other factors, such as normal utility rate increases, system hardening and resiliency expenditures, storm response expenses and New England electric transmission expansion expenditures that also impact ratepayer bills will be to increase rates. The general body of ratepayers would provide funding to subsidize programs that target individuals' specific energy use, and would be assigned the risk if the initiatives do not meet projections. Notwithstanding the above, the number of variables going forward that could affect the PURA's analysis makes any prediction of future savings for the non-participants speculative.

Due to the unprecedented, large number of electric and gas programs scheduled to begin almost simultaneously, the Public Utilities Regulatory Authority (Authority or PURA) can only properly assess ratepayer impact by viewing the CES as a single program and recognizing the many concurrent electric initiatives that ratepayers may be required to fund. The CES programs are not the only drivers that will place upward pressure on utility rates as stated above.

The OCC supported a comprehensive cost evaluation as well. It requested that the DEEP engage in an analysis of the impact on bills of all of the various programs and initiatives that are on the horizon, rather than evaluating each in isolation.[1] As concrete initiatives come before the PURA, it will review and decide upon proposals that will have specific ratepayer impact. The Authority provides the following points on the major issues discussed in the CES that will have an impact on the electric distribution companies' (EDCs) and gas local distribution companies' (LDCs) ratepayers.

- The EDCs and LDCs proposed three-year Conservation and Load Management (C&LM) budgets totaling $1.246 billion, which would be reflected in ratepayers' monthly bills if approved. See, Section III.A Conservation Budgets and Programs.

[1] OCC December 21, 2012 Written Comments concerning the draft 2012 Comprehensive Energy Strategy, p. 9.

- The CES stated that ratepayers cannot indefinitely support the bulk of energy efficiency program budgets. Energy efficiency proposals should center on a shift from a reliance on ratepayer funding to one that has a much greater focus on private capital leveraged by limited government funding, which lessens the impact on public utility rates. See, Section III. Energy Efficiency Strategy.

- The CES stated that bill financing must have enforcement mechanisms that lower lenders' risks. With or without enforcement mechanisms, on-bill financing may have the potential to increase uncollectible accounts that would affect the general ratepayer rates. Service termination, as a part of these programs, should be limited to what is contained in current statutes related to non-payment. See, Section III.D. Upfront Capital Outlay.

- The CES suggested that landlords may be reluctant to participate in the state's energy efficiency programs if their properties have health and safety-related code violations, such as asbestos, mold, or "knob-and-tube" electric wiring. These code violations would have to be remedied before a home energy audit could be performed. Although the details of any such program are not stated in the CES, the PURA is concerned with the potential of ratepayer funds being used to remedy landlord code violations. See, Section III.D. Upfront Capital Outlay.

- Connecticut has the highest renewable portfolio standards (RPS) and the least renewable sources of any New England state. The CES recommended a rapid expansion of in-state renewable power. Additional renewable sources of energy are likely to raise costs and ultimately rates as a result of the subsidies that are given to renewables. See, Section IV.B. Renewable Power.

- The proposed expansion of an estimated 900 miles of new gas mains to the LDCs' distribution systems and the addition of 305,000 new firm customers would be a 53% increase in customers. Such growth is in contrast to the LDCs' addition of 57 miles of main in 2012 and the average growth rate over the past seven years of approximately 1.1% per year. See, Section V. Natural Gas Expansion Plan

- The LDCs stated that the implementation of the CES's proposed gas expansion plan could not be done without increasing customer rates or charges. See, Section V. Natural Gas Expansion Plan.

- For the proposed off-main customer expansion, the average capital cost to connect one new off-main customer would be $16,180, which is approximately four times higher than the CES estimated cost of $4,283. See, Section V B. Off-System Capital Investment – Segment B.

- The Authority conducted its own analysis and compared today's average distribution-only bill for all three LDCs combined with the average bill that

would exist for all 883,890 customers in year seven. The increase in the average distribution-only bill would be 37%. See, Section V.C.3. Increase to Average Distribution-Only Bill

- The substantial proposed expansion of the natural gas system could result in an additional increase of $2.26 billion in rate base and may not occur without funding from all natural gas ratepayers and potentially all state residents. Historically, the Authority has made every effort to prevent subsidies between customers and customer classes including minimizing existing ratepayers being responsible for reducing the cost to connect new customers. See, Section V.C.2. Revenue Requirements.

- It is premature to provide a full revenue requirement calculation for the estimated $813 million cost to provide services to 177,000 potential new on-main customers and for the estimated $1.4 billion cost to provide services to 89,000 potential new off-main customers. However, the LDCs estimated that the additional annual revenue requirement associated with the proposed on-main expansion is approximately 20% of the additional annual rate base amount. Hence, the LDCs calculated an estimated peak annual revenue requirement of approximately $163 ($813 x 20%) million for the on-main expansion and approximately $288 ($1,400 x 20%) million for the off-main expansion. See, Section V.C.2. Revenue Requirements.

- At present, there are not enough construction crews in Connecticut to implement the proposed expansion plan as described in the CES. The LDCs indicated that it could take a year to train new construction crews plus contractors from outside the state want long-term contracts before committing to a project. During 2012, the three LDCs installed a total of 57 miles of mains for new business and 6,250 services. The Authority estimates that the LDCs would need to add approximately 200 new crews to install the 900 miles of new main and 305,000 services, which would increase cost and impact ratepayers. See, Section V.C.4. Construction Crews.

- Under the proposed expansion plan, the minimum estimated incremental capacity required to meet the increased demand for 305,000 new customers would be approximately 280,000 Mcf and cost an additional estimated $91 million annually for which all existing ratepayers would be responsible. See, Section V.D. Gas Supply.

- To the Authority's knowledge, the LDCs have not had any reliability issues in the recent past, and it only becomes an issue when a LDC does not have enough peak day supply to meet existing firm demand or uses interruptible supply to meet firm load. See, Section V.D.3. Reliability of Natural Gas.

- Electric reliability issues related to large gas-fired generators in New England have occurred in the recent past due to interruptible gas supply being used by a number of generators instead of firm supply to produce electricity. These issues currently are being discussed in the Federal Energy Regulatory

Commission's Docket AD12-12-00. Coordination between Natural Gas and Electric Markets. See, Section V.D.3. Reliability of Natural Gas.

- Some of the CES's proposals would result in an increase in pipeline demand charges, a reduction in non-firm margins (NFMs), and a $5 month additional distribution charge. The proposed 87% decrease in NFM to subsidize the addition of the new customers would result in a $35.5 million increase in the gas costs for all ratepayers based on 2012 data. These specific proposals would result in an increase of $18.18 to $27.62 for one specific month for an average residential customer. See, Section V.D.5 Impact of Certain Items on All Natural Gas Ratepayers.

- The total estimated cost for the connection of the proposed Segment B, 89,000 off-main customers is $2.04 billion, which does not include any other costs such as system costs, operation and maintenance costs, gas costs, and administrative costs. At the completion of the expansion, the estimated cost of connecting a new residential heating customer would be $15,126 and for a large C&I 75 kW co-generator, $2.8 million. See, Section V.E. Segment B – 89,000 Customers.

The CES focused on strategies for energy efficiency, renewable power, industrial energy needs, electric supply, natural gas, and transportation. The PURA issued discovery requests to the EDCs and the LDCs in an effort to evaluate the CES proposals and the impact on ratepayers. Answers to these discovery requests were the subject of technical meetings held on January 28, 2013 and January 29, 2013. During the Authority's review of the information provided by the utilities, it became apparent that the ability to quantify individual program costs with precision is limited. The totality of program costs will need to be understood before funding is advanced for individual programs. The Authority provides comments on the impact on ratepayers regarding all of these areas and, in particular, the natural gas expansion plan.

PURA COMMENTS ON THE
DRAFT COMPREHENSIVE ENERGY STRATEGY

I. ENERGY EFFICIENCY STRATEGY

The CES contemplated substantial increases in energy efficiency spending for all customer sectors.[2] The effectiveness of any expended conservation dollars must be evaluated through proper cost benefit analysis to ensure that customers are receiving greater benefits on conservation programs. The Authority agrees that the energy efficiency proposals should center on a shift from a reliance on ratepayer funding to one that has a much greater focus on private capital leveraged by limited government funding.[3] The PURA assumes that the more expensive options that would either involve taxpayer funds or result in unacceptably high rates will not proceed. The Authority notes that The Connecticut Light & Power Company (CL&P) asserts that the five proposals in the CES, if implemented, may affect the reliability of the CL&P electric distribution system. In addition, CL&P argues that all of its distribution system customers should not subsidize the costs to provide premium reliability service to a select few customers and/or municipalities.[4] While additional conservation, if successfully implemented, could lower bills, the PURA's recent experience indicates that this has not occurred.

Finally, the Authority agrees with the OCC that over the next three years, electric bills paid by Connecticut's EDC customers will experience upward financial pressure from many different sources. These include a wide range of renewable energy project initiatives under development, system hardening and resiliency expenditures, storm response expenses, additional investments in electric transmission system projects throughout New England, potential distribution rate increases, and over-market purchased power contracts for new gas-fired generating facilities. According to the OCC, these initiatives are estimated to increase overall electric rates for Connecticut customers by a total of $1 billion for the period 2013 to 2015, yet they do not appear to be factored into the DEEP's analysis in the Efficiency Sector of the CES.[5]

A. CONSERVATION BUDGETS AND PROGRAMS

On November 2, 2012, the EDCs and the LDCs filed their respective proposed three-year conservation budgets in the Connecticut Energy Efficiency Fund's Conservation and Load Management Plan for 2013 through 2015 (C&LM Plan).[6] The three-year CL&M Plan contains two related yet distinct plans comprised of two different levels of proposed funding, a Base Plan and an Expanded Plan. The Base Plan reflected the standard three-year budgets and savings associated with the traditional

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2 CES, p. 11.
3 CES, p. 13.
4 CL&P Response to DR-61, pp. 1-3.
5 OCC Comments, pp. 8 and 9.
6 Docket No. 12-11-01, PURA Review of the Connecticut Energy Efficiency Fund's Gas Conservation and Load Management Plan for 2013 through 2015.

funding, and the Expanded Plan described increased funding levels.[7] On February 25, 2013, the EDCs and LDCs refiled the entire C&LM Plan with certain revisions that increased the combined three-year budgets by $11.7 million. For the next three years, the EDCs proposed a combined Base Budget of $307 million, an Expanded Budget of $743 million, and a total budget of $1.1 billion. The LDCs proposed a combined Base Budget of $72 million, an Expanded Budget of $124 million, and a total budget of $196 million. The proposed total EDC's and LDC's conservation budgets over the next three years is $1.246 billion. The following is a breakdown of the EDCs and LDCs proposed base and expanded budgets for the next three years.

EDCs REVISED PROPOSED COMBINED BUDGETS

Year	Base Budget	Expanded Budget	Total Per Year
2013	$101,454,742	$195,432,432	$296,887,174
2014	$102,275,794	$246,142,964	$348,418,758
2015	$102,838,953	$301,745,735	$404,584,688
Totals	$306,569,489	$743,321,131	$1,049,890,620

LDCS REVISED PROPOSED COMBINED BUDGETS

Year	Base Budget	Expanded Budget	Total Per Year
2013	$24,118,792	$37,422,835	$61,541,627
2014	$23,539,159	$41,962,303	$65,501,462
2015	$24,061,516	$45,038,883	$69,100,399
Totals	$71,719,467	$124,424,021	$196,143,488

C&LM Plan, pp. 24, 93, 320, & 397.

Funding for conservation programs currently allowed to be recovered in customer rates include only the base budget amounts approved for 2012. Base levels for electric C&LM are funded through a 3 mill / kWh charge on CL&P and The United Illuminating Company (UI) customers' bills. Natural gas expenditures are funded through a conservation adjustment mechanism (CAM) imposed on Connecticut Natural Gas Corporation (CNG), The Southern Connecticut Gas Company (Southern), and Yankee Gas Services Company (Yankee) customers.

The proposed expanded portion of electric C&LM funding represents a 243% increase above base spending. Below is an illustration of the annual impacts under average levels of consumption for various rate classes. This impact is at the base proposed levels of electric C&LM spending for CL&P and UI customers.[8] The CES estimated that all cost-effective spending could be approximately $327 million annually, an increase of $65 million above the total proposed base and expanded budget through

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[7] C&LM Plan, pp. 1 and 2.

[8] Id.

2022.[9] Approximately $22 million is funded from sources other than the 3 mill / kWh charge.[10] These additional funding sources are held constant and removed from the total in determining a going forward conservation charge. As the current 3 mill / kWh charge is set to generate approximately $84 million, an increase to $271 million ($327 million - $22 million of other funding - $34 million natural gas conservation) would represent a 223% increase in the mill rate. Below are the annual and 10-year projections under the all cost effective scenario, which equates to a rate of $.00969 / kWh.

All Cost Effective Budget Conservation Contributions from CL&P Customers

A	B	C	D
Customer type or class	Average Annual 2011 Consumption (kWh)	Annual Conservation Contribution (B * $.00969 kWh)	2013-2022 Conservation Contribution (C * 10 yrs)
Residential Customers			
Income Eligible	9,665	$93.56	$935.57
Electric Service	8,610	$83.34	$833.45
Electric Heating	13,215	$127.92	$1,279.21
Time of Use/Day	12,750	$123.42	$1,234.20
C&I Customers			
Average C&I	Not Provided	Not Provided	Not Provided
High C&I (actual usage)	126,422,308	$1,223,697.94	$12,237,679.41

2012 Electric C&LM Decision, p. 9.

All Cost Effective Budget Conservation Contributions from UI Customers

A	B	C	D
Customer type or class	Average Annual 2011 Consumption (kWh)	Annual Conservation Contribution (B * $.00969 kWh)	2013-2022 Conservation Contributions (C * 10 yrs)
Residential Customers			
Income Eligible	6,726	$65.11	$651.08
Average Residential	6,804	$65.86	$658.63
Time of use	13,028	$126.11	$1,261.11
C&I Customers			
Low-use C&I	30,942,000	$299,518.56	$2,995,185.60
Average C&I	60,048,748	$581,271.88	$5,812,718.81
High C&I	120,229,255	$1,163,819.19	$11,638,191.88

Id.

The 2012 base and expanded budgets for the natural gas conservation programs are listed below. Charges for natural gas conservation under the CAM are determined by an approved natural gas conservation budget spread over the forecast sales for which the budget will be in place. The percentage increase listed below reflects the CAM line item increases for the expanded budget by rate class.

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9. CES, p. 11.

10. Decision dated August 8, 2012, Docket No. 12-02-01, PURA Review of the Energy Efficiency Fund's Electric Conservation and Load Management Plan for 2012 (2012 Electric C&LM Decision), p. 7

Yankee	Base	Expanded Budget	% Increase
Residential	$3,814,000	$ 6,198,359	63%
C&I	$2,850,000	$ 6,257,075	120%
Administrative	$ 394,500	$ 591,750	50%
Total	$7,058,500	$13,047,184	85%

CNG	Base	Expanded Budget	% Increase
Residential	$3,371,172	$ 5,556,820	65%
C&I	$2,350,000	$ 4,555,751	94%
Administrative	$ 355,500	$ 533,250	50%
Total	$6,076,672	$10,645,821	75%

Southern	Base	Expanded Budget	% Increase
Residential	$3,436,803	$ 5,993,173	74%
C&I	$2,200,000	$ 3,984,561	81%
Administrative	$ 355,500	$ 533,250	50%
Total	$5,992,303	$10,510,984	75%

Decision dated January 4, 2012, Docket No. 11-10-03, PURA Review of the Connecticut Energy Efficiency Fund's Gas Conservation and Load Management Plan for 2012, pp. 6 and 7.

The CES proposed a dedicated surcharge on fuel oil prices to fund oil efficiency programs that increase efficiency for oil customers. Under this proposal, customers that are on-main and do not fully convert to natural gas (non-heating only), would be subject to three conservation charges (electric, natural gas and fuel oil). This is noteworthy as there are approximately 63,000 non-heating customers among the three LDCs.

B. Financing Energy Efficiency Investments

The CES indicated that a critical element of the energy efficiency proposals centers on a shift from a reliance on ratepayer funding to one that has a much greater focus on private capital leveraged by limited government funding.[11] The Authority endorses the concept of this shift, especially in light of an estimated 262% increase in spending that the CES endorsed. More private capital included in financing energy efficiency will lessen the effect on public utility rates. Over time, this initiative should allow ratepayer funding to be scaled back. The CES also advocated regulatory changes in the PGA credit sharing. Specifically, the allocation of PGA credits would be for an interest rate buy-down to bring customer financing rates to 1% instead of being used to reduce rates generally.[12]

Presently small business owners can receive loans for efficiency upgrades from the utilities at ratepayer-subsidized interest rates. The loans are then paid back on utility bills with no enforcement mechanisms, such as the ability to shut off service to

[11] CES, p. 13.
[12] CES, p. 139; Response to DR-31.

customers who default on the loans.[13] Alternative financing and the concurrent decrease in ratepayer funding should be included in the planning horizon.[14] Failure to specify the amount and sources of future financing will not allow market players to plan effectively and may create a market expectation of continuous ratepayer funding that will prove difficult to reverse later. The best way to ensure consistent funding for energy efficiency is to diversify the revenue sources that support them. Further, the CES stated that ratepayers cannot indefinitely support the bulk of energy efficiency program budgets.[15]

C. Home Energy Solutions Program

The CES stated that of the 951,000 customers eligible for the Home Energy Solutions Program (HES Program), only 74,000 residents have participated since 2007.[16] There is a need to review the goals, incentives, and ratepayer benefits of efficiency programs prior to expansion of the HES Program to ensure efficient use of current ratepayer funding. Any type of program should ensure that customers are not being oversold on the benefits of conversion and understand all of the ramifications and costs of a changeover.

The CES indicated that the HES program has over-rewarded companies that can perform the initial audits en masse. The CES recommended that a scorecard be developed to evaluate contractor performance, tested and refined to make it as effective as possible.[17] The PURA is concerned that financial rewards to contractors are linked to the number of customer conversions that are achieved. Any over-rewarding of contractors would result in an increase in conservation expenses, impact the cost benefit analysis, and ultimately ratepayers through higher rates.

D. Upfront Capital Outlay

The CES concluded that the major barrier to customers seeking deeper efficiency measures is the upfront capital outlay. For residents who heat with oil, converting to more energy-efficient less expensive natural gas has an average residential cost of $7,500. Conn. Gen. Stat. §16a-40l directs the DEEP to establish residential heating equipment financing through on-bill financing or by other means. The CES stated that bill financing must have enforcement mechanisms that lower lenders' risks.[18] This suggestion questions the effectiveness of utility company enforcement mechanisms. With or without enforcement mechanisms, on-bill financing may have the potential to increase uncollectible accounts that would affect the general ratepayer rates. The OCC disagrees, for consumer protection reasons, with allowing utility shut-offs for nonpayment of loans.[19] The PURA believes that service termination,

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13 CES, p. 25
14 OCC Comments, p. 7
15 CES, p. 6.
16 CES, p. 21.
17 CES, pp. 21 and 26.
18 CES, p. 30.
19 OCC Comments, p. 2.

as a part of these programs, should be limited to what is contained in current statutes related to non-payment.

The CES suggested that landlords may be reluctant to participate in the state's energy efficiency programs if their properties have health and safety related code violations, such as asbestos, mold, or "knob-and-tube" electric wiring. These code violations would have to be remedied before a home energy audit could be performed.[20] Although the details of any such program are not stated in the CES, the PURA is concerned with the potential of ratepayer funds being used to remedy landlord code violations.

II. ELECTRICITY SECTOR STRATEGY

A. DECREASED ELECTRIC PRICES

The CES noted that a number of factors have decreased prices for electric consumers.[21] One is a large decline in the price of natural gas coupled with the fact that 45% of the generation mix in Connecticut is gas-fired. A smaller portion of the decrease is due to the expiration of the recovery of stranded costs by the Competitive Transition Adjustment/System Benefit Charge. The reduction in current electric prices should not be seen as a permanent reduction.

The largest factor in the current electricity price decrease in natural gas commodity price subject to volatility. The cost of gas is projected to increase by 2017.[22] Therefore, the current electric price decrease should not be treated as "found money" for other programs. This cushion should be preserved, as any other approach would have a significant impact on consumers when commodity prices increase as expected. The OCC argued that the "all-in" price for electricity paid by customers may have already ebbed, even adjusting for inflation.[23]

B. RENEWABLE POWER

Connecticut has the lowest amount of renewable resources of any New England state and the highest RPS standards. Under the current structure, entities serving Connecticut's load routinely fail to meet the current RPS goal. The CES called for a rapid expansion of in-state renewable power while also supporting a regional collaboration to procure the most cost-effective out-of-state renewable resources.[24] Additional renewables sources of energy are likely to raise costs and ultimately ratepayer rates and bills as a result of the subsidies given to renewables. The process of rapidly expanding in-state renewable power is costly given Connecticut's limited renewable resources. A comprehensive and impartial cost-benefit analysis should precede any further ratepayer commitment to renewable energy projects to ensure that the estimated impact on customers is understood prior to investment in a strategy.[25]

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[20] CES, p. 32.
[21] CES, p. 74.
[22] CES, p. 81.
[23] OCC Comments, p. 26.
[24] CES, p. 82.
[25] UI Response to DR-62.

Based on the potential availability of renewable resources in Connecticut, the fact that consideration is being given to raising the RPS target above the current 20% target by 2020 is of concern.

The potential cost impact that pursuing wind and solar resources would have on ratepayers needs to be assessed. The potential for in-state wind generation is limited since Connecticut lacks the geographic characteristics of Northern Maine, New Hampshire, and Cape Cod. In 2012, the Authority established a $1 billion zero emissions REC (ZREC) and a low emissions REC (LREC) program.[26] Concerning the ZREC portion of that program, solar only has a load factor in the 15% to 17% range. The CES stated that "[u]nless regional development of renewable resources and enabling transmission accelerates, Connecticut customers could face Alternative Compliance Payment (ACP)[27] obligations of more than $250 million (in 2012 dollars) annually by 2022 under the structure of the existing RPS."[28] All else being equal, increasing the RPS would only increase these obligations.

C. Nuclear and Natural Gas Generation

The CES pointed to Connecticut's reliance on nuclear (47%) and natural gas (45%) generation, which accounts for 92% of the current electric generation. While these sources meet current needs, this limited diversification in generation exposes the state to both price and reliability risks.[29] The CES called for an electricity sector that has greater flexibility, more diverse sources of supply, a higher use of renewable energy and a commitment to capacity increases in step with demand growth. Connecticut is part of a regional wholesale market, so diversity is viewed as a regional and state issue. There is no dispute that these are worthy goals; however, achieving these goals in unison may prove to be difficult and costly. Increased flexibility, diversity of resources and a higher use of renewables will likely not lead to reduced electricity costs.

The CES pointed to potential price spikes in natural gas as being problematic.[30] Potential price spikes have implications for the natural gas build-out and customer conversion program that the CES contemplates. Additionally, potential price spikes and the effect that they may have on the projected customer savings are of major concern from a ratepayer perspective. Natural gas price volatility has the potential to be the single largest factor affecting ratepayers due to its significant impact on customers' bills.

D. Clean Energy Resources

The CES stated that regional coordination and federal regulation to phase out dirty power plants within and beyond the state's borders are needed to address

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[26] See, Decision dated April 4, 2012 in Docket No. 11-12-06, Joint Petition by The Connecticut Light and Power Company and The United Illuminating Company for Approval of the Solicitation Plan for the Low and Zero Emissions Renewable Energy Credit Program.

[27] The ACP is a penalty to be paid by ratepayers in the event that the 2020 goal is not met.

[28] CES, p. 82.

[29] CES, p. 82.

[30] CES, p 115.

Connecticut's air quality issues effectively.[31] They will, however, come at a price of higher rates to ratepayers. Matching the benefits with the costs is critical.

1. **Landlord Generation and Sale of Electricity**

The CES recommended that the state allow "submetering" of electricity produced on site by a landlord in a multi-tenant building. The arrangement described in the CES is a limited case of submetering.[32] More generally, submetering is the practice of a landlord individually metering the electric usage in a multi-tenant building, regardless of who supplies the electricity, with a master meter installed by the electric utility. A master meter measures the electric usage of the entire premises. Billing of each tenant is based on the billing rate for the electricity consumed, and a landlord may not charge more for electricity than the utility rate applied to all consumption metered at the main meter. Unless safeguards are put in place, electric submetering could be harmful to tenants of buildings. It sets up a monopoly arrangement, whereby landlords may charge tenants excessive rates for electricity, subject to minimal protection or intervention from a regulatory authority. The tenants cannot opt out of such an arrangement, choose an alternate electric supplier, or participate in utility-sponsored conservation programs, since they are not utility customers.

2. **Financial Implications of CES on EDC Ratepayers**

The cost of equity was an important consideration in the CES because it affects the utility service rates paid by all customers. One of the risks affecting equity costs and typically faced by EDCs is the volatility of sales revenues. The EDCs' sales revenues are negatively affected through lost revenues resulting from conservation and load management measures. To mitigate the loss of revenues by the EDCs due to expanded conservation and load management, the CES advocates decoupling. Decoupling is a regulatory mechanism that enables a utility to recover its allowed costs even as sales decline due to efficiency gains.

In 2009, the Authority established a decoupling mechanism for UI on a pilot basis that provides for the difference between the actual revenue collected as compared to the allowed revenue set by the Authority to be trued up in an adjustment mechanism.[33] For CL&P, the Authority implemented decoupling through rate design in 2007 and then denied full decoupling in 2010.[34] The unanticipated loss of revenues from increased conservation reduces expected returns and may be perceived by investors as an increase in risk. UI and CL&P argued that their ROEs should reflect this increase in risk and called for higher allowed ROEs in their respective rate cases, all other factors held constant. However, all other factors are usually not held constant. The key considerations are whether energy efficiency investments increase or lessen revenue volatility, whether the expected loss in revenues is accounted for in setting rates, and

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31 Id.

32 CES, p. 107.

33 Decision dated February 4, 2009, in Docket No. 08-07-04, Application of The United Illuminating Company to Increase Its Rates and Charges

34 Decision dated January 28, 2008, in Docket No. 07-07-01, Application of The Connecticut Light and Power Company to Amend Rate Schedules, and Decision dated June 30, 2010, in Docket No. 09-12-05, Application of The Connecticut Light and Power Company to Amend Its Rate Schedules.

whether revenue volatility is mitigated through rate design or true-up mechanisms. Increases in required ROEs should be avoided, as they equate to higher rates for customers.

III. NATURAL GAS EXPANSION PLAN

The CES proposed an expansion of an estimated 900 miles of new gas mains to the LDCs' distribution systems and the addition of 305,000 new firm customers consisting of on-main customers (Segment A, 216,000) and off-main customers (Segment B, 89,000).[35] The proposed expansion represents a 53% increase in customers over the LDCs' December 31, 2011 578,890[36] existing meter/customer base. That growth is in contrast to the LDCs' addition of 57 miles of main in 2012 and the average growth rate over the past seven years of approximately 1.1% per year. Given its size, the proposed expansion could have a significant impact on all gas ratepayers depending on how much of the expansion needs to be subsidized by existing ratepayers. It is estimated that 250,000 dekatherms of incremental capacity will be needed to provide service to these new customers.[37] Existing ratepayers may end up being responsible for the cost of this capacity before new customers are connected to the system. The cost of the incremental capacity is currently unknown. Adequate gas pipeline capacity is both a short- and long-term issue and may not be available in quantities to support the scope of the proposed expansion plan.

After the CES plan is approved, the LDCs plan to file a joint plan that proposes to expand natural gas conversion activities over the next seven years targeting cost-effective potential on- and off-main customers. The plan would be developed in consultation with the DEEP and submitted to the Authority for approval.[38]

A ON-MAIN CAPITAL INVESTMENT – SEGMENT A

The CES stated that the LDCs estimated that there are about 177,000 homes and businesses in Connecticut located on-main that currently have no gas service. In addition, that there are 39,000 non-heating gas customers that have the potential to convert to heating. The non-heating customers will have the same overall conversion costs as the "on main" customers (e.g., for equipment replacement); however, the gas companies incur little to no distribution infrastructure costs when the customer converts. It appears that the CES used for purposes of its analysis, 216,000 (177,000 + 39,000) new Segment A customers, 89,000 Segment B customers for a total of 305,000. In reading this portion of the CES plan, the Authority used the plan's assumption of 305,000 new customers. These numbers do not match the customer numbers presented by the LDCs. The CES calculated the estimated cost to convert 216,000 Segment A customers to be approximately $815 million.[39]

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35 CES, pp. 5, 124-126;

36 The LDCs' latest meter count was 578,890 (CNG, 173,217; Southern, 193,362; and Yankee, 212,311) as of December 31, 2011 CNG, Southern, Yankee FERC Form 2. While some customers have more than one meter, the billing is the same as if each meter was another customer.

37 Response to DR-15.

38 CES, p. 138.

39 CES, pp. 122-126, Response to DEEP Questions, dated August 17, 2012, p. 1. Table.

The Authority analyzed the potential rate impact on existing ratepayers associated with the 216,000 on-main Segment A customers. The CES defined a new firm residential on-main customer as one that is located within 150 feet from an existing natural gas main. Under this assumption, no main extension would be needed to convert these customers to natural gas. The CES further estimated that the average cost for service and meter installations would be $4,283 for a new residential customer $7,669 for a commercial customer and $11,504 for an industrial customer.[40]

Under the LDCs' proposal, any residential customer within 150 feet of an existing main would be considered an average customer. The Hurdle Rate[41] would not be used for that customer even if a short extension of new main were required to connect them to the existing system.[42] It is unclear how the LDCs define this distance. One interpretation is that the length of pipe put in the ground to serve the customer must be no longer than 150 feet. Another is that the 150 feet is the linear distance in a straight line from the main to the home across a customer's property. In the latter case, the actual length of new main plus the service could be greater than 150 feet, while the wording of the definition is still met. The definition of whether an average new customer is within 150 feet of an existing main must be clear and unambiguous. It specifically should indicate whether 150 feet from an existing main is for the length of a service or new main plus the service length. Depending on how the 150 feet is defined, the total cost to provide service to a customer would be higher or lower ultimately affecting the capital cost of serving that customer.

B OFF-SYSTEM CAPITAL INVESTMENT - SEGMENT B

The CES cited a Department of Economic and Community Development (DECD) study that indicated there was a potential of 89,000 new off-main customers (Segment B) within Connecticut.[43] The DECD study stated that the LDCs would have to add almost 900 miles of new natural gas mains during two, five-year periods.[44] The Authority developed the analysis below showing the potential impact to ratepayers associated with the expansion plan for the off-main customers cited in Segment B.

For the cost per mile of off-main, the CES used different numbers than those provided by the LDCs. The CES estimated the capital cost to add 89,000 customers to be approximately $1.44 billion. This number includes $926 million for the 900 miles of new distribution mains over a seven-year period and $512 million for services and meters.[45] Based on the Segment B total capital investment of $1.44 billion, the Authority calculated the average cost per new off-main customer of $16,180 ($1.44 billion / 89,000 new customers). This cost is approximately four times higher than the

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40 CES, pp. 121 and 124.

41 The Hurdle Rate is a calculation whereby the gas company would invest (and then recover from existing ratepayers) the costs of expanding the distribution system to add a new customer if the expected increase in revenues from supplying natural gas to the new customer is sufficient to recover both the costs and the associated utility rate of return over a specific period of time.

42 Tr. 1/29/13, pp. 459-465.

43 In 2011, Connecticut's LDCs commissioned the DECD to produce a study on The Economic Impact of Expanding Natural Gas Use in Connecticut.

44 CES, p. 128.

45 CES, pp. 122, 26; Response to DEEP Questions, dated August 17, 2012, p. 2.

CES estimated cost of $4,283 for a new on-main customer As with all capital investments, the LDCs' shareholders initially fund those costs in excess of the contribution-in-aid-of-construction (CIAC). Subsequently, each LDC could request, in a future rate case, recovery from ratepayers for such items as their capital investment through the rate of return (ROR) on rate base, depreciation, and taxes on the $1.44 billion associated with the addition of 89,000 customers.

C. Impact of the Expansion on Ratepayers

1. Rate Base

The CES estimated the total proposed cost for Segments A and B customers to be $2.26 billion ($815 million for on-main new customers + $1.44 billion for off-main new customers). This amount does not include any expansion costs upstream of the new customers or peaking facilities that may be necessary to support the addition of the new customers. CNG and Southern have preliminary information concerning the expansion of the LNG facilities; however, neither company has issued bidding documents for the project. CNG and Southern believe the expansion is economical but will not have a reasonable cost estimate until bids have been received from contractors [46]

As of December 31, 2011, the LDC total rate base numbers for Mains, Services, Meters, and Meter Installations accounts was $2.08 billion as stated in their annual reports.[47] Acceptance of the CES' proposed expansion plan would result in an additional increase of $2.26 billion in rate base. This increase would more than double the LDCs' latest rate base of $2.08 billion for a total plant investment in those accounts of $4.34 billion at the end of seven years. The $4.34 billion does not include any other plant additions occurring during the seven–year period. Finally, the CES did not provide a breakdown of the capital investment cost between services and meters. Therefore, it is unclear if the capital investment associated with meter installations was included in the CES capital investment for Segments A and B If it was not included, the capital investment amount would be higher, increasing the revenue requirement and consequently increasing rates.

As part of the expansion plan, the CES recommended that the Hurdle Rate payback period be increased to 25 years for the three LDCs. Expanding the Hurdle Rate payback period would increase the rate base funded by the gas companies and ultimately their general ratepayers by approximately $339 million.[48] Any increase in the payback period for the Hurdle Rate needs to be fully analyzed to determine whether it is cost effective and the potential impact to the new customer and existing ratepayers.

2. Revenue Requirements

a. LDCs' Analysis of Potential Impacts on Ratepayers

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[46] Tr. 1/29/13, p. 407.
[47] 2011 CNG; Southern and Yankee Federal Energy Regulatory Commission Forms No. 2, p. 209.
[48] CES, p. 143.

The LDCs stated that it was premature to provide a full revenue requirement calculation for the estimated $813 million cost to provide services to 177,000 potential new on-main customers and for the estimated $1.4 billion cost to provide services to 86,000 potential new off-main customers. Currently, they do not have detailed costs such as depreciation, related O&M, property taxes, uncollectible expense and the tax treatment associated with this potential expansion plans. However, the LDCs estimated that the additional annual revenue requirement associated with the proposed on-main expansion is approximately 20% of the additional annual rate base amount. Hence, the LDCs calculated an estimated peak annual revenue requirement of approximately $163 ($813 x 20%) million for the on-main expansion and approximately $288 ($1,400 x 20%) million for the off-main expansion. Additionally, the LDCs are unable to determine the level of subsidization required from existing customers because they have not determined the overall revenue requirement and corresponding rate design. Nevertheless, they indicated that the substantial expansion of the natural gas system envisioned in the CES may not occur without some funding from all gas ratepayers and potentially all state residents through taxes and bonding. The LDCs stated that they agree with the CES that the recovery of the revenue requirements, the returns of and on capital investment, depreciation expense, associated incremental O&M costs, uncollectible expense, income and property taxes, associated with the expansion plan should be done in a timely manner and set via a fully reconcilable annual tracker.[49]

To recover the estimated $1.4 billion for the off-main expansion, the LDCs recommended a new rate design with two different rate components. First, a Shared Savings Rate (SSR) for new customers in the form of either current distribution rates increased by a pre-determined percentage, or an increased monthly customer charge, an increase on the volumetric charge or a combination of the two. Second, any revenue requirement dollars not collected through the SSR would be collected monthly from all existing customers through a new System Expansion Rate (SER). The proposed SER would be reviewed annually, trued up at the end of the expansion program, and have a duration linked to the size of the program.[50]

The allocation of the revenue requirement between the new and existing gas customers would depend on factors such as the size and cost of the program, the level of SSR revenues from the new customers, the potential impact on existing ratepayers and the price differentials between gas and fuel oil. The LDCs plan to submit their detailed proposal as part of the expansion plan filing subsequent to the issuance of the final CES.[51] The LDCs stated that the implementation of the gas expansion plan could not be done without increasing customer rates or charges. The significant expansion required by the CES plan is different from that allowed under normal rate regulations. For this reason, the LDCs are proposing the SSR and SER to help fund the Segment B expansion.[52]

The LDCs provided the calculations depicted in the table below to show the potential impacts of the natural gas pipeline expansions proposed in the CES on

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[49] Response to DR-26, pp. 1 and 2.
[50] Response to DR-35.
[51] Response to DR-35.
[52] PUHA's Technical Meeting, Tr. 07/23/2013, pp. 492 and 493.

existing ratepayers.[53] The gas companies emphasized that these calculations represent a high-level estimate and are based on highlighted assumptions. Thus, changes to those assumptions will change the results. Furthermore, the LDCs noted the rate impact represents the peak revenue requirements during the expansion period.

As the expansion is executed, it will take several years before reaching this peak level, and once the peak level is reached, rates will start to decline. For example, under the seven-year expansion program, the revenue requirement will grow in each of the first years, reach its maximum level in the final seventh year of the capital expansion and then decrease over the remaining life of the expansion investments. The reason that the revenue requirement will decline beyond the peak year is that depreciation reduces the net plant value and related required return. Additionally, the potential ratepayer impact will wane over time as additional expansion volume and revenue make an increasing contribution toward the declining revenue requirement beyond the peak year. Thus, over the life of the assets, on a levelized basis, the impact on existing ratepayers will be substantially lower than for the peak year period.[54] The following is the table provided by the LDCs where "Res" stands for residential customers, "Comm" commercial customers, and "Ind" industrial customers.

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[53] Response to DR-68, p. 3.
[54] Id., pp. 1 and 2.

Main Expansion Costs - Rate Impact

ITEM	Res	Comm	Ind	Total
Gross capital investment - meter & services ($ in millions)				$ 1,393
Services adjustment				90%
Net capital investment - meter & services ($ in millions)				$ 1,131
Gross off-main capital investment - mains ($ in millions)				$ 926
Economies of scale assumption				5%
Net off-main capital investment - mains ($ in millions)				$ 880
Total off-main capital investment ($ in millions)				$ 2,070
Peak annual revenue requirements assumption				20%
Peak annual revenue requirements ($ in millions)				$ 414
Off-main customer additions (by end of expansion plan)	51,506	37,333	539	89,378
On-main customer additions (by end of expansion plan)	160,852	15,585	569	177,006
New customer additions (on-main and off-main)	212,358	52,918	1,108	266,384
Average annual usage per customer (MCF)	100	300	500	
Distribution charge unit rate ($/MCF)	$ 8.00	$ 7.50	$ 7.00	
Average annual distribution margin per customer per year	$ 800	$ 2,250	$ 3,500	
Customer annual distribution margins ($ in millions)	$ 170	$ 119	$ 4	$ 293
Shortfall revenue requirements ($ millions)				$ 121
Shared Savings Rate for new customers	30%	30%	30%	
"Shared Savings Rate" margin per customer per year	$ 240	$ 675	$ 1,050	
Shared Savings Rate annual revenues ($ in millions)	$ 51	$ 36	$ 1	$ 88
Shortfall revenue requirements ($ millions)				$ 33
Allocation across customer class	76%	22%	2%	100%
Allocated revenue requirements to recover (in millions)	$ 25	$ 7	$ 1	$ 33
Existing number of customers	498,665	48,726	2,592	549,983
"System Expansion Rate" annual customer impact	$ 51	$ 151	$ 258	
"System Expansion Rate" monthly customer impact	$ 4.24	$ 12.57	$ 21.48	
Supply, CAM and other non-distribution unit rates ($/MCF)	$ 6.50	$ 6.50	$ 6.50	
Total annual bill estimate	$ 1,450	$ 4,200	$ 6,750	
"System Expansion Rate" % impact on total bill	3.5%	3.6%	3.8%	

The LDCs' calculations of the potential ratepayer impact of the proposed expansion of the natural gas distribution pipelines are noticeably skewed towards the assumption that all 266,384 new customers are added by the end of the expansion period and that the average usage per customer is achievable. Any changes to the number of potential customers and estimated average consumption will drastically change the amounts to be contributed by existing customers. During the earlier years of the expansion, existing customers are likely to be responsible for a significant portion of the revenue requirement. For example, under the assumption that the total cost of the expansions is equally prorated over seven years, the annual revenue requirement in year one under the LDCs' total return of 20% is approximately $59 million ($414 / 7). If only 5% of the potential new customers were added in year one, the estimated total distribution revenue recoverable from these new customers would be approximately $19 million [($293 ÷ $88) x 5%]. Under this scenario, existing ratepayers would be responsible for approximately $40 million.

Similarly, in year three, the annual revenue requirement is approximately $177 million ($59 x 3). If only 25% of the potential new customers were added by year three, the estimated total distribution revenue recoverable from these new customers would be approximately $95 million [($293 + $88) x 25%]. Under this scenario, existing ratepayers would be responsible for approximately $82 million ($177 - $95) Changes to the assumptions underlying the calculations of the estimated revenue requirement and new customer growth level will have profound impact on the level of the additional revenue requirement recoverable from existing ratepayers.

In the past, the Authority has made every effort to prevent subsidies between customers and customer classes and existing ratepayers have not been responsible for reducing the cost to connect new customers. The substantial proposed expansion of the natural gas system could result in an additional increase of $2.26 billion in rate base and may not occur without funding from all natural gas ratepayers and potentially all state residents. Historically, the Authority has taken steps toward assigning costs to the customers that cause the cost to be incurred and designing rates to reflect this position.

b. Authority Analysis of Potential Impacts on Ratepayers

The CES did not indicate the rate at which the Segments A and B expansions would occur over the seven-year period. The LDCs' exhibits did not indicate how the projected growth would occur over the seven-year period.[55] Therefore, the Authority assumed the expansion would be linear and equally weighted each year. This assumption simplifies the analysis of the issues associated with the expansion and on the potential impact on customer rates. The Attachment A analysis presents its assumptions and two options, each with a different cost of equity.

The CES recommended that the Authority consider authorizing a ROE based in part on performance for both the electric and gas companies.[56] While the PURA cannot predict the extent to which the utilities will perform, assuming different levels of performance and corresponding levels of ROE, it can provide an example of what the impact would be on ratepayers of varying RORs. The annual capital investment for each year is assumed to be $322 million ($2.26 billion expansion plan / 7 years). In Option 1, the Authority calculated the ratepayers' impact using the numbers provided in the CES and an average ROR of 9.13%, which represents the average of the three LDCs' approved RORs (CNG 9.31%, Southern 9.26%, and Yankee 8.83%). This calculation results in a revenue requirement for the first year of $19 million assuming that, on average, one-half of the $322 million rate base is in-service during year one.

The Cumulative Revenue Requirement for the expansion over seven years would be $939 million. In Option 2, the PURA calculated the potential effect of raising the ROE to 12%. This results in a first-year revenue requirement of $24 million and a cumulative revenue requirement of $1.168 billion in year seven. The impact on ratepayers with a higher 12% ROR is a cumulative revenue requirement increase of $229 million ($1.168 billion - $939 million) over the seven-year expansion period. Any

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[55] Response to Data Request No. 68 Supplemental.

[56] CES, p. 102.

increase in a company's ROR would be included in the revenue requirements of its next rate case and could result in an increase in rates charged to ratepayers.

If the LDCs effectively increase their customers by an additional 305,000, they may need to expand their liquefied natural gas (LNG) peaking facilities to meet a much higher design peak day capacity requirement. This cost is unknown. An example of the cost to Yankee when it built a new LNG facility several years ago was an initial capital investment of $108 million. The facility added an annual revenue requirement of approximately $21.6 million. This amount was based on the assumption that a revenue requirement is 20% of a capital investment / rate base.

Neither the CES nor the PURA's revenue requirement analysis included the following items: costs associated with any future LDC increases to the cast iron steel replacement programs; LDC revenue increases associated with normal capital investment; and any other typical capital investment or expense increase that occurs in a rate case. Additionally, the revenue requirement shown above does not include any cost increases associated with the supply of materials to build the expansion; the potential cost increase that may occur to obtain qualified contractors to build the expansion; and / or any other costs that may result from the proposed 900-mile expansion in the LDCs' distribution systems. If a revenue shortfall occurs, all ratepayers could be responsible for the capital investment associated with the expansion.

3. Increase to Average Distribution-Only Bill

The Authority conducted its own analysis and compared today's average distribution-only bill for all three LDCs combined with the average bill that would exist for all 883,890 customers in year seven. The increase in the average distribution-only bill would be 37% as discussed below. The companies submitted a high-level rate impact calculation that included many assumptions that they expect to change. The Authority's analysis presented here demonstrates the increase in the average distribution-only bill for year seven. It also makes assumptions that will require revising as more detailed and reliable information becomes available.

The current average distribution-only bill for all three utilities combined is presently $5.63/Mcf. This represents the combined revenue requirement awarded to the three LDCs in their respective latest rate case decisions divided by pro forma firm sales that existed in those cases.[57] This average distribution bill does not include gas costs. Adding $451 million[58] to the existing distribution revenue requirement and increasing total sales to 133,540,000 Mcf to reflect the new customer count of 883,890[59] results in a new average distribution bill of $7.26/Mcf. This average bill was then increased to $7.73 to reflect the increase in pipeline demand charges.[60] The overall increase reached in year seven is $2.10, or 37%.

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[57] Response to DR-7.

[58] Response to DR-26

[59] See Table, CES Cost to 883,890 Customers for $3.072 Billion Expansion, p. 16.

[60] Represents $0.16 new capacity charge mitigated by 50% so Hawk stated on a per MCF basis.

The new bill of $7.73 in year seven does not include gas costs, which all parties expect to increase within the seven-year time horizon. If the ROE is increased by 300 basis points as a proxy for the incentive ROE, which the utilities believe will be required to attract capital, the revenue requirement will increase by an additional $60 million. This would result in an average bill of $8.18, an increase of $2.55 or 45%.

Additionally, the new bill does not include any increment in customer bills to cover such events as: normal rate increases, safety related cast iron to bare steel distribution main replacement, nor the myriad of other subsidies gas customers would be required to contribute to through their gas bill for the programs discussed in the CES. Finally, the forecasted increase developed here assumes that all 305,000 customers are fully connected in year seven as planned. Any slippage in forecasted sales would increase the average distribution bill as the level of sales available to contribute to costs decreases. For example, a 15% reduction in forecasted new sales growth could increase the projected average distribution bill of $8.18 to $8.55, an overall increase of 52% over today's average bill.

4. Construction Crews

The LDCs provided an exhibit that demonstrated how many miles of mains and number of services a single crew can install per year. A single crew can install 6 miles of mains or 200 services per year based on a 166-day construction season. The exhibit also showed that the three LDCs installed a total of 57 miles of mains for new business and 6,250 services during 2012.[61] Using the data cited above along with the goals set forth in the CES, the Authority estimates that the LDCs would need to add 12 new crews to install 72 additional miles of mains each year [(CES goal of 900 miles / 7) years – 57 miles of main installed in 2012] over and above the amount installed in 2012. Assuming each new customer has an individual service, the LDCs would also need to add 187 new crews to install 37,371 services a year [(305,000 services / 7 years) – 6,250 services installed in 2012]. Based on the above, the total number of new crews needed to complete the proposed expansion plan would be 200 to install the 900 miles of new main and 305,000 services. This would increase the cost of the expansion and increase the cost to existing ratepayers. This analysis assumes that the expansion occurs equally over each year, the number of mains installed during 2012 for new business remains constant, and is included in the 900 miles of new mains to be installed under the expansion plan.

D. Gas Supply

The three LDCs expect to submit a proposed plan regarding the CES proposed expansion plan to the Authority three to four months after the CES has been finalized. The off-main portion of the expansion is expected to begin in 2014 and end by 2020.[62] If the LDCs begin their expansions in 2014, it would be in the middle of the five-year supply and demand forecast period. The LDCs already have made commitments to meet the normal load growth shown in the five-year forecast. Therefore, within the next

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[61] Response to DR-24

[62] CNG, SCG and Yankee Responses to Interrogatory EN-9 in Docket No. 12-10-06, PURA Review of the Connecticut Gas Utilities Forecasts of Demand and Supply 2013-2017.

18 months, the LDCs would have to find significant peak day capacity to serve any of the customers proposed in the CES.

1. Incremental Capacity

The 305,000 increase in new customers would require the addition of a large increment of design peak day capacity because there is not sufficient capacity in the pipelines or within the LDCs' distribution systems or current peaking facilities to add these new customers. The CES acknowledged that the interstate pipeline systems are constrained and that there is not enough interstate pipeline, storage or LDC peaking capacity to serve a large-scale addition of new customers.[63]

The only known potential capacity expansion project into Connecticut is the Algonquin Incremental Market (AIM) project with a targeted service commencement date of November 1, 2016. It is currently unknown if this project will be built, how much capacity the LDCs ultimately will purchase or the cost of this incremental capacity. The Open Season[64] ended on November 2, 2012, and the PURA does not know how much pipeline capacity in total the LDCs will ultimately receive as part of the project. The LDCs only included a 1.2% normal annual growth rate as shown in its five-year Supply and Demand Forecast that may be related to the above cited project or a combination of projects.[65] They did not include capacity additions to support the 305,000 new on-main and off-main customers projected in the CES.[66] As the Algonquin project will not directly bring supply to Connecticut, the LDCs would need to acquire additional capacity back to a supply source.

2. **Impact on Demand Charges from CES**

While the CES proposed to add up to 305,000 new customers to the three LDCs' gas systems, it does not estimate how much design peak day capacity would be necessary to serve these additional customers.[67] The entire body of ratepayers is responsible for the capacity requirements demand charges. The Authority analyzed the peak day capacity requirements with the addition of the 305,000 new customers to the LDCs' distribution systems and determined the potential impact on ratepayers for such items as gas costs and demand charges. Any incremental capacity needs estimated by either the LDCs or the PURA at this time can only be calculated by using assumptions. The Authority is well aware that its analysis will not be the final peak day needs of the LDCs. It is only a logical attempt to show the scope of the required capacity additions that could be necessary.

One logical assumption is to estimate the peak day requirements for the new customers and utilize the residential and C&I customers' peak day use as the potential

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63 CES, p. 136.

64 An Open Season is a process by which the interstate pipelines send out official requests to potential customers regarding the need for incremental capacity before a project is built to assess interest.

65 See Docket No. 12-10-06, PURA Review of the Connecticut Gas Utilities Forecasts of Demand and Supply 2013-2017.

66 LDCs Responses to Interrogatory EN-2, Docket No. 12-10-06.

67 CES, p. 117.

incremental peak day capacity necessary to support the proposed expansion plan. The average firm residential peak day demand for both CNG and Southern is 1 Mcf and for Yankee 0.75 Mcf. This results in an estimated average peak day demand for a firm residential customer of 0.92 Mcf [(1 Mcf + 1 Mcf + 0.75 Mcf) / 3]. Only Yankee provided the average firm commercial (12.08 Mcf) and industrial (10.74 Mcf) peak day demand for 2012.[68] The LDCs agreed it was reasonable to assume that the customers under the expansion plan would have a design peak day demand that is greater than a single family home.[69] The LDCs have accepted the above assumptions.

The Authority used as a proxy for the LDCs the average of Yankee's C&I peak day demand of 11.41 Mcf [(12.08 + 10.74) / 2]. To determine the percentage of residential and C&I customers from total customers, the PURA averaged the LDCs' customer numbers presented in their last rate cases.[70] For CNG, there were 90.84% residential customers and 9.16% C&I customers; for Southern, 89.63% residential and 10.37% C&I; and for Yankee, 87.99% residential and 12.01% C&I. This resulted in an average of 89.49% for residential and 10.51% for C&I customers. For this analysis, the Authority assumed that the 305,000 customers would consist of 272,944 (89.49% * 305,000) residential customers using 0.92 Mcf on the peak day and 32,056 (10.51% * 305,000) C&I customers using 11.41 Mcf. This calculation resulted in an estimated design peak day demand increase of 616,867 Mcf or MMBtus[71] per day [(0.92 Mcf * 272,944 new residential customers) + (11.41 Mcf * 32,056 new C&I customers)]. The 616,867 MMBtus represents estimated incremental peak day capacity requirements as it is based on the above cited averages for both residential and C&I customer use.

The actual peak day capacity number would be higher than the combined LDCs' current design peak day capacity. For the winter of 2012/2013, the LDCs had a combined design peak day firm load of 998,661 MMBtus.[72] Based on the above, the addition of the CES's proposed expansion of 305,000 new customers compared to the LDCs' current design peak day load for the winter of 2012/2013 results in an estimated increase of 61.77% (616,867 MMBtus / 998,661 MMBtus) to their existing design peak day firm load. Consequently, the total demand charges for the LDCs would increase. Currently, the demand charges for the 578,890 meters/customers as of the November 2012 PGA filing is $184,514,704.[73] The Authority calculated the design peak day capacity of 47,443 MMBtus[74] that the LDCs have available in their gas supply portfolios

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68 CNG, SCG and Yankee Responses to Interrogatory EN-1, in Docket No. 12-10-06.

69 Tr. 1/29/13, pp. 417 and 418.

70 Schedules 3.4 in Docket Nos. 06-12-06, Application of Connecticut Natural Gas Corporation for a Rate Increase; 06-12-06, Application of The Southern Connecticut Gas Company for a Rate Increase; and 10-12-02, Application of Yankee Gas Services Company for Amended Rate Schedules.

71 While billing is in Mcf, the LDCs' peak day requirements are based on MMBtus. One Mcf of gas is equal to 1.023 MMBtus of gas according to the U.S. Energy Information Administration.

72 The 998,661 MMBtus represents (CNG 320,912 MMBtus + Southern 281,255 MMBtus + Yankee 396,494 MMBtus). Docket No. 12-10-06, CNG/Southern, Exhibit S-4; and Yankee, Exhibit IV-4.

73 The $184,514,704 represents ($53,424,461 for CNG + $53,056,750 for Southern + $78,033,493 for Yankee). CNG, Southern and Yankee November 2012 PGA filings in Docket No. 13-04-01, PURA Semi-Annual Investigation of the Purchased Gas Adjustment Clause Charges or Credits Filed by Connecticut Natural Gas Corporation, The Southern Connecticut Gas Company and Yankee Gas Services Company.

74 The 47,443 MMBtus was calculated by subtracting the peak day customer load of 998,661 MMBtus from the total peak day resources of 1,046,104 MMBtus (332,818 MMBtus for CNG + 299,196

as of the winter of 2012/2013 to support the estimated normal firm customer growth of 1.2%.

3. Reliability of Natural Gas

The CES stated that underestimating and purchasing too little capacity can lead to reliability issues (e.g., a shortfall in supply during peak winter season), or might require the gas companies to turn away new customers who want to convert.[75] Regarding the first part of the statement, the Authority also notes the following. If the LDCs do not have or cannot obtain the capacity to serve the new 305,000 customers, they would be unable to provide these customers with firm service. Reliability is defined as the ability of an LDC to serve its existing firm customers on a design peak day and is not based on the LDC's ability to provide firm service for a large expansion of customers in the future. The CES's statement leaves the impression that reliability issues could potentially occur as a result of the CES proposed expansion, which is not accurate. Only the ability to serve new and future customers would be affected. Reliability only becomes an issue when the LDC does not have enough peak day supply to meet existing firm demand or uses interruptible supply to meet firm load. The use of interruptible supply would not occur because of the 100% supplier of last resort obligation that the LDCs must maintain to continuously provide reliability 365 days a year.

To the Authority's knowledge, the LDCs have not had any reliability issues in the recent past because of their 100% supplier of last resort obligation. The Authority is also aware that reliability issues related to large gas-fired generators in New England have occurred in the recent past. Specifically, these reliability issues were due to the fact that interruptible gas supply was used by a number of generators instead of firm supply to produce electricity. These issues currently are being discussed in the Federal Energy Regulatory Commission's Docket AD12-12-00, Coordination between Natural Gas and Electric Markets.

In addition, it appears that the CES is developing a policy regarding natural gas fracking[76] that the gas utilities could only be able to purchase gas from states or regions that have the appropriate environmental and safety laws.[77] If this policy were enacted, the LDCs' ability to purchase gas from certain states or regions might be limited. There would be difficulty in differentiating between acceptable and non-acceptable gas. This difficulty would affect the procurement of natural gas supply for Connecticut at a time when a significant expansion of the distribution systems and the addition of 305,000 customers would be underway. Such a policy could also increase the price of gas when the intent was to increase the number of customers using gas as a fuel source.

MMBtus for Southern + 414,090 MMBtus for Yankee). Supply and Demand Forecasts, Docket No. 12-10-06.

75 CES, p. 130

76 Fracking is the propagation of Hydraulic fracturing is in a rock layer by a pressurized fluid to release petroleum, natural gas, or other substances for extraction.

77 CES, p. 129.

If the above proposed fracking policy was implemented and it reduced supply options, the LDCs might have to purchase gas at a higher cost. In addition, the LDCs may need to hire more staff, depending on the documentation requirements that would be associated with a fracking discrimination policy. Therefore, the higher commodity cost of gas and the potential increase in the staffing levels of new employees could increase each company's revenue requirement and ultimately impact ratepayers.

4. Impact of Certain Items on All Natural Gas Ratepayers

The impact of the CES expansion plan on existing customers will be a function of the total capital and cost of providing service to new customers, the level of customer participation, CIAC[78] from participating customers as a result of any Hurdle Rate model analysis and rate design changes that may be made to both participating and non-participating customers to help fund the necessary investments.[79]

The LDCs stated that all existing customers not participating in the expansion plan for Segment B would have to subsidize these new conversions.[80] As a result, existing customers' bills are expected to increase. The Authority analyzed the: (1) costs associated with the increased peak day demand resulting from the proposed expansion plan; and (2) use of non-firm margins (NFMs) to reduce the cost of conversions for the new customers. In its analysis, the PURA used the numbers provided by the LDCs' in its response to DR-10 and information obtained during the January 29, 2013 Technical Meeting. Subsequently, the PURA determined the potential impact from these two items on a typical residential customer's bill as discussed below.

a. Impact of Segment B Distribution Charges to All Ratepayers

The LDCs indicated that there would be additional distribution charges with the addition of the estimated 89,000 customers in Segment B, and all of the ratepayers would be subsidizing these new customers. For example, a typical residential customer using 100.3 Mcf of gas a year would realize a distribution-related bill increase of $5 a month or $60 a year.[81] There will be additional increases resulting from the new peak day demand to all existing customers' bills resulting from the proposed expansion plan.

b. Impact of New Peak Day Demand to All Ratepayers

To meet the increased demand for the new Segments A and B customers, the LDCs will have to procure additional peak day capacity of approximately 250,000 Mcfs for which all ratepayers would be responsible. The LDCs did not provide the cost for the 250,000 Mcfs of peak day capacity. However, they estimated the cost to ratepayers of procuring an additional 100,000 Mcf of peak day capacity at 100% load factor, which

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[78] A CIAC is a surcharge that is applied to new customers' bills when the revenues associated with that customer are insufficient to recover the connection costs over the allowed payback period. The new customer must pay these costs up-front through a CIAC surcharge on their respective bills

[79] CNG & Southern Response to DR-7

[80] Tr. 1/29/13 p. 486.

[81] Tr. 1/29/13, pp 279 and 280

results in a cost of approximately $36.5 million in additional demand charges. The corresponding unit rate of $0.16 per Mcf is used to calculate the total demand charges customers would pay in their bills.[52] The unit rate for the 250,000 Mcf incremental capacity addition cited by the LDCs would be $0.40 Mcf [$0.16 * (250,000 Mcf / 100,000 Mcf)]. Based on the above analysis, an average residential customer using 100 Mcf per year would pay an additional $40 just related to demand charges. Using the same calculation without any mitigation of the demand charges, a residential customer would pay an additional $80 a year just related to demand charges.

c. Non-Firm Margins and PGA Credits

The non-firm margins consist of interruptible on-systems margins and off-system sales and capacity release margins. PGA credits include non-firm margins and pipeline refunds.[53] The CES recommended using a portion of the non-firm margin credit to offset rate base or other costs incurred for the proposed expansion plan. Another approach would be to use a portion of the non-firm margin credit to reduce the CIAC costs for off-main customers converting to gas. Another approach would be that PURA allow 50% of the PGA credit to support system expansion.[54]

In the past, the Authority has not used either the non-firm margin credits or the PGA credit to subsidize the system expansion and/or reduce the CIAC costs. Both actions would raise all existing customers' gas costs. Historically, these credits have been used to reduce the cost of gas to customers. Using a ratepayer's credit to reduce an individual customer's CIAC would be discriminatory and favor new customers.

In response to the CES, the LDCs proposed a gas conversion financing program to fund customer equipment, installation and labor costs for items such as furnaces. The LDCs used an example for an annual fund of $15 million supported by NFMs. A fund of this size would enable the LDCs to support interest buy down rates associated with loans for conversions for approximately 15,000 new customers. The key feature of the program would be an interest rate buy-down to bring customer financing rates to 1%.[55]

Had the CIAC and the interest buy-down programs been in effect during 2012, 87% [($20,498,778 + $15,000,000) / $40,997,556] of the 2012 NFMs would have been allocated to subsidize the addition of new customers.[56] This would have resulted in all customers paying $35,498,778 more for natural gas. The table below shows the results of allocating 87% of the NFMs to new customers to subsidize their conversion to natural gas. The Authority used the latest PGA factors for its calculation, which were filed by each LDC for February 2013. The increases range from $7.03 to $15.30 to a customer in just the month of February 2013.

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[52] Response to DR-10.
[53] Responses to DR-31 and DR-47.
[54] CES, p. 145
[55] Response to DR-31.
[56] Response to DR-47.

Impact on an Average Residential Customer Due to Proposed Reduction in NFMs

Company	February 2013 bill no change to NFMs	February 2013 bill with a 87% reduction in NFMs	Increase in February bill due to proposed reduction in NFMs
CNG	$221.89	$228.92	$ 7.03
Southern	$232 10	$247.40	$15.30
Yankee	$251.00	$256 86	$ 5 86

These increases result only from the proposed change to the allocations of the NFMs and do not include the bill impact from any other aspect of the proposed expansion plan.

d. Summary

The following table shows the total potential impact on a typical residential customer's bill during the month of February 2013 from: increased demand charges, reduction in NFMs, and the $5 month additional distribution charge. The increases range from $18.18 to $27.62 for the month of February 2013 for an average residential customer using 183 ccf.

Summary of Residential Customer Bill Increase from 3 Components

	Original February 2013 bill	Change to bill NFM reduction	Incremental capacity costs	Additional $5 charge	Total Increase in bill	New February bill
CNG	$221 89	$ 7.03	$7.32	$5	$19.35	$241.24
Southern	$232.10	$15.30	$7 32	$5	$27.62	$259.72
Yankee	$251.00	$5.86	$7.32	$5	$18.18	$269.18

E. Segments A and B Cost Per Customer By Class

The CES proposed converting 216,000 on-main or low-use customer prospects (Segment A) and building 900 miles of new distribution mains over a seven-year period to provide service to 89,000 new off-main customers (Segment B).[87] For Segment A, the CES stated that a cost of approximately $815 million to connect the 216,000 firm gas customers would be initially funded by the gas companies and their existing ratepayers, if the customer(s) passes the Hurdle Rate calculation. Any capital requirement greater than the revenue amount would be received from the individual customer as a CIAC. The CES expected that the $815 million capital investment would not require a CIAC surcharge.[88] For Segment B, the CES estimated that the gas companies would incur capital costs of approximately $1.438 billion.

The Authority's analyses detailed below assume the completion in year seven of the CES's proposed expansion plan. The PURA estimated the costs to connect one on-main or off-main customer in each class. The calculation included the CES's estimated

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[87] CES, p 126.
[88] CES, pp 123-125.

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total average capital costs plus an estimated revenue requirement less depreciation as detailed in Attachment A. The Authority notes that the costs listed above do not include any other costs such as system costs, operation and maintenance costs, gas costs, and administrative costs.

1. Description of Analysis

There was no analysis in the CES regarding the existing ratepayers subsidizing the new customers in Segments A and B for their respective expansions. The CES cited estimated expansion costs, the combined LDCs' capital costs, and the number of residential and C&I customers in each segment. However, LDC-specific information was not provided for the additional 305,000 customers. Consequently, the Authority conducted its own analysis showing the total combined impact on the LDCs and not on each LDC or its respective customers.

To determine the impact of the expansion on gas customers, the PURA used historical information from the LDCs' last rate cases and their respective annual reports. The Authority calculated each class and individual customer costs over the seven-year period for their respective segment without any subsidization by other ratepayers. The PURA calculated the cost per class and individual customer for the addition of the 216,000 customers in Segment A, the 89,000 customers in Segment B, and the total 305,000 customers. The Authority's goal was to determine the cost to one customer in each class under several different scenarios without subsidization from existing gas customers. Also, calculated was the cost to all of the existing 578,890 meter/customer base as of December 31, 2011. To allocate the costs to both the classes and individual customers, the Authority used consumption as a proxy to determine a dollar amount to represent a customer's share of the expansion cost.

For these analyses, the Authority used the CES estimated capital costs. The seven-year expansion program was used as recommended in the CES. In addition, the LDCs' total firm customer count and corresponding Mcfs from their last rate cases were used.[69] Using this data, the Authority calculated the natural gas customer percentage for each rate class: Residential General. 12.98%; Residential Heating: 76.52%, Residential Multifamily: 0.46%; Small C&I: 8.41%; General C&I: 1.24%; and Large C&I: 0.40%. These percentages were then applied to the total customer count to estimate the number of customers in each rate class. The Authority calculated the average annual use per customer by dividing the LDCs total Mcf per class by the average number of customers in that class: Residential General: 20 Mcf; Residential Heating: 90 Mcf; Residential Multifamily: 1,183 Mcf; Small C&I: 173 Mcf; General C&I: 983 Mcf; and Large C&I: 8,221 Mcf. For each rate class, the average number of natural gas customers was then multiplied by the average Mcf usage per customer to determine a total Mcf in year seven. Then the expansion costs were divided by the total Mcf to determine a unit cost per Mcf. The Authority then multiplied the total rate class customer usage in year seven by the Mcf unit cost to determine the cost per class. The total class cost was then divided by the number of natural gas customers in each class to determine the individual annual average customer cost for usage.

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69 Schedules 3.4 in Docket Nos. 08-12-06, 08-12-07, and 10-12-02.

2. Segment A – 216,000 Customers

The total estimated cost for the connection of the Segment A customers consists of capital costs of $815 million and a cumulative revenue requirement of $339 million for a total of $1.154 billion. The PURA calculated a unit cost of $39.29 per Mcf by dividing $1.154 billion by the total customer class usage of 29,373,290 Mcf. The calculation for the addition of one on-main customer out of the 216,000 Segment A customers is illustrated below.

CES COST TO 216,000 CUSTOMERS FOR $1.154 BILLION EXPANSION

Rate Class	Breakdown 216,000 Customers	Average Customer Use per Mcf	216,000 Total Cus. Class Usage Mcf	Cost per Class for Expansion of $1.154 billion	Cost per Cus. for Expansion of $1.154 billion
Res. General	28 037	20	570,117	$22,398,425	$799
Res. Heat	165,275	90	14,831,638	$582,696,401	$3,526
Multifamily - Res.	995	1,183	1,177,594	$46,264,611	$46,486
C&I - Small	18,169	173	3,147,206	$123,645,530	$6,805
C&I - General	2,669	983	2,624,384	$103,105,183	$38,630
C&I - Large	854	8,221	7,022,350	$275,889,840	$322,998
	216,000		29,373,290	$1,154,000,000	

The analysis in this scenario resulted in an estimated cost to connect a new residential non-heating customer at $799; a heating customer, $3,526; a multifamily customer, $46,486; a small C&I customer, $6,805; a general C&I customer, $38,630; and a large C&I customer, $322,998. The usage for a large C&I 75 kW co-generator would be almost double the 8,221 Mcf average shown above and the estimated cost to connect them would be $645,996 ($322,998 * 2).

3. Segment B – 89,000 Customers

The total estimated cost for the connection of the Segment B customers consists of capital costs of $1.44 billion and a cumulative revenue requirement of $599 million for a total of $2.04 billion. The PURA calculated a unit cost of $168.55 per Mcf by dividing $2.04 billion by the total customer class usage of 12,102,883 Mcf. The calculation for the addition of one off-main customer out of the 89,000 Segment B customers is illustrated below.

CES COST OF 89,000 CUSTOMERS FOR $2.04 BILLION EXPANSION

Rate Class	Breakdown 89,000 Customers	Average Customer Use per Mcf	89,000 Total Cus. Class Usage Mcf	Cost per Class for Expansion of $2.04 billion	Cost per Cus. for Expansion of $2.04 billion
Res. General	11,552	20	234,909	$39,595,137	$3,428
Res. Heat	68,100	90	6,111,184	$1,030,060,894	$15,126
Multifamily - Res.	410	1,183	485,212	$81,784,927	$199,441
C&I - Small	7,487	173	1,296,766	$218,576,154	$29,196
C&I - General	1,100	983	1,081,343	$182,265,680	$165,733
C&I - Large	352	8,221	2,893,468	$487,708,209	$1,385,761
	89,000		12,102,883	$2,040,000,000	

The analysis in this scenario resulted in an estimated cost to connect a new residential non-heating customer at $3,428; a heating customer, $15,126; a multifamily-customer, $199,441; a small C&I customer, $29,196; a general C&I customer, $165,733, and a large C&I customer, $1,385,761. The usage for a large C&I 75 kW co-generator would be almost double the 8,221 Mcf average shown above and the estimated cost to connect them would be $2,771,522 ($1,385,761 * 2).

4. Total Expansion of 305,000 Customers

The total estimated cost for the connection of the total expansion of 305,000 customers consists of capital costs of $2.26 billion and a cumulative revenue requirement of $939 million for a total of $3.20 billion. The PURA calculated a unit cost of $77.15 per Mcf by dividing $3.20 billion by the total customer class usage of 41,476,173 Mcf. The calculation for the addition of one customer from the combined 305,000 customers in the proposed expansion plan is illustrated below.

CRS COST TO 305,000 CUSTOMERS FOR $3.20 BILLION EXPANSION

Rate Class	Breakdown 305,000 Customers	Average Customer Use per Mcf	305,000 Total Cus. Class Usage Mcf	Cost per Class for Expansion of $3.20 billion	Cost per Cus. for Expansion of $3.20 billion
Res. General	30,589	20	605,027	$62,110,016	$1,569
Res. Heat	233,373	90	20,942,822	$1,615,795,912	$6,924
Multifamily - Res.	1,405	1,183	1,662,807	$128,290,081	$91,290
C&I - Small	25,656	173	4,443,972	$342,864,558	$13,364
C&I - General	3,780	983	3,705,727	$285,906,910	$75,861
C&I - Large	1,200	8,221	9,915,818	$766,032,484	$638,305
	305,000		41,476,173	$3,200,000,000	

The analysis in this scenario resulted in an estimated cost to connect a new residential non-heating customer at $1,569; a heating customer, $6,924; a multifamily customer, $91,290; a small C&I customer, $13,364; a general C&I customer, $75,861; and a large C&I customer, $638,305. The usage for a large C&I 75 kW co-generator would be almost double the 8,221 Mcf average shown above and the estimated cost to connect them would be $1,268,610 ($638,305 * 2).

5. Total Expansion Cost Impact on 578,890 Existing Customers

The Authority calculated the estimated cost to the combined LDCs' firm gas customer count if the expansion cost for the addition of 305,000 heating customers were spread across all of the 578,890 existing meter/customer base. The total estimated cost for the connection of the total expansion of 305,000 customers consists of capital costs of $2.26 billion and a cumulative revenue requirement of $939 million for a total of $3.20 billion. The PURA calculated a unit cost of $40.65 per Mcf by dividing $3.20 billion by the total customer class usage of 78,721,777 Mcf. The calculation for the addition of one customer from the combined 305,000 customers in the proposed expansion plan spread across all of the 578,890 customers is illustrated below.

CES COST TO 578,890 CUSTOMERS FOR $3.20 BILLION EXPANSION

Rate Class	Breakdown 578,890 Customers	Average Customer Use per Mcf	578 890 Total Cus. Class Usage Mcf	Cost per Class for Expansion of $3.20 billion	Cost per Cus. for Expansion of $3 20 billion
Res. General	75,139	20,	1,527,941	$62,110,018	$827
Res. Heat	142,946	80	39,749 477	$1,615,795,912	$3,648
Multifamily - Res.	2,667	1,183	3,156.007	$128,290,081	$48 098
C&I - Small	48,695	173	8,434,658	$342,864,556	$7,041
C&I - General	7 153	983	7,033,470	$285,908,949	$39,969
C&I - Large	2 289	8,221	18,820,224	$765,032.484	$334,197
	578.890		78,721,777	$3,200,000.000	

As a result of spreading the cost of the expansion over the entire body of existing ratepayers of 578,890, the estimated cost to connect a new residential non-heating customer would be $827; a heating customer, $3,648; a multifamily customer, $48,098; a small C&I customer, $7,041; a general C&I customer, $39,969; and a large C&I customer, $334,197. The usage for a large C&I 75 kW co-generator would be almost double the 8,221 Mcf average shown above and the estimated cost to connect them would be $668,394 ($334,197 * 2). This scenario shows the subsidy that existing ratepayers would have to pay to provide service to one customer out of the 305,000 new customers.

6. Equipment Replacement Costs

The CES stated that a new gas customer would have to replace its existing oil-burning furnace or boiler and hot water heater with a high-efficiency gas furnace or boiler and, often, gas water heater The cost to a residential customer for this type of furnace or boiler would be approximately $3,000-$4,000. A high-efficiency gas furnace or boiler can be used with existing radiators/ductwork, plus a natural gas water heater. Further, the customer may also be responsible for the cost to have his/her oil tank removed, depending on whether it is located underground or inside the home.

The CES also stated that the cost for equipment replacement for new Segment A customers would be approximately $1.84 billion and Segment B customers approximately $1.16 billion. Service and meter installations will cost on average, roughly $4.283 for a residential customer, $7,669 for a commercial customer and $11,504 for an industrial customer. The CES referenced the DECD study and stated that equipment replacement for off-main customers is estimated to be $7,500 for a residential customer, $20,300 for a commercial customer and $40,600 for an industrial customer.[90] The CES does not contain supporting information as to how these amounts were calculated.

The DECD study and CES have conflicting information The CES referenced the cost of equipment replacement while the DECD study discussed the cost to retrofit existing heating equipment. According to the DECD study, if the cost to retrofit existing oil heating equipment with high-efficiency natural gas heating equipment and standard AC in a 2,000 square foot (typical) residence is $7,500, the break-even period is six years assuming the conversion is completed in 2011. The CES cited that the DECD

[90] CES. pp. 120-126.

study used 40,600 industrial customers. However, the DECD study actually cited the same number, $20,300, for commercial customers and also for industrial customers. Finally, the DECD study stated that if the cost to retrofit existing oil heating equipment with high-efficiency natural gas heating equipment is $20,300, the break-even period would be 7.4 years for commercial and 0.47 for industrial assuming the conversion is completed in 2011.[91]

7. Financial Implications on Ratepayers

The CES calls for the Connecticut LDCs to establish a planning process for natural gas expansion. The CES also calls for the LDCs jointly to file a plan to expand natural gas conversions, lowering the costs of conversion, and ensuring the reliability of gas supply. It should also include a customer conversion plan and schedule, feasibility analysis, outreach and marketing analysis, cost reduction strategy, capacity procurement, financing mechanisms, and regulatory proposals.[92]

The CES advocates setting an allowed ROE in rate cases that would include a performance component as discussed below:

> . . . that PURA consider authorizing a variable return on equity tied to quantitatively-tracked results in achieving public policy goals related to storm response, global efficiency goals, grid reliability, electricity costs, and perhaps other factors. This system would allow each company to earn a performance-based rate of return based on defined performance targets. Performance-based returns will create substantial incentives to perform. In fairness to ratepayers, poor performance should result in a reduction in basis points.[93]

The LDCs could face greater investor perceived risk due to the very large increase in gas customers as called for in the CES. The CES proposed an expansion plan that would increase the share of Connecticut homes and businesses heating with natural gas to 50% penetration for residential customers and 75% for firm C&I customers.[94] The LDCs asserted that to effectively carry out the CES proposed expansion plan, it would be necessary that the expansion program ROE be sufficient to attract incremental capital and be based on the gas LDCs' existing ROE with an additional variable ROE component based on certain pre-defined performance goals to be agreed upon with DEEP.[95]

The CES proposed that approximately $1.4 billion would be needed for the construction of new gas mains that would be spread across some combination of new gas customers, all gas ratepayers and bond funding. In addition, approximately $815 million of the $1.4 billion would be required to connect customers on or near gas mains

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91 DECD, pp. 8-13.
92 CES, pp. 138 and 139.
93 CES, p. 102.
94 CES, pp. 125-126.
95 LDCs Response to DR-52.

to be financed by the LDCs.[96] The LDCs believe that this financing would be carried on in a similar manner to the process that exists at present. The LDCs would use a combination of debt and equity to finance the expansion. This is the normal method of financing conducted by the LDCs, although the $815 million is well in excess of the LDCs' historical needs to fund the CES gas expansion goals. The LDCs stated that a regulatory framework that includes reasonable assurance of investment recovery together with an attractive return would be viewed favorably by the investment community.[97] Recovery of the revenue requirements associated with the expansion plan on the capital investment and its return, depreciation expense, associated incremental O&M expense, uncollectibles, income and property taxes should be done on a timely manner and effectuated through an annual tracker that is fully reconcilable.[98]

An aggressive expansion program may be viewed by investors as greater risk for the LDCs and, therefore, all else being equal, an increase in the ROE would be necessary to equal this increase in risk. Such a larger ROE would translate to higher rates for the customers of the LDCs. The LDCs testified that "[i]f anyone thinks we are going to implement this plan without increasing rates or having to charge more, then, you know, let's just kind of all leave, because that ain't happening."[99] To attract capital, the ROE must be sufficient for investors to risk their money. As such and unless risk mitigating measures are used (e.g., annual trackers), the LDCs will require an increase in rates in order to increase ROE to attract investors. Therefore, LDC customers' monthly bills could increase under the CES proposal.

The Authority cannot estimate an exact dollar amount increase needed related to an increase in required ROEs. However, at a minimum, and all else being equal, due to the increase in risk from the unprecedented expansion program, an increase of some amount in the allowed ROE would need to be considered. As an indication of the impact of such an increase on revenue requirements, for every 10 basis point increase in the allowed ROE based on the LDCs last rate cases, CNG's annual revenue requirement would increase by $382,451, Southern's by $521,864, and Yankee's by $654,000.

F. Summary of CES's Impact on Gas Ratepayers

The CES proposed expansion plan will have an impact on all of the natural gas ratepayers who would pay for the expansion through increases to their bills. The LDCs provided existing and estimated numbers for the major components associated with the CES proposed expansion, which are summarized below.[100]

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96 CES, pp. 5 and 6.
97 LDCs Response to DR-34.
98 LDCs Response to DR-35; Tr. 1/29/13, pp. 258-260.
99 Tr. 1/29/13, pp. 492-493
100 Response to DR-45.

ITEM	CNG	Southern	Yankee	Total
Expansion Cost for 305,000 Customers				
Off-System				
Capital Investment – Services & Meters				$510M
Capital Investment - Mains				$926M
Total Off-System Investment Capital at Year 7				$1.436M
On-System				
Capital Investment – Services & Meters				$813M
Capital Investment – Mains				$0M
Impact of Adjustment to Hurdle Rate				(1)
Total On-System Investment Capital at Year 7				$813M
Total Investment Capital at 7-Year (total all lines above)				$2,249M
Cumulative Revenue Requirement at year 7 for Segments A and B				$450M
Cost to ratepayers in year 7				(2)
Minimum Demand Charges to add 305,000 new customers				(3)
Total Design Peak Day Demand for 305,000 new customers in MMBtus				(3)
OTHER EXPANSION COMPONENTS				
Average cost for one new off-main residential customer (main costs only)				$10,383
Average cost for one new off-main com. customer (main costs only)				$10,383
Average cost for one new off-main industrial customer (main costs only)				$10.383
Average cost for one new off-main res. customer (service & meter costs only)				$4,283
Average cost for one new off-main com. customer (service & meter costs only)				$7,669
Average cost for one new off-main industrial customer (service & meter costs only)				$7,669
Average cost for one new on-main customer (service & meter costs)				$4,283
Average cost for one new on-main com.. customer (service & meter costs)				$7,669
Average cost for one new on-main industrial customer (service & meter costs)				$7,669
Percent increase in customer base compared to the end of 2011				56%
ACTUAL LDCs DATA AS OF 2011				
Customer count	161,083	179,229	209,671	549,983
Total Demand Charges for 2011 customer Count	$53,373,244	$54,267,622	$70,017,451	$177,658,317
Design Peak Day Demand for winter 2011/2012 in MMBtus	320,912	281,255	396,494	998,661
Total miles of mains for all three LDCs' entire				

distribution systems	2,022	2,281	3,256	7 559
Total miles of mains installed during 2011	14.5	18.0	17.0	49.5
Total rate base for mains, services, meters & meter installations including depreciation	$331,510,228	$329,360,509	$660,187,248	$1,321,077,985
Total rate base for all three LDCs including Depreciation	$366,637,845	$440,456,476	$877,419,509	$1,686,512,830

(1) An assessment of the impact of the adjustment to the hurdle rate is premature as the LDCs have not estimated the proportion of customers impacted by the change. See also response to DR-42
(2) See DR-7e
(3) See responses to DR-10, DR-15 and DR-17.

This table shows the impact of the proposed expansion plan on the natural gas ratepayers and includes paying a rate of return on rate base for the capital investment through increased rates. For the customer count in the exhibit, the LDCs used their actual data as of 2011. The LDCs' exhibit shows the average cost of $14,666 for a new off-main gas customer, which is 342% higher than the average cost of $4,283 for a new on-main gas customer. The seven-year capital investment costs or rate base for the expansion would be $2.249 billion. As stated earlier, the addition of the new natural gas customers will require an additional 616,867 MMBtus of design peak day capacity. When combined with the LDCs' combined current design peak day firm load of 998,661 MMBtus, it totals 1,615,528 MMBtus.

The addition of 305,000 new natural gas customers results in an estimated minimum annual demand charges of $279,487,020 at the end of seven years as compared to the 2012 demand charges of $184,514,704 for the current 578,890 meters/customers. Based on an average LDC ROR of 9.13%, the cumulative revenue requirement for the expansion would be $939 million[101] by year seven.

G. Proposed Expansion Plan Conclusion

The expansion plan has the potential to generate uneconomic investments that would ultimately cost ratepayers; causing them to pay more for service than they currently pay. The natural gas expansion plan relies on assumptions that need to be carefully analyzed to avoid uneconomic investments. In some instances, the PURA has concerns that not all costs are being considered when evaluating the appropriateness of investment, and that details are not provided to support conclusions arrived at in the CES. Depending on the number of customers converting, the impact of the proposed expansion on existing ratepayer is unknown.

It is unclear who would pay for the $2.26 billion of capital investment associated with the expansion plan. The CES has used a number of possible funding sources including ratepayers, bonding through the State of Connecticut, third party private capital investment and funding through the utilities shareholders. Additional issues that need to be fully examined include:

- whether a shortfall between the revenue requirement and the collected revenues may occur;

101 See, Attachment A.

- whether existing ratepayers should subsidize the addition of the new customers through increased rates.
- how much of an upfront rate increase may be necessary to complete the expansion;
- the costs associated with the additional peak day capacity on the interstate pipeline systems and when capacity would become available;
- whether capacity credits currently included in the PGA should be used to off set the conversion cost for new customers and the corresponding impact on all other ratepayers bills;
- how to quantify additional costs such as those associated with the expansion of the liquefied natural gas facilities to meet the increased peak day demand; and
- whether it would be necessary to expand the existing system through reliability projects to meet the new peak day demand increase along with the cost.

IV. GAS PIPELINE SAFETY

The United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) has recently implemented integrity management regulations for natural gas distribution systems (DIMP) that are intended to help ensure pipeline integrity and improve pipeline safety. The purpose of the DIMP regulations is to require that pipeline operators analyze their particular pipeline systems, circumstances and programs to identify potential threats that could result in high consequence accidents and to subsequently address those threats before accidents occur. If accidents occur, rate payers are potentially impacted on several fronts including loss of life, injury, lawsuits against the LDC, higher insurance premiums, and lower investor interest. All of these would serve to drive up borrowing costs and lower interest from the public for conversions to natural gas.

One of the greatest threats to the Connecticut LDCs' system integrity is old distribution infrastructure, such as cast iron and bare steel piping. The only way to reduce the threat of cast iron and bare steel pipe leaks is replacement. In addition, another one of the key elements of DIMP is the need to demonstrate improvement in the safety of the LDCs' systems. For the Connecticut LDCs to demonstrate the required safety improvement, it will be necessary to remove a significant portion of the cast iron and bare steel piping from their systems.

The expansion of the natural gas infrastructure contemplated in the CES will necessitate an increase in the workforce that is involved with designing and constructing said infrastructure. This is the same workforce that is involved with replacement of leak-prone piping as well as other requirements stemming from DIMP. It is imperative that the safety of the natural gas system be given the highest priority. If the natural gas companies are to embark on this substantial expansion program, it must not impact their replacement programs or related DIMP requirements.

V. TRANSPORTATION

The CES focused on the development of sustainable funding sources to maintain existing vehicular transportation infrastructure and to develop additional mobility options within the state.[102] One of the challenges to expanding this arena is the cost of these vehicles to customers. For example, plug-in hybrid and electric cars cost customers at least $3,000 more than comparable conventional vehicles, after a $7,500 federal credit. If the federal tax credit expires as anticipated in 2015, the incremental cost of plug-in hybrid electric vehicles increases to greater than $10,000. To help facilitate the adoption of alternative fuel vehicles, the CES proposed that the PURA adopt the use of firm rates for the basis of pricing natural gas vehicle fuel rather than linking the price to gasoline. The CES proposed to increase the number of stations that can refuel electric cars and natural gas vehicles.[103]

CL&P stated that one element of the electric vehicle infrastructure could be to file a trial tariff, on a trial basis, to collect the cost of energy associated with those charging stations, but not for the infrastructure. There is a 2006 PURA Decision that prohibited the LDCs from using ratepayers to fund additional NGV filling stations infrastructure.[104] The OCC argued that increasing the usage of alternative fuel vehicles in Connecticut does not warrant cross-subsidization from electric or natural gas ratepayers to fund alternative vehicle fueling station infrastructure.[105]

NU does not believe that local utilities should be building stations, but they could help facilitate investment and attract more private capital. One way for that to happen is by having NGV customers subscribe to an existing commercial rate. Currently, these customers are on the Natural Gas Vehicle Rate (Rate NGV), which is an interruptible rate and priced to the alternative fuel market.[106] The non-firm margins obtained from this interruptible service is minimal and flows back to firm ratepayers through the PGA. If these entities are switched over to a firm service, the reduction in the non-firm margin will increase the overall cost of gas to customers.

VI. CONCLUSION

The draft CES is a positive first step toward a comprehensive energy policy for the State of Connecticut. As with any document that attempts to address such an expansive topic as energy policy, there needs to be flexibility both in design and execution, both drawing on constructive stakeholder input that takes into consideration the views and recommendations from all affected parties.

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[102] CES, pp. 151-154.

[103] CES, pp 157-177.

[104] See, Decision dated December 21, 2006 in Docket No. 04-03-03, DPUC Review of the Local Distribution Companies' Provision of Natural Gas for Motor Vehicles.

[105] OCC Comments, p. 3.

[106] Tr. 1/29/13, pp. 324-328.

ATTACHMENT A

Calculation of Annual Revenue Requirements

Assumptions:		Other Assumptions:	Option 1	Option 2
Additional off-main extension miles	[illegible]	GRCF	1.86511	1.86511
Main length in feet (5,280 per mile)	4,700,000	Debt Ratio	50%	50%
Capital Cost per foot	$395	Equity Ratio	50%	50%
	(million)	Cost of Debt	6.79%	7.75%
Off-System Capital Investment - Mains	$ 937	Cost of Equity (ROE)	9.13%	12.00%
Off-System Capital Investment - Services/Meters	$ 312	Weighted Cost of Debt	3.39%	3.87%
On-System Capital Investment	$ 315	Weighted Cost of Equity	4.57%	6.00%
Total 7-Year Investment Capital	$ 2,251	Weighted Cost of Capital (BCR)	7.96%	9.87%
		After Tax Cost of Capital	6.39%	7.95%

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Option 1				($ million)			
Annual Investment	322	322	322	322	322	322	322
Cumulative Annual Investment	322	644	966	1,288	1,610	1,932	2,254
Average Annual Rate Base	161	483	805	1,127	1,449	1,771	2,093
Annual Debt Cost	5	16	27	38	49	60	71
Annual Equity Cost	7	22	37	51	66	81	96
Grossed Equity Cost	14	41	68	96	123	151	178
Total Annual Revenue Requirement*	19	57	95	134	172	211	249
Cumulative Revenue Requirement	19	77	172	306	479	690	939

*Calculation does not reflect the impact of deferred taxes and interest synchronization

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Option 2				($ million)			
Annual Investment	322	322	322	322	322	322	322
Cumulative Annual Investment	322	644	966	1,288	1,610	1,932	2,254
Average Annual Rate Base	161	483	805	1,127	1,449	1,771	2,093
Annual Debt Cost	6	18	29	41	53	64	76
Annual Equity Cost	12	36	59	83	107	130	154
Grossed Equity Cost	18	54	90	126	162	198	231
Total Annual Revenue Requirement*	24	71	119	167	214	262	310
Cumulative Revenue Requirement	24	95	214	381	596	858	1,168

*Calculation does not reflect the impact of deferred taxes and interest synchronization

Testimony of Christopher Phelps, Environment Connecticut State Director
Before the Connecticut General Assembly Energy & Technology Committee
March 7, 2013

- Governor's Bill 6360 AAC Implementation of Connecticut's Comprehensive Energy Strategy
- Opposing HB 6531 AA Preserving And Retaining The Environmental Benefits Of In-State Resources Recovery Facilities
- Opposing HB 6532 AAC Certification of Class I And Class II Renewable Energy Sources And Class III Sources, Renewable Energy Credits And Alternative Compliance Payments
- Supporting HB 6533 AAC Hydraulic Fracturing
- HB 6535 AA Redefining Class I Renewable Energy Sources

Senator Duff, Representative Reed, and members of the committee: My name is Chris Phelps and I am State Director of Environment Connecticut. Our organization is a nonprofit member-based environmental advocacy organization working to protect Connecticut's air, water, and natural landscape. Thank you for the opportunity to offer this testimony on HB 6360, HB 6531, HB 6532, HB 6533, and HB 6535.

HB 6360

Energy Efficiency
This bill implements portions of the recently released CT Comprehensive Energy Strategy (CES). We strongly support measures contained in the bill that move towards full funding of all cost effective energy efficiency measures benefiting energy consumers in Connecticut. Maximizing all practical energy efficiency investments is the best way to cut energy costs for families and businesses. Energy not consumed due to efficiency measures also directly benefits our state's environment by cutting pollution, including carbon pollution, emitted by power plants. It is a "win-win" policy for our economy and our environment.

One important energy efficiency policy that is not addressed in this legislation is energy efficiency for home heating oil customers. This is a critical policy that we strongly urge the committee to pursue. Doing so would move Connecticut's energy efficiency policies towards a true "all fuels" approach which would maximize the economic and environmental benefits to our state. We support establishment of a small fee on heating oil sales to end customers, just as currently exists for electricity and gas customers, the revenue from which would be used to ensure equitable expansion of energy efficiency programs to all homeowners and businesses regardless of what fuels they use for electricity, heating, or cooling.

Virtual Net Metering
We also support the provisions of section 5 of this bill improving and expanding the opportunities for use of "virtual net metering" by some electric customers. This policy can provide significant opportunities for such customers to install distributed renewable energy systems of greater generating

capacity, and serving more individual facilities, than would otherwise be possible. This in turn will allow those customers to reduce their electric bills, cut demand on the electric grid, and help the state meet its renewable energy goals and cut our dependence on dangerous and polluting sources of electric generation.

We also urge the committee to consider two additional measures to maximize the environmental and economic benefits of virtual net metering. First, we believe the artificial cap on the amount of virtual net metering projects approved, found at line 529 of the bill, should be reconsidered. A virtual net metering policy can provide such significant benefits to electric consumers that we believe it should not be limited to an artificially small universe of customers. Second, we urge the committee to consider expanding eligibility to participate in virtual net metering to all classes of electric customers, not just municipal, state, or agricultural ratepayers. This would, for example, allow residential and business ratepayers whose property is otherwise unsuitable for installation of solar or other renewable technologies an opportunity to benefit from installation of renewable energy systems serving their community.

Natural Gas

Although this bill contains minimal provisions relating to use of, or expanded access to, natural gas in Connecticut. The expanded reliance on this fossil fuel is a significant component of the CES. When considering policies related to the expansion of gas infrastructure and use, we urge the committee to carefully consider all potential impacts. For example, although combustion of natural gas produces less carbon pollution than combustion of coal or oil, that environmental benefit can be negated if measures are not enforced to limit "fugitive emissions" of methane in the process of drilling and transportation of natural gas. This is because methane's impact on global warming is 20 times greater than carbon dioxides. Therefore, if even as little as 2.5% of natural gas produced and transported to end users in Connecticut escapes into the atmosphere, the result could be an *increase* in the net emissions of greenhouse gasses. In short, without rigorous, effective, and well-enforced regulation limiting fugitive emissions at all stages of natural gas production and delivery, expanded use of natural gas could undermine Connecticut's ability to; for example, meet the requirements to reduce total global warming pollution emissions contained in 2008's Global Warming Solutions Act.

HB 6531

Environment Connecticut ***strongly opposes*** HB 6531. This legislation would amend Connecticut's Renewable (electricity) Portfolio Standard, or "RPS," to create a significant subsidy for expanded trash incineration. Trash incineration is not a sound energy policy. Burning trash for energy generation is not economical and is highly polluting. As a question of public policy, trash incineration is more appropriately considered as a waste management issue. Connecticut has an extremely high reliance on trash incineration to dispose of its solid waste. A far better approach to managing that waste stream is to increase source reduction and recycling which could lead to a reduction in trash incineration that would reduce the pollution incinerators emit in our state. Finally, we wish to call the committee's attention to section 2 (h) of the bill. This would create a *guaranteed minimum price* paid to trash incinerators for the electricity they generate that is *greater* than the *maximum* price proposed to be paid to renewable electricity generators such as wind and solar in HB 6532. Perversely, the combination of these two bills would effectively establish as a matter of policy in the state of Connecticut, a prioritization of expanded polluting trash incineration over wind, solar, and other renewable energy sources. (Note: we oppose the referenced provision of HB 6532.) We urge the committee to reject HB 6531 and any expansion of trash incineration in Connecticut.

March 7, 2013

I would like to thank the Energy & Technology committee for the opportunity to comment on the Governor's Bill 6360 that would implement the CT Comprehensive Energy Strategy. Energy production is a major source of pollution and climate change causing emission and I am glad to see that the state is willing to address these issues. However, I am skeptical about some of the measures in the plan being effective in reducing pollution and combatting climate change.

On February 17th I attended the ForwardOnClimate rally in Washington, DC with 40,000 of my closest friends. We gathered there in the hopes that we could urge the nation to implement solutions to the climate crisis. As Bill McKibben has often stated the first step in getting out of the climate hole we've dug for ourselves is to stop digging. When looking at the focus that the energy strategy puts on Natural Gas it seems like it does not stop digging, it just buys a different shovel. Natural Gas presents many of the same problems as oil and coal: toxic emissions, huge transport costs, and huge risks of accidents. Also the methane that is produced during extraction and transport of natural gas has been shown to be a larger contributor to climate change than carbon dioxide. Finally it is immoral to take advantage of low prices for natural gas while fellow citizens in other states are bearing the harmful affect of hydraulic fracturing used to extract this fuel.

Similarly modifying the renewable energy standards to include trash incineration is not a step forward in modernizing our energy infrastructure. These incinerators pollute our air and produce toxic ash which is almost impossible to dispose of safely. Many CT residents are experiencing asthma and cancer because they live in close proximity to trash incinerators. Encouraging these dirty plants by classifying them as renewable energy is a dangerous move in the wrong direction.

I want CT to be a leader in the United States transition to clean energy. By developing local renewable sources of energy that support microgrids we not only ensure the health of our citizens but the sustainability of our economy. One the fastest growing sectors of our economy is solar and wind energy and the CT job force could greatly benefit from developing those resources here.

We need to transition to clean energy right now and if the energy strategy is updated to accomplish this goal it will be one step is ensuring a sustainable future for all CT residents.

350CT 71 Orange St, New Haven, CT 06510

organizers@350CT.org

Wilcox Energy

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

I am submitting testimony in **support of section 18 and in opposition to section 19 of H.B. 6360,** AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

My name is David Foster, I grew up in my families heating oil business located in Seymour and now I own Wilcox Energy located in Westbrook with my partner. I am on the Connecticut Energy Marketers Association's (CEMA) Board of Directors and I serve on the state of Connecticut's Heating and Cooling Licensing Board.

I am here today to voice my **support for the language in section 18 of H.B. 6360** that would reduce the sulfur content of home heating oil from 3,000 parts per million (ppm) to 15ppm, and removes the language in the law that would require Connecticut to wait for the states of New York, Massachusetts and Rhode Island to have a similar standard.

An ultra low sulfur heating oil (15ppm) will burn cleaner and bring benefits to the environment and my customers. Our industry has reduced the fuel consumption in the average home from 1,300 gallons per year to 800 gallons since the 1970's. With the changes proposed in section 18, my customers will be able to use a cleaner burning fuel.

I am **opposed to section 19 of H.B. 6360** that proposes to set into law a 25 year "hurdle rate". My basic understanding of how the hurdle rate works is that it would allow the natural gas utilities to lower the standards that they have used in the past to facilitate conversions from heating oil to gas.

I have been told that this is a way to provide more choices to consumers who do not have a gas line on their street. Well if that is the case, it raises the question why under the current rules natural gas is not attractive enough for consumer to demand it and the utilities to make it avlaaible?

I can tell you that when I wanted to grow my business I went to a bank, obtained a loan and took a business risk to try to do better. I was not guaranteed a return, it was not certain that I would succeed and at no point was able to raise my prices to my customers to pay for my expansion!

But it seems that the proposal to change the hurdle rate provides protections to the utilities while leaving existing ratepayers with the bill to pay. Reducing upfront costs to new customers and being allowed to spread the remainder of the costs among the natural gas monopolies existing customers seems unfair.

I understand that in 2012 PURA rejected a similar proposal to increase the hurdle rate, in what I imagine was an effort to protect ratepayers from higher natural gas rates. Shouldn't the regulators decide what is in the best interest of ratepayers so that they can take into account all the factors before the hurdle rate is set?

If I am expected to compete with large utilities, then I would ask that the legislature not change the rules to favor one business over another. As publically traded companies, the natural gas utilities have immense capital resources that they can bring to bear if they choose to. Let them invest their own money if they want to lay new lines and gain new customers. Why should the existing ratepayers be required to pay for the utilities infrastructure?

I recommend that language be added to this section that prohibits the utilities from passing the cost of expanding their infrastructure to existing ratepayers. All costs that are involved in expanding their market should be the responsibility of their new customers and/or their shareholders.

Connecticut needs fuel neutral energy policies that promotes conservation not fuel conversion!

I ask that the Energy Committee amend the language in **H.B. 6360,** AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY to prohibit monopolies from recovering their costs from their existing ratepayer when they expand their infrastructure.

Thank you. I would be happy to answer any questions you may have.

Respectfully,

David Foster

Wilcox Energy

Testimony of
Sharon E. Lewis
Before the Connecticut General Assembly Energy and Technology Committee
March 7th, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. educate members in many environmental health issues, including asthma risks and triggers, toxic substances, and health effects of trash incineration.

Senator Duff, Representative Reed and members of the committee, thank you for the opportunity to comment on House Bills 6360, 6532 and 6535.

My name is Sharon Lewis and I am the Executive Director of the Connecticut Coalition of Environmental Justice or CCEJ. At CCEJ we are diligently working to create a world where no group of people, -racial, ethnic or socioeconomic group -bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, or commercial operations. We advocate for equitable policies and practices that promote healthy communities.

Some of our work includes fighting to reduce emissions of outdoor air pollutants in communities with high exposure because we believe that poor air quality contributes to a myriad of health problems such as asthma. Our asthma education and outreach efforts thru our asthma speakers bureau educates thousands of Hartford, Bridgeport, and New Haven residents about asthma treatment options, and how managing indoor and outdoor environments can help control the condition. We have also been active educating residents in major Connecticut cities on the public health benefits of recycling, and most importantly we have played a major role closing trash incinerators and curtailing industrial pollution near major cities in this state. We are currently trying to shutdown one of the boilers at Hartford's trash-to-energy incinerator, the nation's 5th largest, which operates 24/7 and is a major source of pollution which releases many dangerous chemicals such as dioxin and mercury to name a few.

I've come here today in fear that Connecticut, in an effort to increase our reported percentage of "clean energy", is going to dilute the definition of a Class 1 Renewable. First and foremost, the idea that trash incineration will somehow be in the same category and receive comparable funding as true clean energies such as solar and wind is disturbing. Wind and solar energy don't release toxins into the air, and cities and regions that use wind and solar power don't have abnormal amounts of asthma and toxic-poison related deaths. Secondly, diluting the definition of a Class 1 to include trash incineration would only undermine the hard work of Hartford city residents and the Connecticut Coalition of Environmental Justice to make this city a cleaner and healthier place to live and work.

Trash incineration leads to a whole host of negative environmental and health impacts and these effects disproportionately burden urban city dwellers who lack the money and political power to deter industries from building incinerators in their backyards. Please don't weaken the meaning of a Class 1 renewable to include trash incineration!

On a different note, I am very happy to hear that Connecticut is continuing to develop its energy efficiency programs. I was born and raised in Hartford and I can tell you that the Hartford housing stock is some of the oldest in the state and as such, in need of major energy saving construction. I fully support measures to increase our energy efficiency programs especially if they address the needs of low-income and hard-to-reach populations like senior citizens.

Thank you.

Greetings to the Assemby Energy and Technology Committee,

Regarding bill # 6360, my wish is for you to preserve the integrity of the Class 1 Renewable Portfolio Standard.

Please keep in mind that trash incineration is not clean energy.

I would like for us to invest in micro grids as that would leave us less vulnerable to power outages.

Sincerely,

Barbara Doyle
51 Britt Road
East Hartford, CT 06118

860.568.9048

Connecticut General Assembly
Before the Joint Committee on Energy and Technology

Written Testimony of The Vote Solar Initiative
Regarding Governor's Bill No. 6360 – An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Hannah Masterjohn, Solar Policy Advocate
March 7, 2013

HB5587

RECOMMENDED ACTION: Support, with Amendments

Co-Chairs Senator Duff and Representative Reed:

Thank you for the opportunity to offer written testimony regarding the Governor's Bill No. 6360, an Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy. The Vote Solar Initiative (Vote Solar) submits this testimony in specific support of the provisions pertaining to virtual net metering found in Section 5 of Bill No. 6360. Vote Solar recommends its immediate passage, with amendments, to ensure that more energy customers in Connecticut can benefit from renewable energy.

Vote Solar is a non-profit, grassroots organization with members throughout the U.S. including thousands in Connecticut. Vote Solar aims to foster economic opportunity and support a cleaner, healthier environment by bringing solar energy into the mainstream. Since 2002, Vote Solar has helped to remove market barriers and implement key policies needed to bring solar to scale.

I. Virtual net metering will unlock significant new investment in clean energy.

With the objective to enable more energy customers to satisfy their energy needs through clean energy projects, virtual net metering is an important step towards unlocking massive new private investment in renewable energy. Virtual net metering will also help Connecticut meet its clean energy goals. Specifically, the virtual net metering provisions in Section 5 of Bill No. 6360 will achieve the following.

- **Managing and controlling energy costs** is a critical aspect of financial stability for public entities and agricultural customers throughout Connecticut. Virtual net metering helps provide these energy customers with an important tool to develop clean energy technologies where it can best achieve this objective.
- Importantly, Bill No. 6360 would **enable virtual net metering arrangements to take advantage of third-party ownership models, which are essential for public entities.** Third-party ownership of clean energy systems is already available in Connecticut and

Bill No. 6360 would ensure that virtual net metering arrangements will also benefit from this important financing tool.

- By **raising the existing $1 million statewide cap on virtual net metering to $10 million,** Bill No. 6360 **will ensure that this tool will be provided sufficient scale** to achieve its intent.
- By **valuing virtual net metering credits at the cost of electricity generation plus 80% of distribution and other service charges,** Bill No. 6360 will enable these arrangement to fully realize the economic, environmental and grid benefits of clean energy.

II. Vote Solar suggests the following amendments to further the purpose of virtual net metering.

Vote Solar believes that the most important aspect of virtual net metering is its ability to broaden access to Connecticut's clean energy economy. The provisions in Section 5 of Bill No. 6360 are therefore critical for realizing the potential of virtual net metering. However, with amendments to Section 5 of Bill No. 6360, virtual net metering can offer even greater opportunity to Connecticut's energy consumers.

Vote Solar therefore suggests the following amendments to Section 5 of Bill No. 6360 to further the intent of virtual net metering, and ensure that more of Connecticut's businesses and residents can invest in the clean energy economy.

- By **expanding virtual net metering to commercial energy customers,** Connecticut will unleash even greater investment in clean energy and will ensure that more of the State's businesses can tap into clean energy to remain economically competitive.
- **Increasing the number of benefiting accounts for all eligible customers** under virtual net metering will ensure that these projects can achieve the necessary scale to be economically viable.
- **Vote Solar suggests allocating credits according to a customer hosts' preferred allocation** (e.g., Benefiting Account A receives 5% of the credits, Benefiting Account B receives 10% of the credits, and so forth) rather than allocation in proportion to each benefiting account's energy consumption. By providing this ability, a customer host can predictably structure a virtual net metering arrangement.
- For Connecticut to fully realize the potential of virtual net metering, it must provide adequate certainty for this policy mechanism. By directing the Public Utilities Regulatory Authority to **consider expansion of the virtual net metering cap when 80% of the cap has been reached,** energy consumers and clean energy developers will have greater confidence in investing and offering these types of clean energy arrangements.

III. Vote Solar also recommends passage of House Bill 5587 to address the issue of residential customers unable to invest in on-site clean energy generation.

Vote Solar urges the Committee to consider how residential energy customers can appropriately participate in offsite renewable energy facilities. Approximately 75% of residential energy customers are unable to install solar on their property for various reasons including shading or structural issues or because they are renters and do not control their rooftop. The submetering

proposal in HB 5587 is an important step toward enabling renters to invest in and benefit from renewable energy systems on their apartment building grounds or offsite. We recommend passage of HB 5587 and look forward to working with the Committee to further explore the options for residential energy consumers who are unable to install on-site clean energy.

IV. Conclusion

Vote Solar urges the Committee on Energy and Technology to pass Governor's Bill No. 6360, with the amendments. Thank you for the opportunity and for consideration of this testimony.

Respectfully submitted,

Hannah Masterjohn
Solar Policy Advocate
The Vote Solar Initiative
214 Main Street, 2nd Floor
Oneonta, NY 13820
hannah@votesolar.org
607-431-8811

Written Testimony of John Humphries, CT Roundtable on Climate & Jobs Before the CT General Assembly Energy and Technology Committee

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

First, I want to express my appreciation to the committee co-chairs, Senator Duff and Rep. Reed, and all the members of the Committee for accepting this testimony.

I have been helping to convene the CT Roundtable on Climate and Jobs, a unique collaboration between the CT AFL-CIO and the Interreligious Eco-Justice Network, designed to promote dialogue among labor, religious, environmental and community leaders concerned about the challenge of reducing the threat of climate change while creating good-paying jobs as part of a sustainable economy. We believe that State energy and environmental policies need to address the dual crises of economic stagnation and climate change.

I also own and live in a 3-family house in the West End of Hartford. This past summer I paid for the Home Energy Solutions audits for all three of the units in my 100-yr-old house. I followed up by having insulation installed in the attic and in the exterior walls of the house.

We are pleased with the Comprehensive Energy Strategy's emphasis on energy efficiency as the least-cost way to reduce greenhouse gas emissions and as the way to create large numbers of local jobs. We urge an immediate increase in funding to these programs. From my own experience of having to pay out-of-pocket for these improvements to all three of my units, I support the exploration of alternative payment mechanisms, including on-bill payment and cost-sharing between tenants and landlords, as well as methods to encourage more homeowners to take measures beyond air sealing and lighting upgrades.

We support the Strategy's recommendation to study the possibility of raising the targets for the State's renewable portfolio standards beyond the current commitment to 20% by 2020. However, we believe that renewable energy standards should advocate sources of energy that are most beneficial for carbon reduction without causing negative environmental and social effects, as well as sources that help create additional jobs here in Connecticut. We do not believe that Canadian hydropower or trash-to-energy projects meet those goals. Sending our money to Canada or using it to prop up the incinerators will reduce incentives to expand regional wind energy and in-state solar and fuel cell

development. Let's invest our energy dollars in local and regional economic activity.

We have concerns about the heavy emphasis on expansion of natural gas infrastructure. Recognizing the emission of methane during extraction, storage and transmission, DEEP needs to quantify the greenhouse gas pollution impact of the proposed natural gas expansion over the investment lifetime of the projects and compare that impact with alternative investments.

The environmental effects of fracking on nearby states need to be seriously taken into account. Does Connecticut really want to economically benefit from the destruction of the water, land, and air of its neighbors?

Investment in expanded natural gas infrastructure should be explicitly linked to energy efficiency retrofits, both in financing and installation. This will maximize immediate return in energy use savings and job creation, as well as yield long-term savings that will continue beyond any future shift from natural gas to renewable sources. If we're going to invest money in home heating system conversions, then we should make sure most of the heat actually stays in the homes.

Finally, the Comprehensive Energy Strategy states that "additional measures and breakthrough technologies will be required to achieve the goal of an 80% emissions reduction by 2050 as spelled out in the State's 2008 Global Warming Solutions Act." The legislature needs to identify and implement such "additional measures" as quickly as possible to ensure the achievement of the goals set out in the earlier statute.

Thank you.

John Humphries
14 Tremont St.
Hartford, CT 06105

To whom it may concern,

After reading the most recent itteration of the comprehensive energy strategy I was dismayed to see that the Governor's Bill 6360 completely ignores the importance of community based outreach as a way to drive demand for energy efficiecny and reach our state goals.

I implore you to re-read the CES (which clearly states that the importance of CBO should not be ignored) and to include in the bill a section about using community based outreach and smart marketing to reach these lofty goals The barriers that were identified in the CES cannot be overcome without messaging through I trusted source.

I'm proud of CT for taking this important step, but it will mean very little if we don't take the right steps to move forward.

GEORGE C. JEPSEN
ATTORNEY GENERAL

55 Elm Street
P.O. Box 120
Hartford, CT 06141-0120

Office of The Attorney General
State of Connecticut

TESTIMONY OF
ATTORNEY GENERAL GEORGE JEPSEN
BEFORE THE ENERGY AND TECHNOLOGY COMMITTEE
MARCH 7, 2013

I appreciate the opportunity to testify about House Bill 6360, *An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.* This bill is intended to implement the 2013 Comprehensive Energy Strategy for Connecticut prepared by the Connecticut Department of Energy and Environmental Protection ("DEEP") and released on February 19, 2013. The proposed amendments to Conn. Gen. Stat. § 16-19tt concerning decoupling and § 16-245m concerning energy conservation and load management ("C&LM") present particularly important concerns for utility ratepayers in Connecticut.

Section 1 of HB 6360 amends Conn. Gen. Stat. § 16-19tt, the decoupling statute. Presently, this statute requires the Public Utilities Regulatory Authority ("PURA") to decouple any gas or electric distribution company's rates in a rate proceeding held after 2007, but allows PURA discretion about how to accomplish decoupling. Specifically, PURA may adopt one or more of three decoupling measures: 1) a mechanism that adjusts actual distribution revenues to allowed distribution revenues ("full" decoupling); 2) rate design changes that increase the amount of revenue recovered through fixed distribution charges; or 3) a sales adjustment clause, rate design changes that increase the amount of revenue recovered through fixed distribution charges or both. Section 16-19tt also now states that when considering decoupling, "the authority shall consider the impact of decoupling on the gas or electric distribution company's return on equity and make necessary adjustments thereto."

House Bill 6360 proposes to make two fundamental changes to § 16-19tt. First, it requires that after the effective date of the statute PURA must fully decouple sales and revenues. Second, it eliminates the language that now requires PURA to consider the impact of decoupling on the gas or electric distribution company's return on equity ("ROE") and make necessary adjustments thereto.

The proposed elimination of the explicit requirement that PURA consider the impact of full decoupling on a gas or electric distribution company's ROE and make necessary adjustments thereto presents a serious and unacceptable risk to ratepayers. The "risk-return spectrum" is a fundamental principle of economic theory and utility regulation. Because of the risk that they may lose money, or make less than expected, regulated entities facing higher business risks are

entitled to earn potentially higher returns on their investment – a "risk premium." Without full decoupling, utility companies' bear the risk that their actual revenues (sales) may fall short of projected levels, because of, for example reduced demand caused by weather or economic conditions, and these companies are compensated for that risk in their authorized ROE.

Full decoupling eliminates this risk by assuring that utility companies receive their projected revenue levels. When one of a utility's central business risks has been reduced or eliminated, its ROE must be adjusted to reduce the risk premium and set rates that are not more than just and reasonable as required by Conn. Gen. Stat. § 16-19. Without such downward adjustments, ratepayers will end up overpaying by compensating companies for a risk that has been reduced or eliminated.

House Bill 6360 should therefore include the language which explicitly requires that PURA shall "consider the impact of decoupling on the gas or electric distribution company's return on equity and make necessary adjustments thereto." Although the bill does not prohibit PURA from considering such issues in the rate cases in which it considers decoupling, this language should be maintained in § 16-19tt to ensure that utility ROEs appropriately reflect the needs and circumstances of both the company and their ratepayers. As DEEP recognized in its Comprehensive Energy Strategy, "[d]ecoupling mechanisms need to be designed carefully and should include consideration of potential impacts on rates." Comprehensive Energy Strategy, 105. Moreover, maintaining this language will avoid creating the unintended inference that its elimination could create, namely that PURA is not required to consider the impact of decoupling on ROE in rate cases.

House Bill 6360 also requires that C&LM budgets fully fund all C&LM measures that are deemed by the DEEP Commissioner to be "cost-effective or lower cost than acquisition of equivalent supply" and expressly requires if those budgets exceed the existing charges in rates that fund C&LM, PURA must raise rates "through a fully reconciling conservation adjustment mechanism" to fund such additional C&LM programs. This language effectively gives the DEEP Commissioner complete unilateral authority to increase gas and electric rates without any meaningful regulatory process or review by PURA. This represents a fundamental and historical shift in ratemaking authority from the PURA, which must conform to the requirements of the Uniform Administrative Procedures Act ("UAPA"), to the Commissioner of the DEEP, who is utterly unconstrained by statute or administrative process.

This change raises three major concerns for ratepayers. First, it guts a central protection for ratepayers in all previous utility regulation – the requirement that an independent administrative agency, through an independent proceeding with due process protections, determines what rates are just and reasonable. I am concerned that a process for funding C&LM that is not governed by the UAPA may not be sufficiently open and transparent to protect the interests of ratepayers.

Second, this change undercuts the ratepayers' significant interest in a rate setting process that balances all of the competing factors that must be considered when setting utility rates. While C&LM is an important policy consideration and should be funded appropriately, utility rates must also be structured to fund the companies' current costs of operations as well as future ratepayer obligations. Starting in 2014, ratepayers will be required to begin paying many hundreds of millions of dollars for new transmission projects, new peaking plants, 2011 and 2012 storm costs incurred by the companies as well as their infrastructure resiliency investments. These costs will be in addition to any rate increases that may be approved in the United Illuminating Company's pending rate case, in which the company has sought a $95 million distribution rate hike, and in the rate case that CL&P will file in mid-2014. The appropriate level and structure of C&LM funding must be considered in the context of all these considerations. PURA is the regulatory authority that is designed and equipped to balance these considerations and set utility rates.

Third, this proposed change may undermine the long term stability of C&LM funding, which is recognized as essential to the success of C&LM, as succeeding administrations can more easily reverse Commissioner level discretionary policy determinations than decisions rendered through the UAPA process.

House Bill 6360 also amends subsection (d) in a manner that appears contradictory to this broad shift in ratemaking authority from PURA to DEEP. This newly proposed language provides that if the C&LM plan that is finalized by the DEEP Commissioner "contains any provision the implementation of which requires funding through new or amended rates or charges, the [PURA] shall open a proceeding to review such provision, in accordance with the procedures established in sections 16-19, 16-19b and 16-19e to ensure that rates remain just and reasonable." PURA is, however, given only 60 days to complete such review, a period clearly insufficient to conduct an administrative proceeding that is fair to all participants and produces reasoned results.

These two major changes to Conn. Gen. Stat. § 16-245m(d) appear to contradict each other. The first change requires PURA to fund all C&LM programs approved by DEEP, while the second seems to provide some sort of limited process that would allow PURA authority to review and approve only those increases to C&LM funding that it deems appropriate and consistent with statutory charge to ensure that rates are no more than just and reasonable. In order to appropriately protect ratepayers, House Bill 6360 should be amended to make clear that ultimate rate setting authority lies with PURA and must comply with the requirements of the UAPA and § 16-19, et. seq. It also should be amended to prevent the delegation of utility ratemaking authority from PURA to the DEEP Commissioner. Further, should PURA be allowed or required to conduct such a review as called for in the bill, the 60 day time limit should be eliminated.

WRITTEN TESTIMONY FROM GREATER HARTFORD LEGAL AID, INC.

RE SUBMETERING: PROPOSED BILL 6360 AND GOVERNOR'S BILL 5587

March 6, 2013

This testimony is submitted by Greater Hartford Legal Aid, Inc., to identify potential consumer protection issues that are inherent with submetering of electricity at multifamily residential buildings that are not expressly addressed by the proposed bills. Both proposed bills 6360 and 5587 would amend Conn. Gen. Stat. §16-19ff to permit the approval of submetering at multifamily residential buildings, with approval of the Public Utility Regulatory Authority ("PURA"). Neither bill, however, expressly requires that consumer protections that exist for low-income tenants that are customers of Connecticut's Electric Distribution Companies ("EDCs") be extended to submetered electricity customers.

Proposed Bill 5587's proposed amendment to §16-19ff(4) is overly broad, without sufficient guidance as to the types of consumer protections that should be extended to submetered electricity customers. Express statutory reference to the panoply of consumer protections contained in Conn. Gen. Stat. §16-1 *et seq.* will ensure equity between the EDC and submetered electricity markets. While subsection (b)(3) of the proposed amendment to §16-19ff does provide that the regulations adopted by PURA should "require that the ultimate services delivered to a submetered customer are consistent with any service requirements imposed upon the company", that should be amended to be more specific to the robust consumer protections contained in Connecticut's General Statutes EDC Customers are entitled to meter testing, immunity from liability for inaccurate

service, shut-off protections for particularly vulnerable customers, mandated amortized payment plans with incorporated third party assistance and matching arrearage forgiveness, notice requirements, format and content mandates for bills, mandated counseling as to the availability of assistance and payment plans, privacy/identity protections, protection from credit reporting for certain periods, internal appeal processes and stays of negative action during such appeals, and consumer choice of suppliers to obtain lower rates, among other processes and protections. *See e g*, Conn. Gen. Stat. §§16-245d, 259, 259a, 262c, 262d, 262e. Wilful or malicious violations of many of these statutorily mandated protections "shall be punishable by a fine of not more than five hundred dollars or imprisonment for not more than thirty days or both." Conn. Gen. Stat. §16-262g.

The proposed bills do not contain any protections from evictions or other landlord-tenant specific issues. The most significant concern for customers of submetered electricity, particularly for tenants in buildings where the landlord is merely reselling EDC electricity, is the potential for evictions, unlawful retention of security deposits, and other landlord- tenant issues. ***A public utility company does not possess the legal right to evict a consumer from their home.*** Connecticut consumers have already experienced these issues in residential buildings where landlords are submetering without the permission of PURA. Landlords are not required by the statute, for example, to lower the rent if they commence submetering, allowing landlords to "double charge" for the cost of utilities already built into the rent and the additional submetered electricity. Landlords will take payments which are tendered as "rent", apply them to submetering balances, and then commence summary process actions for nonpayment of rent. ***The proposed amendment contains no bar on eviction for nonpayment of submetered electricity, and does not force a landlord to offer a reasonable out-of-court repayment agreement.*** Presently, an individual experiencing financial hardship can negotiate with her utility company and landlord separately, and can choose to prioritize payment of rent to prevent homelessness while availing herself of shut-off protections and payment plans available through the publicly regulated EDCs. Submetering merges the role

of landlord with utility company. If landlord-tenant protections are not expressly put into place, that merger will allow landlords to use the threat of homelessness as leverage to ensure payment of submetered electricity bills.

Thank you for your consideration of this testimony.

RESPECTFULLY SUBMITTED,
GREATER HARTFORD LEGAL AID, INC.

BY: Cecil J. Thomas, Esq.
David A. Pels, Esq.
Greater Hartford Legal Aid, Inc
999 Asylum Avenue, 3rd Floor
Hartford, CT 06105

To whom it may concern,

I am writing to urge you to reconsider the DEEP's current Comprehensive Energy Strategy. The emphasis on natural gas in the plan is dangerous and misguided. The document states "DEEP acknowledges that there are significant environmental and public health issues associated with the drilling and transport of natural gas, which the state will actively address wherever possible," but this concern is apparently trumped by the availability of cheap, abundant natural gas. The document claims that natural gas produces lower emissions than oil or coal, but as Kate Sheppard put it in Mother Jones (http://www.motherjones.com/blue-marble/2011/04/natural-gas-worse-coal), "While burning natural gas may emit less carbon dioxide, its extraction releases quite a bit of methane, a more potent greenhouse gas. Gas from shale—a fine-grained layer of rock below the earth's surface—is also responsible for 30 percent more greenhouse gas emissions than conventional natural gas. The study found that up to 7.9 percent of the methane escapes directly from the wells, leaks from pipelines, or is released in venting and flaring." The current mania for cheap natural gas, held up as a "clean" alternative to coal and oil, is contributing to a significant boom in greenhouse gases. The DEEP's plan to increase the amount of natural gas usage in CT only adds to this problem, and does so under the misleading pretense that such a switch is a step in the right direction. What's more, natural gas is yet another finite, unsustainable resource which is simply buying us some time before we have to come to terms with creating sustainable, renewable energy sources. Kicking the can of responsibility down the road to future generations, while saddling them with devastating climate change through the greenhouse emissions related to natural gas extraction, is irresponsible. We need to look to real solutions to our climate and energy crises, and deny the false solution of natural gas.

HB6360

Sincerely,
Anthony Sorge
266 Kasson Rd.
Bethlehem, CT 06751

I want to add my voice in strong support of the "Comments on the Comprehensive Energy Strategy for Connecticut" submitted December 21, 2012 on behalf of the organizations ConnPIRG, Clean Water Action, CT Citizens Action Group, plus eight other groups.

HB6360

I agree that there are many very good aspects to the CES. I do, however, have a significant reservation. The CES proposes to invest in natural gas because it beats oil in terms of CO2 impact and is currently cheaper.

I believe the analysis should be expanded (1) to add sustainable technologies as the third alternative; and (2) to include the full costs of each alternative — *externalities and all.* I believe if the benefits and full costs of these three alternatives were compared over horizons up to 2020 or especially 2050, the only one left standing would be sustainable technologies.

Climate disruption is upon us. If we are to have any chance to avert climate catastrophe, we must put our major investment into sustainable technologies rather than into just a different fossil fuel. Given the alarming feedback loops, accelerating pace of polar ice melt, acidification of the oceans, record heat waves, drought, fires and so forth caused by burning fossil fuels, we don't have time to take half measures like substituting natural gas for oil.

Of course, we also need to invest in the many, many fine initiatives on energy efficiency, transportation and so forth in the CES, but none of that will be enough if we fail on the most important investment decision which is to get off fossil fuel and turn to sustainable technologies much sooner than 2050.

The overwhelming preference for investment in sustainable technologies would be crystal clear if our models for evaluating alternatives were to account for the externalities of each, which they currently fail to do. Suppose our decision model for investment in either oil or natural gas recognized some share of the costs of storms like Irene and Sandy, of record heat and drought, and of inundating coastlines. The list of such unaccounted costs is very, very long and our decisions about energy strategy should incorporate recognition of those costs.

Thank you for your attention and your work on this critical issue.

Cindy Moeckel
79 Amidon Rd.
Ashford 06278

Written Testimony of Nancy B. Mason

Before the General Assembly Energy and Technology Committee

Regarding HB 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

March 6, 2013

Senator Duff, Representative Reed, and members of the committee,

Thank you for the opportunity to comment on House Bill 6360. It has become clear that moving decisively toward sustainability is imperative. **Conservation of energy** is the first and most cost effective step in that process.

My husband and I are new homeowners of a town-home in West Hartford . We are 77 and 74 years old respectively and moved here in hopes of "aging in place." To do so would not only please us but help contain collective medical costs in Connecticut and the nation. In January, a month after moving in, we had an energy audit through the CT Energy Efficiency Fund. The benefits were immediate. Incandescent light bulbs were replaced by energy efficient florescent ones. We learned that we will be able to replace the 25-year-year-old air-conditioning compressor with a new, far more efficient one, at a substantial saving if we do it within 4 months of the audit. And a $50 rebate, made available through the audit program, encouraged us to replace the old dryer with an "energy star" one which we have done. Without this program, which we learned of through the "Cool Congregations" program of "Interfaith Power and Light," we would not have found out whether or not our furnace was suffieciently efficient and the doors and windows efficiently tight.

This experience has raised our awareness of the importance of conserving energy and of making sure the public is aware of ways they can participate and benefit. We therefore ask you to continue and expand energy efficiency programs and to make them available to users of home heating oil as well as natural gas users.

Furthermore, Connecticut must continue to encourage the growth of truly clean, regionally produced renewable energy by protecting the integrity of the Renewable Portfolio Standard. I oppose HB 6531 which would dilute and weaken the RPS. I also oppose HB 6532 which would include subsidies for trash incineration facilities. HB 6535 could be rewritten to increase incentives for other forms of clean

energy **without lessening incentives for wind and solar.**

Again, sustainability, along with clean air and water, is the goal: it is good for the economy and good for citizens. We need wise decision-making in the legislature to achieve it. Your constituents expect that of you.

Thank you for voting to preserve the energy audit program and other state programs that will result in conservation of energy and progress towards a **sustainable economy and health-promoting environment.**

Very Truly Yours,

Nancy and Karl Mason

49 Timberwood Rd.

West Hartford, CT 06117 860-727-1985 kmason02@aol.com

Testimony
Kathryn Dube
Connecticut Council of Small Towns
Before the Energy Committee
March 7, 2013

Thank you for the opportunity to comment in ***support*** **of HB-6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.**

Given the ongoing budget challenges facing the state and municipalities, Connecticut must help small towns utilize energy programs and new technologies to reduce costs and deliver programs and services more efficiently. New programs, such as Energy Savings Performance Contracts and Virtual Net Metering, can assist towns in significantly reducing costs without incurring high, upfront capital costs.

COST therefore supports the provisions in the bill which will expand opportunities for municipalities to reduce electric costs through the use of virtual net metering, which allows surplus production from the generator to offset other metered accounts that are not connected to the generator. By expanding the maximum size of the generating unit that can take advantage of virtual net metering, and potentially increasing the value of the electric bill credit that participating customers receive, HB-6360 will allow more municipalities to participate and achieve costs savings.

COST also **supports provisions in Section 5** which allow municipalities to lease the renewable resource or enter into a long-term contract for it and qualify for virtual net metering. Smaller communities may not have the resources to purchase generation equipment but may have opportunities to lease equipment to reduce costs and improve energy efficiency.

Thank you for the opportunity to comment in support of the bill.

Connecticut Council of Small Towns
1245 Farmington Avenue, 101 West Hartford, CT 06107
860-676-0770 860-676-2662 Fax

Written testimony of Susan Andrus Olson, March 7, 2013 for Bill 6360

Last September my husband and I took advantage of the $75 energy audit available for those who heat with oil. Both our own 3200 sq ft home and our 800 sq ft rental property were inspected and winterized within the scope of the program. We were encouraged to pursue this offer through the Cool Congregations Campaign (IREJN) at our church.

After the audits, and based on the recommendations we received, we purchased solar shades ($2,250 made in Andover, Mass) and contracted locally (Canton, CT) to install insulating foam to the foundation and sill of the rental property ($1,470) We also installed a high efficiency wood burning insert (made in Canada) using a installer from Windsor, CT (approximately $4,000)

We consider these purchases as investments For example the wood burning insert will provide a heating alternative to oil as well as warmth during an extended power outage as in October 2011. We also consider them an investment as we are on track this year to save 1/3 of our previous year's fuel costs ($800 saving) At the same time, we consider that we are investing in our local economy Solar shades or wood burning inserts of comparable quality in CT would be even better We prefer to do business face to face.

Ninety percent of the energy we create at such great cost is lost, wasted. High quality, high capacity batteries, if they were developed, could help store energy for peak use. If we were to capture by various means even 10% of what we now make, we could delay the need for additional energy info-structure, create local jobs and secure a more sustainable future. Bill 6360 ambitiously aspires to set the State's energy trajectory for the next generation. I strongly support investment in efficient energy use as a central piece.of that puzzle. Thank you for the opportunity to give comment on this far reaching plan.

Susan Andrus Olson
109 Hopmeadow St
Weatogue, CT 06089
(860) 658-4457

March 7, 2013

Connecticut General Assembly
Energy and Technology Committee

Testimony of Anthony E. Malkin Relating to
Bill No. 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Thank you, Senator Duff, Representative Reed and members of the Energy and Technology Committee for the opportunity to present this testimony to you. My name is Anthony E. Malkin, and I am the president of Malkin Holdings and Malkin Properties. As you may be aware, Malkin Properties is considered a leader in building energy efficiency retrofits. At our flagship property, the Empire State Building, we worked with the Clinton Climate Initiative, Johnson Controls, Jones Lang LaSalle and the Rocky Mountain Institute in a groundbreaking and now highly-publicized project at the Empire State Building, demonstrating how retrofits could be accomplished to maximize energy efficiency.

Closer to home, Malkin Properties of Connecticut owns five properties in Fairfield County, and we desire to replicate the success we have had at the Empire State Building and our other properties by investing in energy efficiency measures at our Connecticut properties. To do so, however, we need better tools. While the Comprehensive Energy Strategy and its enabling legislation is a good step in the right direction, it does not go far enough to take advantage of the energy-related benefits of combined heat and power (CHP) systems. Connecticut can do more to take advantage of this technology, and it is my hope that this testimony, along with the changes to Bill No. 6360 that we are proposing, will serve to make CHP (or "cogeneration") economically viable in Connecticut.

We wish to commend the State for the thought and hard work that went into developing Connecticut's recent Comprehensive Energy Strategy. Connecticut is becoming a thought leader in balancing the environmental impacts of energy generation with the energy needs of its consumers, and the Comprehensive Energy Strategy demonstrates Connecticut's commitment to providing cheaper and cleaner energy for its residents.

However, we believe the Comprehensive Energy Strategy and Bill No. 6360 as drafted will kill any chance for CHP projects in the state of Connecticut. Successful formulation of the Comprehensive Energy Strategy (CES) is critical for our State, and specifically critical to attract the capital to make possible technologically leading, job creating, infrastructure enhancing CHP projects.

CHP should be a cornerstone of the CES. Cogeneration is proven technology that delivers highly efficient, clean energy. CHP promotes investment and creates jobs. For every 100MW of cogeneration, $400 million will be invested and approximately 600 construction and 80-100 permanent jobs will be created. CHP will modernize and improve the reliability of infrastructure. We have a shovel ready project of 2 MW of our own utilizing technology with 99.9% reliability, even during extreme weather related grid outages.

We are constrained from developing this project, however, because the existing tariff structure places significant and artificial limitations on project developers and is an insurmountable obstacle to capital sources needed to develop new projects in Connecticut. Connecticut is not competitive on any level: national, Northeast corridor, and neighboring states. Competition for scarce capital and development

resources is especially fierce. With respect to CHP systems, we believe that Connecticut could do more to bring it into line with other northeastern states. If we do not address the existing tariff structure, we will lose jobs, efficiency, capital, technology, and competitiveness.

We are providing you with proposed edits to Bill No. 6360 that will have a significant impact on the ability of owners to develop CHP systems and attract private funding for these projects.

The current tariff structure that Connecticut's CHP systems face requires that a monthly demand charge be based on peak demand during a thirty (30) day billing period. As a result, the unintended consequence is that a thirty minute outage of a CHP system would result in excess penalties. Minor outages of this kind, even if they happen for only a few times out of the year, would render a CHP project uneconomical and therefore make it unattractive to financing sources. In order to remedy this unintended consequence, we have suggested the development of a pilot program as outlined in newly-written Section 21. The chief benefit of the pilot program is that demand charges would be recalculated so that the penalty would consist of an "as used" daily demand charge, which is consistent with the demand charges for CHP systems in Massachusetts, New York and Rhode Island. This would therefore limit penalties only to days with on-peak outages based on daily demand pricing, rather than a thirty (30) day billing period. As such, penalties for minor outages would be reduced from approximately $25,000 to approximately $1,200, based on CL&P's DG Rate 58 Large Time-Of-Day Electric Service Non-Manufacturers tariff for a commercial customer with 3,500 kW peak demand and 2,000 kW nameplate distributed generation resource onsite.

Section 21 mitigates the potential economic impact to electric distribution companies by limiting the change in the tariff to only those qualifying facilities that are selected to participate in a pilot program. Such a program will be limited to an aggregate of 25 MW nameplate capacity state-wide, or approximately less than one percent of utility peak load. In exchange for participation in the program, qualifying CHP facilities would be required to provide the Public Utilities Regulatory Authority ("PURA") with system performance and supplemental utility data for their first three years of operations. In addition, the participants in the program will provide PURA will information relating to any downtimes the systems experience. This data will provide PURA with the ability to determine the benefits of the development of CHP and whether the pilot program has merit and should be expanded or made permanent in the future.

In addition to the changes discussed above, we have three additional changes to bring to the Committee's attention. First, we recognize that the Connecticut Energy Finance and Investment Authority ("CEFIA") has had some involvement with the development of CHP programs. This involvement is commendable, however, one of the problems associated with the development of CHP systems is the upfront cost associated with initial engineering assessments to demonstrate a project's viability. To that end, we have proposed a new Section 20 in Bill No. 6530 that would amend Conn. Gen. Stat. § 16-245n. This amendment would amend section 16-245n(c) to specifically allow CEFIA to provide limited upfront funding for engineering and due diligence costs associated with the development of CHP programs. Additional funding would not be required, rather it would be part of CEFIA's current budget for CHP programs. Nonetheless, it would demonstrate to CEFIA the important role that CHP can play in addressing Connecticut's energy needs. Making such funding available would also put Connecticut on equal footing with its northeastern neighbors, such as Massachusetts, New York and Rhode Island.

Secondly, we have amended Section 5 of Bill No. 6530 to allow for virtual net metering to take place at commercial and multi-family residential facilities. We believe that virtual net metering for certain residential and commercial projects is warranted and will aid in the development of not only CHP systems, but also renewable energy projects in Connecticut. We recognize that there may be concerns associated with the costs of such virtual net metering, therefore, our amendments to Section 5 make it clear that in cases of such virtual net metering, all costs associated with the development of the initial virtual net metering system would be borne by the commercial user, and the commercial user would be subject to the 80/20 distribution cost division that is articulated in the current version of Section 5. Combined with the $10 million cap on virtual net metering that is currently present in Section 5, we believe that this provides adequate protection against unanticipated costs. Finally, we have made some minor edits to sections 3 and 10 of the bill, and these changes should be self-explanatory.

With these changes to Bill 6360, we believe that Connecticut will be well positioned to be a leader in the development of cleaner energy through CHP systems. Thank you for your consideration of our position with respect to this testimony.

IN AMERICA AND CONNECTICUT, ENERGY WASTE IS THEIR MOST IMPORTANT AND PROLIFIC PRODUCT.

March 7, 2013

SENT VIA E-MAIL TO: ET.TESTIMONY@CGA.CT.GOV

P.O. Box 71
Windsor, CT 06095-2205

Co-chairmen and Members
Co-Chairmen and Members
Energy and Technology Committee
Connecticut Legislature
Room 3900, Legislative Office Building
Hartford, CT 06106

Re: **H.B. 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.**

Dear Co-Chairs and Members:

INTRODUCTION

Essentially, Public Act ("P.A.") 11-80, section 51 (a) requires the Connecticut Department of Energy and Environmental Protection ("DEEP") to develop an energy plan every three years. The Draft Comprehensive Energy Strategy Plan ("Draft") prepared by DEEP analyzes the state's energy use and identifies how to improve efficiency in heating, air conditioning and other building systems and appliances. Executive Summary ("ES"), pages 1-2. It also calls for economic incentives such as subsidies and power purchase agreements to reduce the cost of renewable electricity and promotes housing and retail construction near mass transit to reduce automobile use and encourages bikeways and walking paths. *Id.* The Draft, also, considers financing to promote gas heat at residences and businesses. *Id.* Also, the Draft offers . . . "a set of recommendations designed to advance the **Governor's agenda** of moving Connecticut toward a cheaper, cleaner, and more reliable energy future." (Emphasis added.)" ES, p. 1, paragraph 1.

The Draft is incontrovertibly **NOT COMPREHENSIVE and NOT STRATEGIC** because it is neither designed as claimed by DEEP to "Conserve, improve and protect our natural resources and environment nor to ensure a clean, affordable, reliable, and sustainable energy supply" nor consistent with the requirements of Section 51(a) for a Comprehensive Energy Plan, nor the declared policies of section 16a-35k of the Connecticut General Statutes ("G.S.").

The Strategy offers recommendations in the following five major priority areas:

A. Energy Efficiency
B. Electricity Supply Including Renewable Power
C. Industrial Energy Needs
D. Transportation
E. Natural Gas

Executive Summary ("E. S."), p. 1, par. 2.

COMMENTS

I. General

A. *Everyone's got a plan until they get punched in the mouth.* Former Heavyweight Champ, Mike Tyson

B. The Draft is best described by the title of James Howard Kunstler's latest book entitled, *Too Much Magic; Wishful Thinking, Technology, and The Fate Of The Nation.*

C. The statement that the Draft advances the Governor's agenda constitutes the crass **politicization of energy planning**. Public Act 11-80 and section 16a-35k do not establish any requirement for providing recommendations, which advance the Governor's agenda. **This phrasing should be removed from the Draft.**

D. The use of the amorphous term "clean energy" is deceptive and disingenuous. Clean energy is dirty energy when examined over the life cycle of the apparatus used to capture and transform solar radiation, wind and water into electricity. The operation of the transformative devices are cleaner but the processes to extract the raw materials, process them into the apparatus and transport them to specific destinations all use fossil fuels, which pollute.

E. It perpetuates the energy crisis in its implication of a perpetual supply of fossil fuels, i.e., natural gas.

F. The bill essentially describes plans, which fall within the purview of **Energy Assurance**

G. The Strategy displays a brand of shocking ignorance by the Governor and DEEP to the global energy conditions – worldwide net energy is in depletion mode.

G. Fossil fuel depletion trumps technology.

I. Peak fossil fuels equals peak economy.

J. There is no provision for energy analysis anywhere in the bill to support the energy planning process.

II. Energy Assurance

Energy Assurance is a management program designed to ensure the secure and available (i.e., reliable and maintainable) flow of energy that meets mission goals and objectives, which are achieved through implementation of specifications, standards and regulations. Its purpose is to protect critical energy infrastructure and ensure its resilience. Operational Availability ("A_o") is defined as reliability divided by reliability plus maintainability. Mathematically A_o = Mean Time Between Failures / Mean Time Between Failures + Mean Time To Repair.

Energy Assurance should be the primary management program for securing the delivery of all energy systems and DEEP has ignored this overarching management principle. The agency does not address data collection, analysis and consequence assessment for both reliability and maintainability.

III. Priority Areas and Energy Waste

Section 51(a) requires an "assessment of current . . . demand and costs, identification and evaluation of the factors likely to affect future . . . demand and costs, a statement of energy policies and long-range energy planning objectives and strategies appropriate to achieve, among other things . . . measures that reduce demand for energy, giving due regard to such factors as . . . security . . . conservation of energy and energy resources."

Further, section 16a-35k declared that it is the policy of the state to "assist citizens and businesses in implementing measures to reduce energy consumption. . . . "

Missing from consideration in the Strategy are measures to minimize the demand for energy in solid waste, food, manufacturing, information, healthcare, education, home heating oil, energy storage, and nuclear power. Additionally, security, and entropy are ignored.

Section 16a-35k of the G.S. declared that state policy is to "giv[e] due regard to such factors as . . . conservation of energy and energy resources." Meaning, the state is obligated to avoid unnecessary and wasteful consumption. Absolute minimization of

energy waste is essential to implement this policy. Yet, DEEP has not provided a Comprehensive Strategy for Energy Conservation across the full spectrum of Connecticut's economy. For example, there was no consideration for the energy embodied in solid waste, healthcare products and services, automobiles, land use, architecture, etc. Even though, section 22a-1b(c)(7) of the G.S. requires consideration of the "the effect of the proposed action on the use and conservation of energy resources," no Environmental Impact Evaluation that I have reviewed – I have reviewed many - which were prepared by federal and state agencies has ever analyzed and assessed such effects. Moreover, energy efficiency is only a small part of conservation.

The "reduce, recycle, reuse" theme of DEEP's Solid Waste (Mis)management Plan is ineffective in reducing energy consumption and waste attributed to nonessential products and services. The Strategy should propose to significantly minimize solid waste and include as a first element of management the theme of "**refuse**," which is contrary to mindless growth of excessive wealth and prosperity.

This state does not need more energy generation or new fuel supplies; it needs to cut the energy waste. Every day, Connecticut wastes more generated energy during the off peak hours of demand than the state ever uses during the peak hours. Our country wastes enough energy everyday to power the entire country of Japan. It is actually a lot worse than that; it is more like multiple Japan's.

IV. Energy Storage

Society has already paid the pollution price and this electrical energy is just going to waste, storing the "off-peak" is as clean as energy can be. Off-peak energy has already been paid for so it should be free. The only thing left is to pay the utilities for delivery.

It takes about a month to shut down and then ramp up a base load power plant. When ratepayers turn off their lights, pretty much the same amount of fuel is burned to produce the same amount of electric energy to the grid. Ratepayers pay for it in the overall rate structure, and it is all just going to waste.

See Appendix B for a perspective on energy waste. *Also see*, Appendix F, infra, on energy storage.

V. Duration of the Plan

The Strategy is predicated on economic and population growth until the planning year of 2050. ES, p. 1, par. 1. However section 51 (a) of P.A. 11-80, also, requires an updated Plan every three years. In a world of finite natural resource, perpetual or

unlimited economic and population growth is unrealistic, unachievable and unsustainable in light of the incontrovertible developing scarcities in extractible fossil fuels and raw materials such as rare earth elements derived from minerals, the increasing energy costs for the net gain in the quantity and quality of such fuels, declining global net energy. Not only does the state plan to grow but it uses neoclassical economics for its model, which is a proven failure because unlike the new field of Biophysical Economics, it discredits the limits of the resources in the physical world. In other words, peak resources equals peak economy. Planning to the year 2050 is not a statutory requirement and should be abandoned. The Governor and Legislature cannot even plan the budget for the next year never mind energy supplies and demand to the year 2050. **Peak oil equals peak economy.**

VI. Quality of Life and Living

Section 16a-35k reads in pertinent part as follows;

> it is the continuing responsibility of the state to use all means consistent with other essential considerations of state policy . . . to achieve a balance between population and resource use which will permit the maintenance of adequate living standards and a sharing of life's amenities among all citizens. . . .

This policy declaration requires the creation of a "Quality of Life" and "Quality of Living" standards for planning purposes only. The European Union has adopted such planning criteria. Otherwise, there is simply no foundation as a benchmark for planning. Is the Governor's political agenda the ground floor? As a result, current state planning including the Strategy is haphazard, arbitrary and capricious without such reference point. What is the ultimate purpose, goal and wishful achievement expected from economic growth until 2050? Connecticut needs to realistically embrace and plan for economic contraction, which is a more likely scenario. Also see, Appendix B for a historical perspective on living standards.

VII. Economic Growth

Section 51 (a) requires the Plan to "giv[e] due regard to such factors as . . . the ability of the state to compete economically"; this is an euphemism for economic growth, which is nothing more than attaching collateral for past debts.

The tools of the past no longer fit the economy of the future? Economic growth, as we have known it, is being constrained by an unprecedented slowing of growth in world oil supply. Connecticut's path to future prosperity needs to recognize and confront this new energy reality, and adapt our economy to run on a lot less oil.

VIII. EROEI or EROI

"In integrating energy, environmental, and economic goals, the Strategy breaks new ground and advances a broad and robust structure for thinking through energy options." ES, page 1, par. 3. "It moves away from subsidizing favored technologies or companies toward a flexible "finance" model that encourages entrepreneurship and private sector leadership in scaling up clean energy projects." *Id.* "Emphasis is placed not on picking 'winners' but on using limited government resources to leverage private capital and increase the flow of funds into energy efficiency, renewable power, natural gas availability, and a 21st century transportation infrastructure that promotes mobility options, transportation-oriented development, and market-based opportunities for clean fuels and clean vehicles." *Id.*

"This Strategy builds on the fundamental premise that the public's interest in and ongoing commitment to clean energy depends on the emergence of new technologies that out-compete fossil fuel alternatives." ES, page 1, par. 3. "It therefore proposes an array of economic incentives designed to drive down the cost of new energy technologies." *Id.* "By harnessing market forces and competitive pressures, this policy framework promises to spur innovation while offering support for a portfolio of renewable power generation alternatives." *Id.*

How much energy must be invested to achieve all the goals in the Strategy? For sure, Merlin the Magician will not suddenly appear, go "poof" and all the energy will magically become available to attain the state's objectives.

The Abstract of reference [3] reads as follows (The full paper appears in Part II of my comments as separate correspondence.)

> Economic production and, more generally, most global societies, are overwhelmingly dependent upon depleting supplies of fossil fuels. There is considerable concern amongst resource scientists, if not most economists, as to whether market signals or cost benefit analysis based on today's prices are sufficient to guide our decisions about our energy future. These suspicions and concerns were escalated during the oil price increase from 2005 – 2008 and the subsequent but probably related market collapse of 2008. We believe that Energy Return On Investment (EROI) analysis provides a useful approach for examining disadvantages and advantages of different fuels and also offers the possibility to look into the future in ways that markets seem unable to do. The goal of this paper is to review the application of EROI theory to both natural and economic realms, and to assess preliminarily the minimum EROI that a society must attain from its energy exploitation to support continued economic activity and social

function. In doing so we calculate herein a basic first attempt at the minimum EROI for current society and some of the consequences when that minimum is approached. The theory of the *minimum EROI* discussed here, which describes the somewhat obvious but nonetheless important idea that for any being or system to survive or grow it must gain substantially more energy than it uses in obtaining that energy, may be especially important. Thus any particular being or system must abide by a "Law of Minimum EROI", which we calculate for both oil and corn-based ethanol as about 3:1 at the mine-mouth/farm-gate. Since most biofuels have EROI's of less than 3:1 they must be subsidized by fossil fuels to be useful.

One potentially useful alternative to conventional economic analysis is net energy analysis, which is the examination of how much energy is left over after correcting for how much of that energy (or its equivalent from some other source) is required to generate (extract, grow or whatever) a unit of the energy in question. Net energy analysis is sometimes called the assessment of energy surplus, energy balance, or, as we prefer, energy return on investment (EROI or sometimes EROEI) (The reference is attached as a separate correspondence for my comments.). The EROI is calculated from the following simple equation, although the devil is in the details:

$$\text{EROI} = \frac{\text{Energy returned to society}}{\text{Energy required to get that energy}}$$

Since the numerator and denominator are usually assessed in the same units (an exception we treat later is when quality corrections are made) the ratio so derived is dimensionless, e.g. 30:1 which can be expressed as "30 to one". This implies that a particular process yields 30 Joules on an investment of 1 Joule (or Kcal per Kcal or barrels per barrel). EROI is usually applied at the mine-mouth, wellhead, farm gate, etc. The EROI is not to be confused with *conversion efficiency*, i.e. going from one form of energy to another such as upgrading petroleum in a refinery or converting diesel to electricity. It is only loosely related, at least in the short term, to the concept of energy return on monetary investment.

Net energy analysis offers the possibility of a very useful approach for looking at the advantages and disadvantages of a given fuel and offers the possibility of looking into the future in a way that markets seem unable to do. Its advocates also believe that in time market prices must approximately reflect comprehensive EROIs, at least if appropriate corrections for quality are made and subsidies removed. Nevertheless we hasten to add that we do not believe that EROI by itself is necessarily a sufficient criteria by which judgments may be made, although it is the one we favor the most, especially when it indicates that one fuel has a much higher or lower EROI than others. In addition it is

important to consider the present and future potential magnitude of the fuel, and how EROI might change if a fuel is expanded.

I recommend all staff and stakeholders watch the following three (3) videos concerning Dr. Charles Hall's[1] lectures on Biophysical Economics:

1. http://www.youtube.com/watch?v=HZOAovp0S6s&feature=player_embedded;
2. http://www.youtube.com/watch?v=Bk7Ux4gCXjE&list=UUegQs-U_vRxxhe_4tuXJICQ&index=2&feature=plcp;
3. http://www.youtube.com/watch?v=YwdwUStzxww&list=UUegQs-U_vRxxhe_4tuXJICQ&index=3&feature=plcp; and
4. http://www.youtube.com/watch?v=SIcSeJE8-1E&list=UUegQs-U_vRxxhe_4tuXJICQ&index=4&feature=plcp

Also, all should read Dr. Hall's latest book *Energy and the Wealth of Nations*[2]. In the book, Hall and his co-author explore the relation between energy and the wealth

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[1] Dr Charles A.S. Hall is Environmental Science and Forestry Foundation Distinguished Professor at State University of New York in the College of Environmental Science & Forestry. Hall describes himself primarily as a systems ecologist in the field of Systems ecology with strong interests in biophysical economics, and the relation of energy to society Dr Hall was trained as a systems ecologist by Howard Odum at the University of North Carolina Since then he has had a diverse career at Brookhaven Laboratory, The Ecosystems Center at the Marine Biological Laboratory, Woods Hole, Cornell University, University of Montana and, for the last 20 years, at the State University of New York College of Environmental Science and Forestry (SUNY ESF) His work has involved streams, estuaries and tropical forests but it has focused increasingly on human-dominated ecosystems in the US and Latin America His research reflects his interest in understanding and developing analyses and computer simulation models of the complex systems of nature and humans and their interactions Halls focus has been on energy as it relates to economics and environment. His focus is studying material and energy flows referred to as Industrial ecology, and applying this perspective, to attempting to understand human economies from a biophysical rather than just social perspective. Dr Hall teaches a freshman course called The Global Environment and the Evolution of Human Culture and graduate level courses in Systems Ecology, Ecosystems, Energy systems, Tropical Development and Biophysical Economics.

[2] The Table of Contents for the book is as follows:

Part I. Energy and the Origins of Wealth
Chapter 1 Poverty, Wealth, and Human Ambition
Chapter 2. Energy and Wealth Production· An historical perspective
Chapter 3 The Petroleum Revolution I: The first half of the age of oil
Part II. Energy, Economics and the Structure of Society
Chapter 4 Explaining Economics from an Energy Perspective
Chapter 5 The Limits of Conventional Economics
Chapter 6 The Petroleum Revolution II· Concentrated Power and Concentrated Industries
Chapter 7 The Postwar Economic Order, Growth and the Hydrocarbon Economy
Chapter 8 Globalization and Efficiency
Chapter 9 Are there Limits to Growth? Examining the Evidence
Part III. Energy and Economics—the Basics
Chapter 10 What is Energy and How is it Related to Wealth Production?

explosion of the 20th century, the failure of markets to recognize or efficiently allocate diminishing resources, the economic consequences of peak oil, the EROI for finding and exploiting new oil fields, and whether alternative energy technologies such as wind and solar power meet the minimum EROI requirements needed to run our society as we know it.

IX. Clean Energy Strategy

The Strategy builds on the fundamental premise that the public's interest in and ongoing commitment to clean energy depends on the emergence of new technologies that out-compete fossil fuel alternatives." ES, p.1, par. 4.

There are neither known nor projected future technologies that can out-compete fossil fuels. The Energy Return on Energy Invested aka energy profit ratio for fossil fuels far exceeds that for any apparatus harnessing renewable energy sources. See Appendix C for chart and table of EROEIs.

The Strategy, also, ignored the energy required for maintenance and repair of renewable energy facilities into the foreseeable future. When the global and national fossil fuel supplies are significantly depleted within the next 10 years (my estimation), maintaining and repairing equipment as well as the rest of the technological advances will face a rendezvous with entropy. Technology requires two essential entities: raw materials and a fuel supply for processing, which are both dwindling [1][2]. See Appendix D for article on looming shortage of rare metals.

X. Energy Efficiency Strategy

"Energy conservation offers a mechanism for reducing utility bills for every family and business in Connecticut while creating thousands of new jobs. The Strategy calls for an expanded commitment to `all cost-effective' energy efficiency through programs that will. . . ." ES, page 2, par. 3.

Chapter 11. The Basic Science Needed to Understand the Relation of Energy to Economics
Chapter 12 The Required Quantitative Skills
Chapter 13 Economics as Science: Social or Biophysical?
Part IV. The Science Behind How Economies Work
Chapter 14 Energy Return on Investment
Chapter 15 Peak Oil, EROI, Investments and Our Financial Future
Chapter 16 The Role of Economic Models for Good and Evil
Chapter 17. How to do Biophysical Economics
Part V. Understanding How Real World Economies Work
Chapter 18 Peak Oil, the Great Recession and the Quest for Sustainability
Chapter 19 Environmental Considerations. Beyond Externalities
Chapter 20 Living the Good Life in a Lower EROI World

The Strategy should analytically determine the quantity of energy necessarily invested to achieve the anticipated efficiencies. In other words, what is the **net energy saved**?

Also, the Strategy has not dealt with "Jevons paradox." In 1865, the English economist William Stanley Jevons observed that technological improvements that increased the efficiency of coal use led to increased consumption of coal in a wide range of industries. He argued that, contrary to common intuition, technological improvements could not be relied upon to reduce fuel consumption.

The issue has been re-examined by modern economists studying consumption rebound effects from improved energy efficiency. In addition to reducing the amount needed for a given use, improved efficiency lowers the relative cost of using a resource, which tends to increase the quantity of the resource demanded, potentially counteracting any savings from increased efficiency. Additionally, increased efficiency accelerates economic growth, further increasing the demand for resources. The Jevons paradox occurs when the effect from increased demand predominates, causing resource use to increase.

The Jevons paradox has been used to argue that such energy conservation is futile, as increased efficiency may increase fuel use. Nevertheless, increased efficiency can improve material living standards. Further, fuel use declines if increased efficiency is coupled with a green tax or other conservation policies that keep the cost of use the same (or higher). As the Jevons paradox applies only to *technological improvements* that increase fuel efficiency, policies that impose conservation standards and increase costs do not display the paradox.

To be clear, the rebound effect is real. The theory behind it is sound: Lower the cost of anything and people will use more of it, including the cost of running energy consuming equipment. But as with many economic ideas that are sound theory (like the idea that you can raise government revenues by cutting tax rates), the trick is in knowing how far to take them in reality. (Cutting tax rates from 100% to 50% would certainly raise revenues. Cutting them from 50% to 0% would just as surely lower them.)

For example, Stan Cox, author of *Losing Our Cool*, noted that between 1993 and 2005, air conditioners in the U.S. increased in efficiency by 28%, but by 2005, homes with air conditioning increased their consumption of energy for their air conditioners by 37%. Real (inflation adjusted) per capita income increased by just over 30% over that time period. All else being equal, when people have more money, they buy more stuff, including cool air.

The average size of new homes increased from 2,095 to 2,438 square feet, over 16%. More square feet means more area to cool and more energy needed to cool it.

In 1993, of homes that had air conditioning, 38% only had room units while 62% had central air. By 2005, 75% of air conditioned homes had central units. Bigger units covering more rooms means more cool air and, you guessed it, more energy.

Real electricity prices were mostly flat over this time period, falling by just over 1%, contributing little, if anything, to the increase.)

Accounting only for the increased income over the timeframe, a few rough calculations point to an increase in energy use for air conditioning of about 30% from 1993 to 2005, despite the gains in efficiency.

It's one of the well-established frustrations of the energy efficiency world that people pay too much attention to the up-front cost of goods and not enough to the energy costs needed to use them. Again, what is the net energy savings.

XI. Renewable Power

See Appendix F for a dissertation, which appeared in Forbes Magazine on *Renewable Energy's Sixty years of Broken Dreams* and the November 21, 2011 research note by Michael Cembalest, the chief investment officer for JPMorgan Private Bank entitled *The quixotic search for energy solutions.*

XII. Crude Oil

World crude oil production has been on a century-long rising trend—from less than one million barrels per day (mbpd) in 1900 to nearly 75 mbpd today. There have been aberrations along the way, such as a large fall in production during the Great Depression, but the upward trend has persisted—until recently. Since 2005, global oil production has been essentially flat. There have been plateaus before, but what is different this time is that real oil prices — i.e. adjusted for inflation — have roughly tripled within the span of a decade, yet relatively little additional production has been brought forth.

For most of the 20th century, oil prices in 2009 dollars were less than $35 per barrel. During the 25-year economic boom following World War II, they stayed reliably below $20. Real prices shot up to the $50 mark in the early 1970's following the Arab oil embargo and reached $100 shortly thereafter with the Iranian hostage crisis. Excepting those oil shocks, average real prices remained remarkably low. But something appears to have fundamentally changed over the past decade. Since 2000, aside from a spike and crash in 2008 and 2009, U.S. oil prices have climbed steadily and are now holding in

the $80-$100 per barrel range, approximately three times their historic average, despite a worldwide economic slowdown. The country has essentially been in a long, slow, but equally damaging oil shock for several years, only this one is not associated with any acute geopolitical event.

Various forces are contributing to rising oil prices, but an unavoidable key factor is the increasing cost and energy required to produce each new barrel of oil. From an energy and economic standpoint, the return on energy invested for new petroleum sources — such as tight oil in North Dakota, Canadian tar sands, or deepwater offshore oil is much lower than for conventional oilfields of the past, as research at the State University of New York at Syracuse has shown. Essentially, this means that oil is delivering substantially less energy "profit" or surplus wealth to society than it used to. Higher prices also mean more American dollars flowing to oil-exporting countries, less money for households and businesses to invest or spend on other goods and services, and rising prices for oil-dependent products (a long list). It all adds up to a major drag on economic growth.

There is another important new wrinkle in the story of the petroleum age. Before 2000, we didn't care much about other countries. The United States essentially laid first claim to the world's oil exports. This is no longer the case. Oil consumption in developing countries, especially China, has exploded over the past decade. At the same time, oil-exporting countries are using more oil domestically. The result: oil exports available on the global market have been declining by an estimated 0.7 percent per year since 2005, according to analysis by Texas geologist Jeffrey Brown, and competition for those declining oil exports has increased, pushing prices further upward.

Not only is U.S. oil production unlikely to meet current consumption (ignore the hype, check the numbers for yourself), more domestic production will not address oil's increasing burden on the economy. Canada, for example, produces much more oil than it consumes; however, adjusting for taxes, our northern neighbors pay about the same at the pump as we do.

No matter who is the President, in Congress or Connecticut's governor, America and the state cannot drill its way out of our oil predicament, and more importantly, we cannot just "grow" our way to prosperity without addressing this new energy reality and charting a new course toward a low-oil economy. This conflicts with the wishful thinking and, techno-narcissism evidenced in theStrategy.

XIII. Natural Gas

"The Strategy further seeks to align Connecticut's energy future with the emerging opportunity provided by shale gas for a lower-cost, less-polluting, and domestically

available (and thus more reliable) foundation for society's energy needs." ES, page 2, par. 1. "In identifying natural gas as a bridge to a truly sustainable energy future, it puts forward a seven-year game plan for expanding natural gas use across Connecticut with a goal of providing nearly 300,000 Connecticut homes, businesses, and other facilities with access to gas." This would be a 100% huge gift to the Utilities. On what planet is the staff, who prepared the Strategy operating?

> The current price situation in shale gas is different than shale oil. The drilling frenzy in shale gas produced a glut, which drove down prices from a $13 a unit (thousand cubic feet or mcf) to around $2 at its low point earlier this year. That's way below the price that is economically rational to drill and frack for it. The price collapse has played havoc among the companies engaged in shale gas, though it has been a boon to customers. A lot of the drilling equipment has moved to the North Dakota oil fields. There will be less shale gas in the period ahead and the price will go up. It has got to go above about $8 a unit or there will be no reason for any company to be in the shale gas business. But as is always the case in such a correction, the price will surely overshoot $8, at which point it will become unaffordable to its customers. The volatility alone will make the business of shale gas drilling impossible to maintain. Forget about the USA becoming a major gas exporter.

See Kunstler, James Howard, *Epic Disappointment*, November 19, 2012 on the Internet at kunstler.com. The full article is attached as Appendix E.

How much energy must be invested to achieve the goals? And, what will be the EROEI for the conversion to natural gas? What is the embodied energy for the existing oil-fired system, which would be wasted by the conversion? Please provide the analysis.

XIV. TRANSPORTATION

"Cars, trucks, buses, trains, and planes account for 32% of the energy consumed in Connecticut and an even higher percentage of the fossil fuels burned." ES, p.4, par. 1.

"Providing the State's citizens with mobility options is therefore a high priority of the Strategy, which calls for:

- Expanded commitment to transport-oriented development and a broader mobility focus that encourages bikeway, walking paths, and other quality of life investments;

- Secure funding for transportation infrastructure in support of reduced road congestion, improved air quality, and a strengthened platform for o growth and job creation;

- Investment in a clean fuels/vehicles initiative that will ensure that the basic infrastructure needed for vehicle choice will be in place including:

- Sufficient electric vehicle charging stations (about 100 statewide) so that no one in the state need suffer from range anxiety,

- Support for conversion of fleets (delivery vans, taxis, garbage trucks, public works vehicles, etc.) to natural gas in conjunction with private sector-funded construction of natural gas filling stations that will be publicly available,

- Establishment of a core set of Liquefied Natural Gas stations at truck stops in support of the growing number of long haul trucking fleets considering conversion to natural gas as their primary fuel,

- Expanded hydrogen filling stations as demand for fuel cell-powered vehicles grows,

- Support for better fuel economy in Connecticut vehicles and development of second-generation biofuels such as biodiesel from food waste."

ES, p.4, par. 1

How much energy is required to achieve each of the goals? As Admiral Hyman Rickover postulated, the problem is the EROI for the automobile over its expected life, which is far more significant than energy savings from increased mileage or Corporate Average fuel Economy (CAFÉ) standards.

XV. Project Analysis and Evaluations

When evaluating projects, the company should perform a net energy analysis for each proposal. Such analysis shall include calculations of all embodied energy requirements used in the materials for initial construction of the facility over its projected useful lifetime. The analysis shall be expressed in a dimensionless unit as an energy profit ratio of energy generated by the facility to the calculated net energy expended in plant construction, maintenance and total fuel cycle energy requirements over the projected useful lifetime of the facility. The boundary for both the net energy calculations of the fuel cycle and materials for the facility construction and maintenance shall both be at the point of primary material extraction and include the energy consumed through the entire supply chain to final, but not be limited to, such subsequent steps as

transportation, refinement and energy for delivery to the end consumer The results of said net energy analysis shall be included in the results forwarded to the client. For purposes of this paragraph, "facility net energy" means the heat energy delivered by the facility contained in a fuel minus the life cycle energy used to produce the facility. "Fuel net energy" means the heat energy contained in a fuel minus the energy used to extract the fuel from the environment, refine it to a socially useful state and deliver it to consumers, and "embodied energy" means the total energy used to build and maintain a process, expressed in calorie equivalents of one type of energy.

Such analysis are ignored by the state even though CGS, section 22a-1b(c)(7) requires them.

XVI. Conclusion

After a thorough review of theStrategy, I can only conclude that it was drafted by amateurs, is neither comprehensive nor strategic, and DEEP now stands for the Connecticut Department of Energy Waste and Environmental Politics.

Very truly yours,

Robert Fromer

Robert Fromer

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APPENDIX A

KEY ELEMENTS OF PUBLIC ACT AND CONNECTICUT GENERAL STATUTE

Public Act 11-80

The primary requirements in Sec. 51 (a) for preparation of the Plan are as follows:

I. The Plan shall reflect the legislative findings and policy stated in **section 16a-35k** of the General Statutes, as amended by this Act, and shall incorporate:

(1) an assessment and plan for all energy needs in the state, including, but not limited to, electricity, heating, cooling, and transportation,
(2) the findings of the integrated resources plan,
(3) the findings of the plan for energy efficiency adopted pursuant to section 16-245m of the general statutes, as amended by this act, and
(4) the findings of the plan for renewable energy adopted pursuant to section 16-245n of the general statutes; and

II. The plan shall further include, but not be limited to:

(A) an assessment of current energy supplies, demand and costs,
(B) identification and evaluation of the factors likely to affect future energy supplies, demand and costs,
(C) a statement of progress made toward achieving the goals and milestones set in the preceding Comprehensive Energy Plan,
(D) a statement of energy policies and long-range energy planning objectives and strategies appropriate to achieve, among other things, a sound economy, the least-cost mix of energy supply sources and measures that reduce demand for energy, giving due regard to such factors as consumer price impacts, security and diversity of fuel supplies and energy generating methods, protection of public health and safety, environmental goals and standards, conservation of energy and energy resources and the ability of the state to compete economically,
(E) recommendations for administrative and legislative actions to implement such policies, objectives and strategies,
(F) an assessment of the potential costs savings and benefits to ratepayers, including, but not limited to, carbon dioxide emissions reductions or voluntary joint ventures to repower some or all of the state's coal-fired and oil-fired generation facilities built before 1990, and
(G) the benefits, costs, obstacles and solutions related to the expansion and use and availability of natural gas in Connecticut. If the

department finds that such expansion is in the public interest, it shall develop a plan to increase the use and availability of natural gas for transportation purposes.

Connecticut General Statutes, Section 16a-35k.

In section 16a-35k, the General Assembly found that:

(1) the state of Connecticut is severely disadvantaged by its lack of primary energy resources;
(2) primarily as a result of past policies and tendencies, the state has become dependent upon petroleum as an energy source;
(3) national energy policies do not preclude the recurrence of serious problems arising from this dependence during petroleum shortages;
(4) the increase in oil prices since the 1973 oil embargo has had a major impact on the state;
(5) the economy has suffered directly because of our dependence on petroleum and constraints upon the rate of conversion to alternatives;
(6) other conventional sources of energy are subject to constraints involving supply, transportation, cost and environmental, health and safety considerations;
(7) the state must address these problems by conserving energy, increasing the efficiency of energy utilization and developing renewable energy sources;
(8) energy use has a profound impact on the society, economy and environment of the state, particularly in its impact on low and moderate-income households and interrelationship with population growth, high density urbanization, industrial well-being, resource utilization, technological development and social advancement, and
(9) energy is critically important to the overall welfare and development of our society.

Also, in section 16a-35k, the General Assembly declared that it is the policy of the state of Connecticut to:

(1) conserve energy resources by avoiding unnecessary and wasteful consumption;
(2) consume energy resources in the most efficient manner feasible;
(3) develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent;
(4) diversify the state's energy supply mix;
(5) where practicable, replace energy resources vulnerable to interruption due to circumstances beyond the state's control with those less vulnerable;
(6) assist citizens and businesses in implementing measures to reduce energy consumption and costs;

(7) ensure that low-income households can meet essential energy needs;
(8) maintain planning and preparedness capabilities necessary to deal effectively with future energy supply interruptions;
(9) when available energy alternatives are equivalent, give preference for capacity additions first to conservation and load management;
(10) it is the continuing responsibility of the state to use all means consistent with other essential considerations of state policy to improve and coordinate the plans, functions, programs and resources of the state to attain the objectives stated herein without harm to the environment, risk to health or safety or other undesirable or unintended consequences, to preserve wherever possible a society which supports a diversity and variety of individual choice, to achieve a balance between population and resource use which will permit the maintenance of adequate living standards and a sharing of life's amenities among all citizens, and to enhance the utilization of renewable resources so that the availability of nonrenewable resources can be extended to future generations; and
(11) the energy policy is essential to the preservation and enhancement of the health, safety and general welfare of the people of the state and that its implementation therefore constitutes a significant and valid public purpose for all state actions.

Further, section 16a-35k requires that the state seek:

(1) all possible ways to implement this policy through public education and cooperative efforts involving the federal government, regional organizations, municipal governments, other public and private organizations and concerned individuals;
(2) using all practical means and measures, including financial and technical assistance, in a manner calculated to promote the general welfare by creating and maintaining conditions under which energy can be utilized effectively and efficiently.

APPENDIX B

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"Energy resources and our future" - remarks by Admiral Hyman Rickover delivered in 1957

by Rear Admiral Hyman G. Rickover, U.S. Navy

FOR RELEASE AT 7:00 P.M. TUESDAY, MAY 14, 1957

Remarks Prepared by

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For Delivery at a Banquet of the Annual Scientific Assembly of
the Minnesota State Medical Association
St. Paul, Minnesota

May 14, 1957

Energy Resources and Our Future

I am honored to be here tonight, though it is no easy thing, I assure you, for a layman to face up to an audience of physicians. A single one of you, sitting behind his desk, can be quite formidable.

My speech has no medical connotations This may be a relief to you after the solid professional fare you have been absorbing. I should like to discuss a matter, which will, I hope, be of interest to you as responsible citizens: the significance of energy resources in the shaping of our future.

We live in what historians may some day call the Fossil Fuel Age. Today coal, oil, and natural gas supply 93% of the world's energy; waterpower accounts for only 1%; and the labor of men and domestic animals the remaining 6% This is a startling reversal of corresponding figures for 1850 - only a century ago. Then fossil fuels supplied 5% of the world's energy, and men and animals 94%. **Five sixths of all the coal, oil, and gas consumed since the beginning of the Fossil Fuel Age has been burned up in the last 55 years.**

These fuels have been known to man for more than 3,000 years. In parts of China, coal was used for domestic heating and cooking, and natural gas for lighting as early as 1000 B.C. The Babylonians burned asphalt a thousand years earlier. But these early uses were sporadic and of no economic significance. Fossil fuels did not become a major source of energy until machines running on coal, gas, or oil were invented. Wood, for example, was the most important fuel until 1880 when it was replaced by coal; coal, in turn, has only recently been surpassed by oil in this country.

Once in full swing, fossil fuel consumption has accelerated at phenomenal rates. All the fossil fuels used before 1900 would not last five years at today's rates of consumption.

Nowhere are these rates higher and growing faster than in the United States. Our country, with only 6% of the world's population, uses one third of the world's total energy input; this proportion would be even greater except that we use energy more efficiently than other countries. Each American has at his disposal, each year, energy equivalent to that obtainable from eight tons of coal. This is six times the world's per capita energy consumption. Though not quite so spectacular, corresponding figures for other highly industrialized countries also show above average consumption figures The United Kingdom, for example, uses more than three times as much energy as the world average.

With high energy consumption goes a high standard of living Thus the enormous fossil energy which we in this country control feeds machines which make each of us master of an army of mechanical slaves **Man's muscle power is rated at 35 watts continuously, or one-twentieth horsepower.** Machines therefore furnish every American industrial worker with energy equivalent to that of 244 men, while at least 2,000 men push his automobile along the road, and his family is supplied with 33 faithful household helpers. Each locomotive engineer controls energy equivalent to that of 100,000 men; each jet pilot of 700,000 men. Truly, the humblest American enjoys the services of more slaves than were once owned by the richest nobles, and lives better than most ancient kings. In retrospect, and despite wars, revolutions, and disasters, the hundred years just gone by may well seem like a Golden Age

Whether this Golden Age will continue depends entirely upon our ability to keep energy supplies in balance with the needs of our growing population. Before I go into this question, let me review briefly the role of energy resources in the rise and fall of civilizations.

Possession of surplus energy is, of course, a requisite for any kind of civilization, for if man possesses merely the energy of his own muscles, he must expend all his strength - mental and physical - to obtain the bare necessities of life.

Surplus energy provides the material foundation for civilized living - a comfortable and tasteful home instead of a bare shelter; attractive clothing instead of mere covering to keep warm, appetizing food instead of anything that suffices to appease hunger. It provides the freedom from toil without which there can be no art, music, literature, or learning. There

is no need to belabor the point. What lifted man - one of the weaker mammals - above the animal world was that he could devise, with his brain, ways to increase the energy at his disposal, and use the leisure so gained to cultivate his mind and spirit. Where man must rely solely on the energy of his own body, he can sustain only the most meager existence.

Man's first step on the ladder of civilization dates from his discovery of fire and his domestication of animals. With these energy resources he was able to build a pastoral culture. To move upward to an agricultural civilization he needed more energy. In the past this was found in the labor of dependent members of large patriarchal families, augmented by slaves obtained through purchase or as war booty. There are some backward communities, which to this day depend on this type of energy.

Slave labor was necessary for the city-states and the empires of antiquity; they frequently had slave populations larger than their free citizenry. As long as slaves were abundant and no moral censure attached to their ownership, incentives to search for alternative sources of energy were lacking; this may well have been the single most important reason why engineering advanced very little in ancient times.

A reduction of per capita energy consumption has always in the past led to a decline in civilization and a reversion to a more primitive way of life. For example, exhaustion of wood fuel is believed to have been the primary reason for the fall of the Mayan Civilization on this continent and of the decline of once flourishing civilizations in Asia. India and China once had large forests, as did much of the Middle East. Deforestation not only lessened the energy base but had a further disastrous effect: lacking plant cover, soil washed away, and with soil erosion the nutritional base was reduced as well.

Another cause of declining civilization comes with pressure of population on available land. A point is reached where the land can no longer support both the people and their domestic animals. Horses and mules disappear first. Finally even the versatile water buffalo is displaced by man who is two and one half times as efficient an energy converter as are draft animals. It must always be remembered that while domestic animals and agricultural machines increase productivity per man, maximum productivity per acre is achieved only by intensive manual cultivation.

It is a sobering thought that the impoverished people of Asia, who today seldom go to sleep with their hunger completely satisfied, were once far more civilized and lived much better than the people of the West. And, not so very long ago, either. It was the stories brought back by Marco Polo of the marvelous civilization in China, which turned Europe's eyes to the riches of the East, and induced adventurous sailors to brave the high seas in their small vessels searching for a direct route to the fabulous Orient. The "wealth of the Indies" is a phrase still used, but whatever wealth may be there it certainly is not evident in the life of the people today.

Asia failed to keep technological pace with the needs of her growing populations and sank into such poverty that in many places man has become again the primary source of energy, since other energy converters have become too expensive. This must be obvious to the most casual observer. What this means is quite simply a reversion to a more primitive stage of civilization with all that it implies for human dignity and happiness.

Anyone who has watched a sweating Chinese farm worker strain at his heavily laden wheelbarrow, creaking along a cobblestone road, or who has flinched as he drives past an endless procession of human beasts of burden moving to market in Java - the slender women bent under mountainous loads heaped on their heads - anyone who has seen statistics translated into flesh and bone, realizes the degradation of man's stature when his muscle power becomes the only energy source he can afford. Civilization must wither when human beings are so degraded.

Where slavery represented a major source of energy, its abolition had the immediate effect of reducing energy consumption. Thus when this time-honored institution came under moral censure by Christianity, civilization declined until other sources of energy could be found. Slavery is incompatible with Christian belief in the worth of the humblest individual as a child of God. As Christianity spread through the Roman Empire and masters freed their slaves - in obedience to the teaching of the Church - the energy base of Roman civilization crumbled. This, some historians believe, may have been a major factor in the decline of Rome and the temporary reversion to a more primitive way of life during the Dark Ages. Slavery gradually disappeared throughout the Western world, except in its milder form of serfdom. That it was revived a thousand years later merely shows **man's ability to stifle his conscience - at least for a while - when his economic needs are great.** Eventually, even the needs of overseas plantation economies did not suffice to keep alive a practice so deeply repugnant to Western man's deepest convictions.

It may well be that it was unwillingness to depend on slave labor for their energy needs which turned the minds of medieval Europeans to search for alternate sources of energy, thus sparking the **Power Revolution of the Middle Ages** which, in turn, paved the way for the Industrial Revolution of the 19th Century. When slavery disappeared in the West, engineering advanced. Men began to harness the power of nature by utilizing water and wind as energy sources. The sailing ship, in particular, which replaced the slave-driven galley of antiquity, was vastly improved by medieval shipbuilders and became the first machine enabling man to control large amounts of inanimate energy.

The next important high-energy converter used by Europeans was gunpowder - an energy source far superior to the muscular strength of the strongest bowman or lancer. With ships that could navigate the high seas and arms that could out fire any hand weapon, Europe was now powerful enough to preempt for herself the vast empty areas of the Western Hemisphere into which she poured her surplus populations to build new nations of European stock. With these ships and arms she also gained political control over populous areas in Africa and Asia from which she drew the raw materials needed to speed her

industrialization, thus complementing her naval and military dominance with economic and commercial supremacy.

When a low-energy society comes in contact with a high-energy society, the advantage always lies with the latter. The Europeans not only achieved standards of living vastly higher than those of the rest of the world, but they did this while their population was growing at rates far surpassing those of other peoples. In fact, they doubled their share of total world population in the short span of three centuries. From one sixth in 1650, the people of European stock increased to almost one third of total world population by 1950.

Meanwhile much of the rest of the world did not even keep energy sources in balance with population growth. Per capita energy consumption actually diminished in large areas It is this difference in energy consumption, which has resulted in an ever-widening gap between the one-third minority who live in high-energy countries and the two-thirds majority who live in low-energy areas.

These so-called underdeveloped countries are now finding it far more difficult to catch up with the fortunate minority than it was for Europe to initiate transition from low-energy to high-energy consumption. For one thing, their ratio of land to people is much less favorable; for another, they have no outlet for surplus populations to ease the transition since all the empty spaces have already been taken over by people of European stock.

Almost all of today's low-energy countries have a population density so great that it perpetuates dependence on intensive manual agriculture, which alone can yield barely enough food for their people. They do not have enough acreage, per capita, to justify using domestic animals or farm machinery, although better seeds, better soil management, and better hand tools could bring some improvement. A very large part of their working population must nevertheless remain on the land, and this limits the amount of surplus energy that can be produced. Most of these countries must choose between using this small energy surplus to raise their very low standard of living or postpone present rewards for the sake of future gain by investing the surplus in new industries. The choice is difficult because there is no guarantee that today's denial may not prove to have been in vain. This is so because of the rapidity with which public health measures have reduced mortality rates, resulting in population growth as high or even higher than that of the high-energy nations. Theirs is a bitter choice; it accounts for much of their anti-Western feeling and may well portend a prolonged period of world instability.

How closely energy consumption is related to standards of living may be illustrated by the example of India. Despite intelligent and sustained efforts made since independence, India's per capita income is still only 20 cents daily; her infant mortality is four times ours; and the life expectance of her people is less than one half that of the industrialized countries of the West. These are ultimate consequences of India's very low energy consumption. one-fourteenth of world average, one-eightieth of ours.

Ominous, too, is the fact that while world food production increased 9% in the six years from 1945-51, world population increased by 12%. Not only is world population increasing faster than world food production but unfortunately, increases in food production tend to occur in the already well-fed, high-energy countries rather than in the undernourished, low-energy countries where food is most lacking.

I think no further elaboration is needed to demonstrate the significance of energy resources for our own future. **Our civilization rests upon a technological base, which requires enormous quantities of fossil fuels.** What assurance do we then have that our energy needs will continue to be supplied by fossil fuels: The answer is - in the long run - none.

The earth is finite. Fossil fuels are not renewable. In this respect, our energy base differs from that of all earlier civilizations. They could have maintained their energy supply by careful cultivation. We cannot. Fuel that has been burned is gone forever. Fuel is even more evanescent than metals. Metals, too, are non-renewable resources threatened with ultimate extinction, but something can be salvaged from scrap. Fuel leaves no scrap and there is nothing man can do to rebuild exhausted fossil fuel reserves. They were created by solar energy 500 million years ago and took eons to grow to their present volume.

In the face of the basic fact that fossil fuel reserves are finite, the exact length of time these reserves will last is important in only one respect: the longer they last, the more time do we have, to invent ways of living off renewable or substitute energy sources and to adjust our economy to the vast changes which we can expect from such a shift.

Fossil fuels resemble capital in the bank. A prudent and responsible parent will use his capital sparingly in order to pass on to his children as much as possible of his inheritance. A selfish and irresponsible parent will squander it in riotous living and care not one whit how his offspring will fare.

Engineers whose work familiarizes them with energy statistics; far-seeing industrialists who know that energy is the principal factor which must enter into all planning for the future; responsible governments who realize that the well-being of their citizens and the political power of their countries depend on adequate energy supplies - all these have begun to be concerned about energy resources. In this country, especially, many studies have been made in the last few years, seeking to discover accurate information on fossil-fuel reserves and foreseeable fuel needs.

Statistics involving the human factor are, of course, never exact. The size of usable reserves depends on the ability of engineers to improve the efficiency of fuel extraction and use. It also depends on discovery of new methods to obtain energy from inferior resources at costs, which can be borne without unduly depressing the standard of living. Estimates of future needs, in turn, rely heavily on population figures, which must always allow for a large

element of uncertainty, particularly as man reaches a point where he is more and more able to control his own way of life.

Current estimates of fossil fuel reserves vary to an astonishing degree. In part this is because the results differ greatly if cost of extraction is disregarded or if in calculating how long reserves will last, population growth is not taken into consideration; or, equally important, not enough weight is given to increased fuel consumption required to process inferior or substitute metals. We are rapidly approaching the time when exhaustion of better grade metals will force us to turn to poorer grades requiring in most cases greater expenditure of energy per unit of metal.

But the most significant distinction between optimistic and pessimistic fuel reserve statistics is that the optimists generally speak of the immediate future - the next twenty-five years or so - while the pessimists think in terms of a century from now. A century or even two is a short span in the history of a great people. It seems sensible to me to take a long view, even if this involves facing unpleasant facts.

For it is an unpleasant fact that according to our best estimates, total fossil fuel reserves recoverable at not over twice today's unit cost, are likely to run out at some time between the years 2000 and 2050, if present standards of living and population growth rates are taken into account. Oil and natural gas will disappear first, coal last. There will be coal left in the earth, of course. But it will be so difficult to mine that energy costs would rise to economically intolerable heights, so that it would then become necessary either to discover new energy sources or to lower standards of living drastically.

For more than one hundred years we have stoked ever growing numbers of machines with coal; for fifty years we have pumped gas and oil into our factories, cars, trucks, tractors, ships, planes, and homes without giving a thought to the future. Occasionally the voice of a Cassandra has been raised only to be quickly silenced when a lucky discovery revised estimates of our oil reserves upward, or a new coalfield was found in some remote spot. Fewer such lucky discoveries can be expected in the future, especially in industrialized countries where extensive mapping of resources has been done. Yet the popularizers of scientific news would have us believe that there is no cause for anxiety, that reserves will last thousands of years, and that before they run out science will have produced miracles. Our past history and security have given us the sentimental belief that the things we fear will never really happen - that everything turns out right in the end. But, prudent men will reject these tranquilizers and prefer to face the facts so that they can plan intelligently for the needs of their posterity.

Looking into the future, from the mid-20th Century, we cannot feel overly confident that present high standards of living will of a certainty continue through the next century and beyond. Fossil fuel costs will soon definitely begin to rise as the best and most accessible reserves are exhausted, and more effort will be required to obtain the same energy from remaining reserves. It is likely also that liquid fuel synthesized from coal will be more

expensive. Can we feel certain that when economically recoverable fossil fuels are gone science will have learned how to maintain a high standard of living on renewable energy sources?

I believe it would be wise to assume that the principal renewable fuel sources which we can expect to tap before fossil reserves run out will supply only 7 to 15% of future energy needs. The five most important of these renewable sources are wood fuel, farm wastes, wind, water power, and solar heat.

Wood fuel and farm wastes are dubious as substitutes because of growing food requirements to be anticipated. Land is more likely to be used for food production than for tree crops; farm wastes may be more urgently needed to fertilize the soil than to fuel machines.

Wind and water power can furnish only a very small percentage of our energy needs. Moreover, as with solar energy, expensive structures would be required, making use of land and metals, which will also be in short supply. Nor would anything we know today justify putting too much reliance on solar energy though it will probably prove feasible for home heating in favorable localities and for cooking in hot countries, which lack wood, such as India.

More promising is the outlook for nuclear fuels. These are not, properly speaking, renewable energy sources, at least not in the present state of technology, but their capacity to "breed" and the very high energy output from small quantities of fissionable material, as well as the fact that such materials are relatively abundant, do seem to put nuclear fuels into a separate category from exhaustible fossil fuels. The disposal of radioactive wastes from nuclear power plants is, however, a problem which must be solved before there can be any widespread use of nuclear power.

Another limit in the use of nuclear power is that we do not know today how to employ it otherwise than in large units to produce electricity or to supply heating. Because of its inherent characteristics, nuclear fuel cannot be used directly in small machines, such as cars, trucks, or tractors. It is doubtful that it could in the foreseeable future furnish economical fuel for civilian airplanes or ships, except very large ones. Rather than nuclear locomotives, it might prove advantageous to move trains by electricity produced in nuclear central stations. We are only at the beginning of nuclear technology, so it is difficult to predict what we may expect.

Transportation - the lifeblood of all technically advanced civilizations - seems to be assured, once we have borne the initial high cost of electrifying railroads and replacing buses with streetcars or interurban electric trains. But, unless science can perform the miracle of synthesizing automobile fuel from some energy source as yet unknown or unless trolley wires power electric automobiles on all streets and highways, it will be wise to face up to the possibility of the ultimate disappearance of automobiles, trucks, buses, and tractors.

Before all the oil is gone and hydrogenation of coal for synthetic liquid fuels has come to an end, the cost of automotive fuel may have risen to a point where private cars will be too expensive to run and public transportation again becomes a profitable business

Today the automobile is the most uneconomical user of energy. Its efficiency is 5% compared with 23% for the Diesel-electric railway. It is the most ravenous devourer of fossil fuels, accounting for over half of the total oil consumption in this country. **And the oil we use in the United States in one year took nature about 14 million years to create.** Curiously, the automobile, which is the greatest single cause of the rapid exhaustion of oil reserves, may eventually be the first fuel consumer to suffer. Reduction in automotive use would necessitate an extraordinarily costly reorganization of the pattern of living in industrialized nations, particularly in the United States. It would seem prudent to bear this in mind in future planning of cities and industrial locations.

Our present known reserves of fissionable materials are many times as large as our net economically recoverable reserves of coal. A point will be reached before this century is over when fossil fuel costs will have risen high enough to make nuclear fuels economically competitive. Before that time comes we shall have to make great efforts to raise our entire body of engineering and scientific knowledge to a higher plateau. We must also induce many more young Americans to become metallurgical and nuclear engineers. Else we shall not have the knowledge or the people to build and run the nuclear power plants, which ultimately may have to furnish the major part of our energy needs. If we start to plan now, we may be able to achieve the requisite level of scientific and engineering knowledge before our fossil fuel reserves give out, but the margin of safety is not large. This is also based on the assumption that atomic war can be avoided and that population growth will not exceed that now calculated by demographic experts.

War, of course, cancels all man's expectations. Even growing world tension just short of war could have far-reaching effects. In this country it might, on the one hand, lead to greater conservation of domestic fuels, to increased oil imports, and to acceleration in scientific research, which might turn up unexpected new energy sources. On the other hand, the resulting armaments race would deplete metal reserves more rapidly, hastening the day when inferior metals must be utilized with consequent greater expenditure of energy. Underdeveloped nations with fossil fuel deposits might be coerced into withholding them from the free world or they may decide to retain them for their own future use. The effect on Europe, which depends on coal and oil imports, would be disastrous and we would have to share our own supplies or lose our allies.

Barring atomic war or unexpected changes in the population curve, we can count on an increase in world population from two and one half billion today to four billion in the year 2000; six to eight billion by 2050. The United States is expected to quadruple its population during the 20th Century from 75 million in 1900 to 300 million in 2000 - and to reach at least 375 million in 2050. This would almost exactly equal India's present population, which she supports on just a little under half of our land area.

It is an awesome thing to contemplate a graph of world population growth from prehistoric times - tens of thousands of years ago - to the day after tomorrow - let us say the year 2000 A.D. If we visualize the population curve as a road, which starts at sea level and rises in proportion as world population increases, we should see it stretching endlessly, almost level, for 99% of the time that man has inhabited the earth. In 6000 B.C., when recorded history begins, the road is running at a height of about 70 feet above sea level, which corresponds to a population of 10 million. Seven thousand years later - in 1000 A.D - the road has reached an elevation of 1,600 feet; the gradation now becomes steeper, and 600 years later the road is 2,900 feet high. During the short span of the next 400 years from 1600 to 2000 - it suddenly turns sharply upward at an almost perpendicular inclination and goes straight up to an elevation of 29,000 feet - the height of Mt. Everest, the world's tallest mountain.

In the 8,000 years from the beginning of history to the year 2000 A.D. world population will have grown from 10 million to 4 billion, with 90% of that growth taking place during the last 5% of that period, in 400 years. It took the first 3,000 years of recorded history to accomplish the first doubling of population, 100 years for the last doubling, but the next doubling will require only 50 years Calculations give us the astonishing estimate that one out of every 20 human beings born into this world is alive today.

The rapidity of population growth has not given us enough time to readjust our thinking. Not much more than a century ago our country the very spot on which I now stand was a wilderness in which a pioneer could find complete freedom from men and from government. If things became too crowded - if he saw his neighbor's chimney smoke - he could, and often did, pack up and move west. We began life in 1776 as a nation of less than four million people - spread over a vast continent - with seemingly inexhaustible riches of nature all about. **We conserved what was scarce - human labor - and squandered what seemed abundant - natural resources - and we are still doing the same today.**

Much of the wilderness which nurtured what is most dynamic in the American character has now been buried under cities, factories and suburban developments where each picture window looks out on nothing more inspiring than the neighbor's back yard with the smoke of his fire in the wire basket clearly visible.

Life in crowded communities cannot be the same as life on the frontier. We are no longer free, as was the pioneer - to work for our own immediate needs regardless of the future. We are no longer as independent of men and of government as were Americans two or three generations ago. **An ever larger share of what we earn must go to solve problems caused by crowded living** - bigger governments; bigger city, state, and federal budgets to pay for more public services. Merely to supply us with enough water and to carry away our waste products becomes more difficult and expansive daily. More laws and law enforcement agencies are needed to regulate human relations in urban industrial communities and on crowded highways than in the America of Thomas Jefferson.

Certainly no one likes taxes, but we must become reconciled to larger taxes in the larger America of tomorrow.

I suggest that this is a good time to think soberly about our responsibilities to our descendents - those who will ring out the Fossil Fuel Age. Our greatest responsibility, as parents and as citizens, is to give America's youngsters the best possible education. We need the best teachers and enough of them to prepare our young people for a future immeasurably more complex than the present, and calling for ever larger numbers of competent and highly trained men and women. This means that we must not delay building more schools, colleges, and playgrounds. It means that we must reconcile ourselves to continuing higher taxes to build up and maintain at decent salaries a greatly enlarged corps of much better trained teachers, even at the cost of denying ourselves such momentary pleasures as buying a bigger new car, or a TV set, or household gadget. We should find - I believe - that these small self-denials would be far more than offset by the benefits they would buy for tomorrow's America. We might even - if we wanted - give a break to these youngsters by cutting fuel and metal consumption a little here and there so as to provide a safer margin for the necessary adjustments, which eventually must be made in a world without fossil fuels.

One final thought I should like to leave with you. High-energy consumption has always been a prerequisite of political power. The tendency is for political power to be concentrated in an ever-smaller number of countries. Ultimately, the nation, which control - the largest energy resources will become dominant. If we give thought to the problem of energy resources, if we act wisely and in time to conserve what we have and prepare well for necessary future changes, we shall insure this dominant position for our own country

~~~~~~~~~~~~~~~ *Editorial Notes* ~~~~~~~~~~~~~~~~~~~

Contributor Rick Lakin writes.

> *Admiral Rickover was considered the Father of the Nuclear Submarine. As an employee of the US Atomic Energy Commission, later Department of Energy, he had great influence on the development of our country's civilian Nuclear Power Generation Industry.*
>
> *This speech, given almost 50 years ago, sheds an important light on our current discussion about the future of energy in our country In the 1970s, Admiral Rickover worked closely with President Jimmy Carter on energy issues. I served on Navy Nuclear Submarines as a Nuclear Reactor Operator for 8 years*
>
> *I would like to give special thanks to Theodore Rockwell, author of* ***The Rickover Effect: How One Man Made a Difference*** *for searching his files and sending me a copy of this speech so that I could convert it for digital publication. Mr Rockwell has a more recent book,* ***Creating the New World:***
~~~~~~~~~~~~~~~

Stories & Images from the Dawn of the Atomic Age. *Both are available on amazon.com*

Biography of Hyman G. Rickover from Wikipedia:en wikipedia.org/wiki/Hyman G Rickover

Many thanks to Rick Lakin and Theodore Rockwell who have made this historic document available. Rickover's speech was covered in an excellent 1957 article in the Christian Science Monitor that EB just posted: Admiral Rickover. The future of fossil fuels.

This document is also posted at http.//www.hilltoplancers.org/photos/rickover0557 pdf.

UPDATE (July 1, 2007) Admiral Rickover's speech has just been reposted on The Oil Drum by Gail Tverberg.

APPENDIX C

Energy Returned On Energy Invested - EROEI

By Cleveland, Costanza, Hall & Kauffman (1984)

Process	Energy Profit Ratio	
Non Renewable		
Oil & Gas (domestic wellhead)	Production	Discovery
1940's		>100
1970's	23	8
Coal (mine mouth)	< Lo	Hi >
1950's	80	
1970's	30	
Oil Shale	0.7	13.3
Coal Liquefaction	0.5	8.2
Geo-pressured gas	1	5
Renewable		
Ethanol (sugarcane)	0.8	1.7
Ethanol (corn)		
Ethanol (corn residues)	0.7	1.8
Methanol (wood)	2.6	
Solar space heat (fossil backup)		
Flat Plate Collector	1.9	
Concentrating Collector	1.6	
Electricity Production		
Coal		
US Average	9	
Western Surface Coal		
No Scrubbers	6	
Scrubbers	2.5	

David Pimentel Study: Cornell Univ.

ETHANOL EROEI	Gallons
1 Acre yield:	328
Agricultural Costs:	-140
Distilling Costs	??
	BTU
Make 1 Gallon	133,000
Energy in 1 Gallon	77,000
REAL YIELD	0.59

That is a 41% LOSS of ENERGY

NUCLEAR FUSION is great, but ...

Hurdles to Nuclear Fusion include:
* Reactor Temperatures in the range of 360 MILLION degrees Fahrenheit
* Billions spent - but NO reactor has yet produced more than it has spent.
* AND the PROMOTERS agree it's 50 years away at best.

Will we have an industrial base to SUPPORT that effort over 50 years?

Hydropower	11.2		Hydro Looks **GOOD**, huh?
Nuclear (light-water)	4		
Solar			
Power Satellite	2		
Power Tower	4.2		
Photovoltaics	1.7	10	

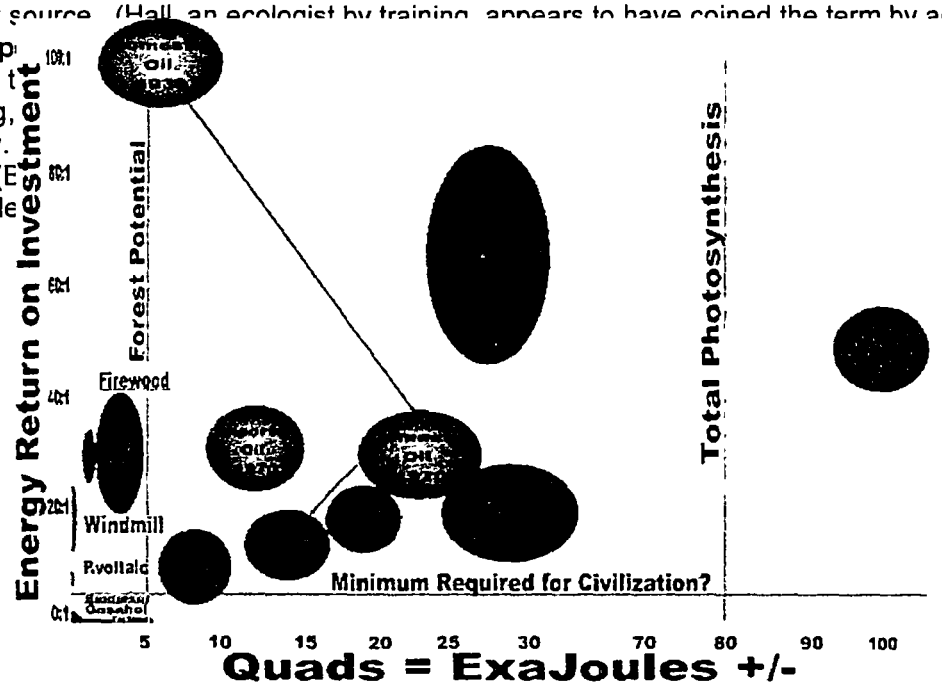
NOTHING Lasts forever
That's back to the issue of our base ...
Are we going to build these by **HAND**?

Energy researcher Charlie Hall's balloon graph challenges the notion that alternative energy sources will provide a smooth transition to a post-fossil fuel society. Scale and energy return remain huge obstacles.

Charlie Hall, professor, State University of New York College of Environmental Science and Forestry, Syracuse, New York 13210, is one the best-known energy researchers you've never heard of. That's because he puts his effort into understanding whole energy systems such as human civilization rather than perfecting headline-grabbing energy panaceas such as corn ethanol. From the early 1980s onward Hall and his colleagues--some of them former students--have been warning that a society hooked on fossil fuels would find itself up against limits not easily breached--probably sooner rather than later.

With the current boom in biofuels, wind, and solar, and even a revival in nuclear power, many people believe that a smooth transition to a post-fossil fuel economy is already a foregone conclusion. But a careful look at Charlie Hall's balloon graph tells a different and much more disconcerting story (1). (To view a larger version of the graph, click here or on the graph itself.)

First, let's look at the components of the chart. On the vertical axis we have energy return on investment (EROI) expressed as the ratio of energy output versus energy input for each energy source. (Hall, an ecologist by training, appears to have coined the term by adapting "yield p l people t ting, refining, of society. n BTUs (E he principle



The various colors put focus on the annual production totals and energy return of oil at different times. The sizes for all the balloons represent a very rough guide to the uncertainties in calculating EROI ranges. (As we shall see, even with these uncertainties there is a very large discernible gap between what we currently get from fossil fuels and what we can expect to get from alternatives.)

Oil, which makes up the largest percentage of U.S. energy consumption today (40%), has shown a substantial increase in its total output even as its EROI has fallen. To see this on the graph look at the blue balloon labeled "Domestic Oil 1930," the purple balloons labeled "Imported Oil 1970" and "Domestic Oil 1970" and the red balloons labeled "Domestic Oil Today" and "Imported Oil Today." That same move to a lower EROI is also being seen for natural gas and coal though the balloon graph does not depict these trends.

Everyone knows that at some point fossil fuel supplies, which are finite, will begin to decline. To replace them we currently have biofuels such as biodiesel; other renewables such as wind, photovoltaic, and hydroelectric; and nuclear power. Oil from tar sands is also shown in the lower left-hand corner, but you have to look hard. And, that's just the point. You have to look pretty hard to see these alternatives on the graph. There are two reasons for this. First, some of these new sources are not very far along in their deployment. As they are more widely deployed, they will supply more total power and move to the right on the graph. Second, the EROI for biofuels such as biodiesel and for unconventional oil such as that extracted from tar sands is extremely low. Given current technology, these alternatives are not likely to move upward very much on the graph anytime soon.

Hall believes we have two problems illustrated by his balloon chart. First, in order for these alternative sources to move rightward on the graph--that is, produce much larger quantities of energy for society--they will have to be deployed on a vast scale which few people contemplate or understand. Two examples come to mind. The worldwide installed capacity of solar photovoltaic cells is 10.9 gigawatts. With the total worldwide installed electrical generating base at 3,872 gigawatts<http://www.eia doe.gov/pub/international/iealf/table64.xls>, it would take more than 2,000 years at the current rate of installation (1.74 gigawatts/year) <http://www.solarbuzz com/Marketbuzz2007-intro.htm>to reach today's capacity. And that's without even considering future growth in electricity demand. If we include the installed base of wind (74.3 gigawatts) and the current rate of wind installations (14 9 gigawatts/year) <www awea.org>, we can bring the figure all the way down to about 230 years, again without considering growth in demand. Of course, the rates of installation will grow, and there are other renewable and nonrenewable energy sources available. But the challenge of scale remains huge.

When it comes to biofuels, the scale problem gets no better. Biofuels researcher Tad Patzek uses corn ethanol as an example. To fuel the American vehicle fleet using corn ethanol:

> [o]ne would have to grow corn on 1.8 billion acres, year-after-year, for decades. There are about 400 million acres of arable land now in cultivation in the U.S. Therefore, one would have to use the land area equal to 4.5 times the current arable land area....

If we want to continue living in the kind of energy-drenched civilization we now enjoy, we will have to move simultaneously rightward *and* upward on the balloon graph. Hall estimates that if society were to average less than a 5 to 1 ratio of EROI, anything resembling our modern civilization would probably not function. The balloon graph suggests a minimum EROI for the United States of around 40 to 1 for 100 quads of energy generated. Therefore, without major breakthroughs in the efficiency of alternative energy sources, no combination of those sources has the prospect of giving us both the high energy returns and the large total production we are accustomed to from our current energy sources.

(It's important to note that nearly all the good sites for hydro power in the world have already been taken. And, turning to firewood for fuel would simply result in the leveling of the world's remaining forests, leaving us with nothing for the future and destroying the habitability of the planet in the bargain. The upshot: Neither of these alternatives is going to move much to the right on the graph.)

Many are saying peak world oil production will soon be upon us with peak natural gas and coal following close behind. To live anything like we now live, we are going to have to see some astounding technical breakthroughs in alternative energy sources soon. And those breakthroughs will have to be followed by dramatic and costly efforts to deploy alternatives rapidly and ubiquitously. For now we appear to be on a course that will require drastic changes in the way we live.

Perhaps we will somehow muddle through. But when you look at Charlie Hall's balloon graph, it's easy to conclude that even muddling through might end up being a very unpleasant affair.

Notes:

(1) Hall, C.A.S., R. Powers and W. Schoenberg. (in press). Peak oil, EROI, investments and the economy in an uncertain future. Pp. xxx-xxx in Pimentel, David. (ed) *Renewable Energy Systems: Environmental and Energetic Issues*.

APPENDIX D

As hybrid cars gobble rare metals, shortage looms
By Steve Gorman Posted Mon Aug 31, 2009 1:03am PDT

A piece of bastnasite ore, which contains rare earth elements, is shown by Brock O'Kelly from Molycorp Minerals Mountain pass Mine in Mountain Pass, Califonia August 19, 2009. REUTERS/David Becker

LOS ANGELES (Reuters) - The Prius hybrid automobile is popular for its fuel efficiency, but its electric motor and battery guzzle rare earth metals, a little-known class of elements found in a wide range of gadgets and consumer goods.

That makes Toyota's market-leading gasoline-electric hybrid car and other similar vehicles vulnerable to a supply crunch predicted by experts as China, the world's dominant rare earths producer, limits exports while global demand swells.

Worldwide demand for rare earths, covering 15 entries on the periodic table of elements, is expected to exceed supply by some 40,000 tons annually in several years unless major new production sources are developed. One promising U.S. source is a rare earths mine slated to reopen in California by 2012.

Among the rare earths that would be most affected in a shortage is neodymium, the key component of an alloy used to make the high-power, lightweight magnets for electric motors of hybrid cars, such as the Prius, Honda Insight and Ford Focus, as well as in generators for wind turbines.

Close cousins terbium and dysprosium are added in smaller amounts to the alloy to preserve neodymium's magnetic properties at high temperatures. Yet another rare earth metal, lanthanum, is a major ingredient for hybrid car batteries.

Production of both hybrids cars and wind turbines is expected to climb sharply amid the clamor for cleaner transportation and energy alternatives that reduce dependence on fossil fuels blamed for global climate change.

Toyota has 70 percent of the U.S. market for vehicles powered by a combination of an internal-combustion engine and electric motor The Prius is its No. 1 hybrid seller.

Jack Lifton, an independent commodities consultant and strategic metals expert, calls the Prius "the biggest user of rare earths of any object in the world."

Each electric Prius motor requires 1 kilogram (2.2 lb) of neodymium, and each battery uses 10 to 15 kg (22-33 lb) of lanthanum. That number will nearly double under Toyota's plans to boost the car's fuel economy, he said.

Toyota plans to sell 100,000 Prius cars in the United States alone for 2009, and 180,000 next year. The company forecasts sales of 1 million units per year starting in 2010.

As China's industries begin to consume most of its own rare earth production, Toyota and other companies are seeking to secure reliable reserves for themselves.

Reuters reported last year that Japanese firms are showing strong interest in a Canadian rare earth site under development at Thor Lake in the Northwest Territories.

A Toyota spokeswoman in Los Angeles said the automaker would not comment on its resource development plans. But media accounts and industry blogs have reported recently that Toyota has looked at rare earth possibilities in Canada and Vietnam.

(Editing by Alan Elsner and Mary Milliken)

APPENDIX E

Epic Disappointment
By James Howard Kunstler
on November 19, 2012 9:01 AM

Those inhabiting the economic wish-space got a case of the vapors last week when the Paris-based International Energy Agency (IEA) published an annual report stating that the USA would overtake Saudi Arabia as the world's leading oil producer and reach the long-touted nirvana of "energy independence." The news was greeted in this country with jubilation. Thus, peak credulity meets peak bullshit.

It's been clear for a while that authorities in many realms of endeavor - politics, economics, business, media - are very eager to sustain the illusion that we can keep our way of life chugging along. But under the management of these elites, the divorce between truth and reality is nearly complete. The financial system now runs entirely on accounting fraud Government runs on the fumes of statistical fraud. The business of oil and gas runs on public relations fraud. And the media runs on the understandable wish of the masses to believe that all the foregoing illusions still work to maintain the familiar comforts of modern life (minus Hostess Ho-Hos and Twinkies, alas).

And so the story has developed that the shale oil plays of North Dakota and Texas, which started ramping up around 2005 - the same year the world hit the wall of peak conventional oil - and the shale gas plays in Texas, Louisiana, Pennsylvania, New York, and Ohio would enable American "consumers" to drive to WalMart effectively forever.

Now, it happens that the particulars of oil and gas production are so abstruse that the editors of *The New York Times*, The Bloomberg News Service, CNN, and a score of other mass media giants swallowed the IEA report whole, with fanfares and fireworks, and a nation afflicted with doubt about its future swooned into the first week of the holidays in celebration mode - we're soon to be number 1 again, and the future is secure! Have a nice Thanksgiving and Christmas and prepare to sober up in 2013. When the truth finally emerges from this morass of dissimulation, the disappointment will be epic

Here's why the shale oil story is not the "game changer" that the wishful claim it is. the price required to get it out of the ground (between $80-90 a barrel) will crush the US economy Since prices are already in that range, the economy is already being crushed. The result is an economy in more-or-less permanent contraction. As demand for oil falls with declining economic activity the price of oil falls - below the level that makes it worthwhile to conduct expensive shale oil drilling and fracking operations.

Meanwhile, in the background, as economies contract and economic "growth" of the type our system requires no longer happens, the problems in finance and banking get a lot worse This is largely because interest on borrowed money can no longer be paid back Loans are defaulted on. As this happens, banks become insolvent Governments play

games with public money - including "money" they "create" out of thin air - to prop up the banks. None of it alters the sad fact that there is not enough real money in the system. The result of all these desperate monkeyshines is the impairment if capital formation That is, the failure to accumulate new wealth along with declining prospects for the repayment of loans, leads to a shortage of credit, especially to businesses that require large supplies of it to keep gigantic complex operations like shale oil and gas going.

Shale oil (and shale gas) share some problematical properties. The cost of drilling each well is a big number, $6-8 million. The wells deplete very rapidly, over 40 percent after one year in the Bakken formation of North Dakota. The oil is not distributed equally over the whole play but exists in "sweet spots " The sweetest sweet spots were drilled the earliest and the quality of the remaining potential drill sites is already in decline The current trend shows declining first-year productivity in new wells drilled since 2010 running at 25 percent.

There are over 4,300 wells for shale oil in the Bakken formation of North Dakota producing about 610,000 barrels a day. In order to keep production up, the number of wells will have to continue increasing at a faster rate than previously. This is referred to as "the Red Queen syndrome" which alludes to the character in *Alice in Wonderland* who famously declared that she had to run faster and faster just to stay where she is The catch to all this is that the impairments of capital formation are working insidiously in the background to guarantee that the money will not be there to set up the necessary wells to keep production at current levels. In other words, shale oil (and shale gas) are Ponzi schemes. The story in the Eagle Ford play in Texas is very similar.

I haven't even mentioned the concerns about fracking and its effect on ground water, and won't go into it here, except to acknowledge that it presents an additional range of concerns

The current price situation in shale gas is different than shale oil. The drilling frenzy in shale gas produced a glut, which drove down prices from a $13 a unit (thousand cubic feet or mcf) to around $2 at its low point earlier this year That's way below the price that is economically rational to drill and frack for it. The price collapse has played havoc among the companies engaged in shale gas, though it has been a boon to customers. A lot of the drilling equipment has moved to the North Dakota oil fields There will be less shale gas in the period ahead and the price will go up It has got to go above about $8 a unit or there will be no reason for any company to be in the shale gas business. But as is always the case in such a correction, the price will surely overshoot $8, at which point it will become unaffordable to its customers. The volatility alone will make the business of shale gas drilling impossible to maintain. Forget about the USA becoming a major gas exporter

You probably get the point by now, so I will only add a couple of out-of-the-box considerations vis-à-vis the prospect of the USA becoming energy independent

– Production is getting so low in the Prudhoe Bay fields of Alaska that the famous pipeline may not be able to operate. If the flow of oil reaches a certain low volume, it takes longer to

make the long journey. The oil cools down and gets sludgy and some of the water that travels with it will freeze. This could destroy the pipeline The capital is not there to retrofit the pipeline for a depleting oil field in a region that is difficult and expensive to work in.

-- Exporting countries (the ones that send us oil) are depleting their reserves and using more of their own oil, resulting in annually declining export rates. China, India, and other still-modernizing nations compete for a growing share of that declining export flow.

-- I have barely hinted at the geopolitical forces roiling behind the sheer business dynamics But here's an interesting one: the time will come when the US will invoke the Monroe Doctrine to prevent Canada from sending its oil and tar-sand byproducts to nations other than ourselves. Just wait.

Finally, I have one flat-out prediction. One I have made before but deserves repeating: Japan will be the first society to consciously opt out of being an advanced industrial economy. They have no other apparent choice really, having next-to-zero oil, gas, or coal reserves of their own, and having lost faith in nuclear power. They will be the first country to enter a world made by hand. They were very good at it before about 1850 and had a pre-industrial culture of high artistry and grace - though, granted, all the defects of human psychology.

I don't think the U.S. can make that transition in an orderly way We're too stricken with techno-narcissism and grandiosity. What troubles me is how we will greet the epic disappointment that waits for us when we discover that the journey to WalMart is over. My guess is that being predisposed to superstition and religious fanaticism, the American public will violently reject science and rationality and retreat into a world of shadows. We're already well on our way. The IEA report will just accelerate things.

APPENDIX F

Renewable Energy's Sixty Years Of Broken Dreams, But Keep Those Ideas Coming

By Bruce Upbin
Forbes magazine Staff
11/22/2011 @ 11:15AM

This is an excerpt from a Nov 21, 2011 research note by Michael Cembalest, the chief investment officer for JPMorgan Private Bank. You can read the entire note here, and you should, especially if you care about redressing misperceptions that lead to flawed energy policies His conclusion is that our quest for fossil-fuel replacements has led us to ignore economic (and thermodynamic) realities. Energy policy too often disregards the art of the possible for a future that may never arrive The note concludes with one potentially game-changing idea but, like all the ideas before it, should come with the assumption that it, too, will fail.

This year, a look at something just as worrying in the long run as the fiscal problems of the West: **the search for energy solutions**. This journey has been fraught with similarly quixotic dead ends, fairy tales and blunders ignoring economic (and thermodynamic) realities This is important to us, since energy cost and availability is central to how we think about growth, profits, stability and our portfolio investments As part of this effort, I made a pilgrimage to Manitoba to spend a day with Vaclav Smil. Vaclav is one of the world's foremost experts on energy, and has written over 30 books and 300 papers on the subject (he's #49 on Foreign Policy's list of the 100 most influential thinkers). Vaclav's book "Energy Myths and Realities" should be required reading for politicians or regulators impacting energy policy. We start with an unflinching look at these realities before turning to solutions, and some potentially encouraging developments, which have less to do with how electricity is generated, and more to do with how it might be stored

Over the last 50 years, a lot of proposed [energy] solutions have not panned out as expected. While the process of discovery and invention always includes large doses of failure, energy policy is different than say, cell phones or VCRs, since more public money, time and effort are spent on them Hopes are raised, and as a result, less flashy but more reliable solutions are sometimes postponed or avoided altogether Here are a few memorable predictions of our energy future·

- 1945. Oak Ridge National Laboratory nuclear physicists Weinberg and Soodak predict that nuclear breeders will be man's ultimate energy source; a decade later, the chairman of the US Atomic Energy Commission predict it would be "too cheap to meter"
- 1973. "Let this be our national goal. At the end of this decade, in the year 1980, the United States will not be dependent on any other country for the energy we need to provide our jobs, to heat our homes, and to keep our transportation moving." — Richard Nixon

- 1978. "Through modeling of supply and demand for over 200 US utilities it was projected that, by the year 2000, almost 60% of U.S. cars could be electrified, and that only 17% of the recharging power would come from petroleum"
- 1979. An influential Harvard Business School study projects that by 2000, the US could satisfy 20% of its energy needs through solar
- 1980. Physicist Bent Sorenson predicts that 49% of America's energy could come from renewable sources by the year 2005
- 1994. Hypercar Center established, whose lightweight material and design would yield 200 mpg cars with a 95% decline in pollution
- 1994. InterTechnology Corporation predicts that solar energy would supply 36% of America's industrial process heat by 2000
- 1995. Energy consultant and physicist Alfred Cavallo projects that wind could have a capacity factor of 60%, which when combined with compressed air storage, would rise to 70 – 95%
- 1999. US Department of Energy hopes to sequester 1 billion tonnes of carbon per year by 2025
- 2000. Fuel cell companies announce 250-kilowatt production plants that can fit into a conference room and produce energy at 10 cents per kilowatt hour, with the goal of 6 cents by 2003
- 2008. "Today I challenge our nation to commit to producing 100% of our electricity from renewable energy and truly clean carbon-free sources within 10 years. This goal is achievable, affordable and transformative " Al Gore
- 2009. Gene scientist Craig Venter announces plans to develop next-generation biofuels from algae in a partnership with Exxon Mobil

How have things turned out? There are no commercial nuclear breeders on anyone's horizon; global nuclear capacity is only 20% of the Atomic Energy Agency's 1970 forecast; the Hypercar is nowhere to be seen; solar and wind make up a miniscule portion of U.S. electricity generation; wind capacity factors range from 20%-30%; the U.S. is reliant for 50% of its oil from foreign sources; 70% of U.S. electricity generation comes from coal and natural gas; fuel cells haven't worked as expected; hybrids are 2% of US car sales; "clean coal" is mostly a blueprint; and Venter announced that his team failed to find naturally occurring algae that can be converted into commercial-scale biofuel (they will now work with synthetic strains instead).

Energy information Agency	Installed base 2010 MW	Electricity gen in 2010 mm MWh	% of total gen	Implied capacity factor	EIA Levelized cost 2016 per MWh	<—Levelized cost incorporates upfront and ongoing capital costs, cost of capital, fuel and other operating costs, capacity factor and related power transmission investments (in 2009 dollars) for new construction
Coal	318 800	1 847	45 4%	67%	$65 - $110	Abundant and cheap but with a substantial range of environmental problems
Natural gas	407,028	988	24 3%	28%	$60 - $70	Capacity factors understate potential utilization
Nuclear	101 167	807	19 8%	9 [illegible]%	$114	Efficient once built very expensive to build costs rising sharply in recent decades
Hydro	78 925	260	6 4%	38%	$86	Most suitable sites already in use after incentives in the 1960s-1980s
Wind	39 135	95	2 3%	28%	$97	Low capacity factor, maturing technology, cost more than doubles offshore
Biomass/wood	11,408	56	1 4%	58%	$112	Expensive to aggregate and collect, high capital costs relative to energy density
Geothermal	2,405	18	0 4%	85%	$102	Very expensive, except near areas with active geothermal reservoirs
Solar PV/CSP	941	1	0 0%	15%	$210 - $312	Expensive low capacity factors this segment is commercial (non-resi installations

Click to enlarge chart. Capacity factors for each energy source, taking into account intermittency. Capacity factor = actual generation relative to potential maximum generation.

Unfounded expectations lead to suboptimal policy choices

One example: the Keystone Pipeline extension, which the President has opted not to consider until after 2012. The U.S. imports more oil from Canada than from any other country. With the extension, the Keystone system would account for 13% of US petroleum imports. The pipeline has been opposed on environmental grounds, but the extension itself would only add 1% to the entire network of crude oil and refined product pipelines already criss-crossing the U.S. Moving petroleum products by rail or truck instead is more expensive and riskier If the US does not provide a market for the Alberta tar sands oil, it could end up on tankers to China; and the US will end up importing more of its energy needs from the Persian Gulf and Venezuela. Could misperceptions about wind, solar and biofuel feasibility explain why some people are opposed to this extension? Unclear

Now let's take a (desperately needed) look at some good news. Over the last 3 decades, the oil intensity of the developed world has been falling, followed by non-OECD countries. **This is not meant to suggest that declining availability of cheap crude oil isn't a problem, since it is.** There are lots of studies showing rapid declines in the production rate of existing crude oil fields, and that the discovery of new fields is (a) not keeping up, and (b) are located where marginal costs of extraction are considerably higher No need to repeat them here. But oil's importance to economic growth has been declining over time, and there is no reason to believe that these improvements have completely run their course. There is also room for reduced fuel consumption, although here's another case where energy fairy tales might have postponed smart policy choices. While waiting for a holy grail, the US left fuel efficiency standards unchanged from 1983 (light trucks) and 1987 (cars) until 2010. Chrysler head Lee Iacocca said this in 1986 when Ford/GM lobbied the Reagan Administration to lower ("CAFE") fuel efficiency standards **"We are about to put up a tombstone that says, 'Here lies America's energy policy'. CAFE protects American jobs. If CAFE**

is weakened now, come the next energy crunch, American car makers will not be able to meet demand for fuel-efficient cars." Well, the rest of the world kept on truckin' as he suggested, and have more efficient fleets (see chart). If the US fleet were 30% more efficient, US gasoline consumption could fall by 40 billion gallons per year (~1 billion barrels). For context, the US imports 0.36 billion barrels of crude per year from Venezuela, and 0.62 billion from the Persian Gulf. The US just increased fuel efficiency standards, but it will take time to make an impact.

Other possible good news includes ongoing research by Daimler Engine Research Labs on improving gasoline engines, something the world should not give up on just yet. Prototypes with fewer cylinders and smaller displacement may yield a car with both lower fuel consumption and lower emissions, eventually at fuel efficiencies greater than hybrids like the Prius. The US Recovery Act included $100 million for Advanced Combustion Engine Research and Development; it could be money well spent. One example the DoE is working on: semiconductors, powered by the heat exiting the car in its exhaust pipe, used to create electricity and power the car's accessories, which are usually powered by belts driven by the car's engine.

A potential game-changer: electricity storage that works, in commercial scale

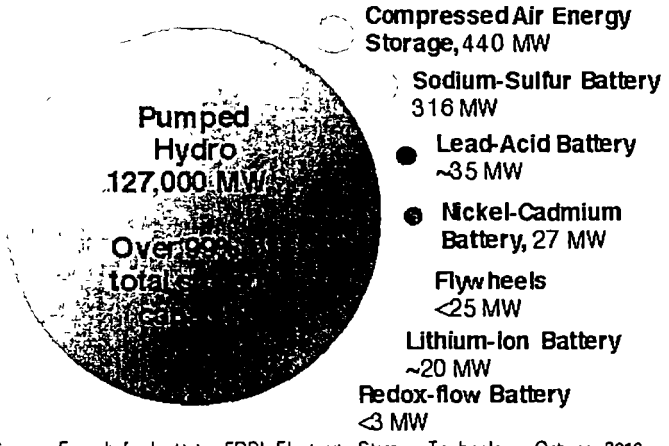
What would potentially change the energy equation is **storage**. The world has been generating commercially available electricity for over a hundred years, but as things stand now, the world has almost no electricity storage. The benefits of electricity storage, if it could be implemented, are self-evident:

- increased cost-effectiveness of intermittent solar and wind power, and lower electricity costs, since electricity produced by wind at night could be stored and sold during the day; and electricity produced during sunny days could be stored and sold during cloudy spells. There are obvious tie-ins to the feasibility and cost of electric cars
- lower required **peak** production capacities of large urban power systems, by drawing on stored electricity reserves
- deferral or avoidance of costly upgrades to the transmission grid. As per the North American Electricity Reliability Corporation, only 27% of grid upgrades relate to integrating renewable energy. Almost half are designed to improve overall reliability, due to fluctuating loads (since the grid has to accommodate peak loads, and not just average ones)
- reduced consumption of fossil fuels which power most stand-by generators

Unfortunately, battery storage has moved along at a snail's pace. Moore's Law on doubling semiconductor capacity is something of a distraction; technology improvements over 15-18 months are hard to find anywhere EXCEPT semiconductors. Solar photovoltaic cell efficiency has doubled over 15-18 years; and battery storage has progressed even more slowly as it relates to commercial-scale applications9 (rather

than lithium ion applications for cell phone and laptops). As a reminder, electricity is simply defined as the movement of electrons, which can only be "stored" as potential energy, for example via large height or chemical gradients (e.g., batteries).

The accompanying chart shows the existing state of commercial-scale electricity storage; it's all about pumped hydro10, a process that uses cheaper electricity at night to pump water uphill into a reservoir basin, and then releases the water during the day to power a hydro-electric generator. The other technologies are an afterthought, at least right now. Note that more energy is expended in pumping the energy uphill than is generated by releasing it downhill; the economic value derives from much higher electricity prices during the day. Around 10%-20% of the potential pumped hydro energy is lost over time through evaporation and conversion losses.



Source: Fraunhofer Institute, EPRI, Electricity Storage Technology Options, 2010.

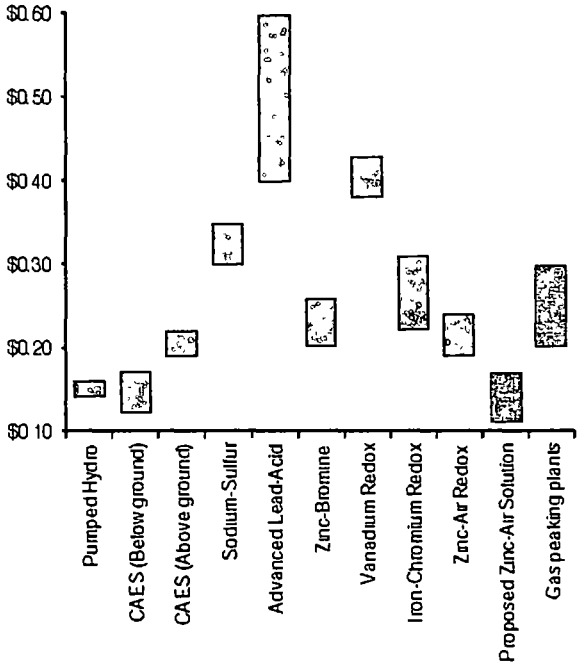
There's no room to go through the complexities of the storage technologies shown below. Here are a couple of generalizations:

- Less expensive options like pumped hydro and compressed air storage require favorable sites with the right geology, which are rare in nature and expensive to build from scratch (and often not located near electricity demand centers), and in the case of compressed air, require co-located gas turbines for compression
- Many battery-based technologies suffer from high upfront capital or operating costs; low energy storage volumes; delayed response times; safety issues (such as zinc bromine); or short lives (limited number of recharge cycles)

I had a meeting a few weeks ago which was notable for its optimism and enthusiasm. I met with the managers of Eos Energy Storage, which is working on a zinc air battery solution which aims to conquer all of the obstacles outlined in the second bullet point above. If the Eos projections bear out, they will offer battery storage at a capital cost of ~$160 per kWh, in the form of a 1 MW battery that is the size of a 40 foot shipping container (for 6 MWh of storage). The concept of "levelized cost" synthesizes upfront costs, financing costs, useful life, fuel costs and ongoing maintenance expenses. Rather than looking projections of capital costs per kWh, levelized cost comparisons are more useful.

As shown, Eos aims to be the cheapest option that can be scaled, and flexibly and safely located where needed. Note as well that they expect to be cheaper than natural gas peaking plants. This is a relevant benchmark, since most utilities rely on natural gas peaking plants to meet daily peak load requirements and to compensate for intermittent renewable generation of wind and solar. If storage works, the need for lots of peaking facilities could disappear. Eos has a prototype of its zinc-air technology that has run around 2,000 cycles so far; we should all pray either for their success, or for the success of similar efforts undertaken by their competitors. Based on the outcome of energy dreams, we should always be skeptical of breakthrough claims, given the complexity of the challenge.

The cost of electricity storage options
Range of levellized costs, $ per kWh



Source EPRI, Electricity Energy Storage Technology Options, 2010, Eos CAES Compressed Air Energy Storage.

Written Testimony of Marianne Horn
Before the Connecticut General Assembly Energy and Technology Committee
March 07, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

I am writing today as a citizen of CT and as a member of Peoples Action for Clean Energy (PACE) to ask you take into consideration my concerns with the Governor's Bill to implement Connecticut's Comprehensive Energy Strategy (Strategy).

1. I ask you to preserve the integrity of the Class I Renewable Portfolio Standard (RPS).
   Trash incineration is not clean energy and should not be considered Class I Renewable.
   Canadian hydropower is not a good idea, not only because of the environmental damage its large scale hydro dams cause, but because we need local power and local jobs. Use of Canadian hydropower would take investments out of Connecticut and our region to support projects that would be built anyway and do not provide increased reliability or environmental benefits.
   Proposals to dilute Class I with trash incineration would prop up uneconomic, environmentally damaging facilities with ratepayer dollars meant for new and clean renewables.

2. The Strategy places heavy and misguided emphasis on the use of natural gas. I urge you to adopt a strategy that instead supports energy efficiency above any kind of fossil fuel like natural gas.
   Natural gas is a short-term and short-sighted stop gap that is creating environmental problems as a result of the hydro-fracking process used to access this shale gas.
   The Department of Energy and Environmental Protection (DEEP) should develop programs and financing options to provide heating oil customers with more choice than just natural gas, to give heating oil customers a full range of choices for reducing heating costs, including energy efficiency and the use of ductless or geothermal heat pumps.
   DEEP should integrate energy efficiency into all natural gas conversions. Requiring improvements to the building shell and the use of high-efficiency heating equipment will create more jobs, keep energy dollars in

Connecticut's economy and prevent the state from wasting natural gas in inefficient buildings.
DEEP should evaluate the full range of economic and environmental costs when making decisions on natural gas main expansions. The analysis must take into account: 1) energy savings available through efficiency; 2) full costs to consumers; and, 3) the environmental and climate costs and impacts from gas extraction, transport and use.

3. Finally, it is key that CT's energy future places much more importance on investment in micro-grids so that we are not crippled by hurricanes, snowstorms or terrorists. Our grid is brittle and therefore we are very vulnerable.

Thank you for your service and for your attention to my concerns and input on the implementation of this Strategy.

Marianne Horn
36 Kenmore Road
Bloomfield, CT 06002

new england clean energy council

February 19, 2013

(Via Email)

Dear Governor Malloy and Commissioner Esty

The New England Clean Energy Council would like to express our gratitude for your strong leadership in developing a Comprehensive Energy Strategy for Connecticut This is an opportunity for the state to provide national leadership in advancing clean energy and allowing its substantial benefits to grow a vibrant clean energy economy in Connecticut

A sustained commitment to clean sources of energy will accomplish the Strategy's objective of a cheaper, cleaner and more reliable energy future for Connecticut – saving customers money, creating good jobs, generating economic development and local businesses, making the energy system more resilient and improving the environment

The New England Clean Energy Council strongly supports the recommendations to expand virtual net metering, strengthen RGGI, develop submetering protocols, and develop and deploy microgrids using clean energy. Connecticut should also consider long-term contracts (e g. 20 years) for renewable energy as a way to reduce costs for customers. We look forward to actively working with you to develop these key proposals effectively to ensure that implementation achieves the desired objectives.

NECEC agrees that Connecticut should take advantage of currently low natural gas prices by connecting customers already on gas mains The review of these plans should carefully examine the need for and costs of pipeline expansions to ensure that adequate gas supplies are available for new and existing gas end-use customers, as well as electric generation The review should also include different price scenarios to evaluate the effects of higher natural gas prices on the overall economics of a large-scale conversion plan While the Strategy offers incentives to converting customers for high efficiency heating equipment, in order to maximize the value and reduce future risk associated with conversions (e g., as gas prices change in the future), Connecticut should require (and support through energy efficiency programs) converting customers to install high efficiency heating equipment and building efficiency measures.

NECEC is pleased to see the Strategy's support for creation of an Advanced Energy Innovation Hub at the University of Connecticut to develop breakthrough technologies and notes particularly the importance of going beyond basic research. We strongly support Department of Economic and Community Development funding aimed at commercialization of breakthrough technologies and partnerships to support clean energy technology development and manufacturing in the state.

We look forward to working closely with you to develop legislation and policy initiatives that allow the most effective and advantageous implementation of the Strategy We also look forward to receiving and commenting on the RPS study, the results of which will be critical to achieving the success of the Energy Strategy

Sincerely,

Peter Rothstein
President

Janet Gail Besser
Vice President, Policy and Government Affairs

Greetings to the Assemby Energy and Technology Committee,

Regarding bill # 6360, my wish is for you to preserve the integrity of the Class 1 Renewable Portfolio Standard.

Please keep in mind that trash incineration is not clean energy.

I would like for us to invest in micro grids as that would leave us less vulnerable to power outages.

Sincerely,

Barbara Doyle
51 Britt Road
East Hartford, CT 06118

860.568.9048

March 7, 2013

I would like to thank the Energy & Technology committee for the opportunity to comment on the Governor's Bill 6360 that would implement the CT Comprehensive Energy Strategy. Energy production is a major source of pollution and climate change causing emission and I am glad to see that the state is willing to address these issues. However, I am skeptical about some of the measures in the plan being effective in reducing pollution and combatting climate change.

On February 17th I attended the ForwardOnClimate rally in Washington, DC with 40,000 of my closest friends. We gathered there in the hopes that we could urge the nation to implement solutions to the climate crisis. As Bill McKibben has often stated the first step in getting out of the climate hole we've dug for ourselves is to stop digging. When looking at the focus that the energy strategy puts on Natural Gas it seems like it does not stop digging, it just buys a different shovel. Natural Gas presents many of the same problems as oil and coal: toxic emissions, huge transport costs, and huge risks of accidents. Also the methane that is produced during extraction and transport of natural gas has been shown to be a larger contributor to climate change than carbon dioxide. Finally it is immoral to take advantage of low prices for natural gas while fellow citizens in other states are bearing the harmful affect of hydraulic fracturing used to extract this fuel.

Similarly modifying the renewable energy standards to include trash incineration is not a step forward in modernizing our energy infrastructure. These incinerators pollute our air and produce toxic ash which is almost impossible to dispose of safely. Many CT residents are experiencing asthma and cancer because they live in close proximity to trash incinerators. Encouraging these dirty plants by classifying them as renewable energy is a dangerous move in the wrong direction.

I want CT to be a leader in the United States transition to clean energy. By developing local renewable sources of energy that support microgrids we not only ensure the health of our citizens but the sustainability of our economy. One the fastest growing sectors of our economy is solar and wind energy and the CT job force could greatly benefit from developing those resources here.

We need to transition to clean energy right now and if the energy strategy is updated to accomplish this goal it will be one step is ensuring a sustainable future for all CT residents.

350CT 71 Orange St, New Haven, CT 06510

organizers@350CT.org

NORTHEAST ENERGY
EFFICIENCY COUNCIL
A business association of the energy efficiency industry
44 Capitol Avenue * Hartford, CT 06106 * 860-241-8990* neec.org

Energy & Technology Committee
Public Hearing
March 7, 2013

HB 6360-AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

The Northeast Energy Efficiency Council- Connecticut Chapter (NEEC-CT), is a business association of the energy efficiency industry, a large and growing part of Connecticut's economy. NEEC-CT members include a wide variety of firms that provide energy efficiency products and services, including manufacturers, energy service companies, engineering firms, electrical contractors, lighting and equipment suppliers, HVAC and insulation contractors, builders, architects, and many others.

NEEC-CT supports a number of sections of **HB 6360-AAC Implementation of Connecticut's Comprehensive Energy Strategy**.

NEEC-CT submitted testimony during the hearings on the draft Comprehensive Energy Strategy and noted that energy efficiency is a clear winner for Connecticut's economy, environment and all of its citizens. We are so glad the Governor and Legislature are working on this for Connecticut. HB 6360 is the next step in the process of reaching the objective of cheaper, cleaner and more reliable energy for Connecticut.

NEEC-CT supports Section 2 of the bill, which requires a multi-year plan for energy efficiency. Currently, an annual plan is done. This bill would change it so every three years gas companies, in coordination with electric distribution companies, submit to the Energy Efficiency Board (though called the ECMB in the bill) a combined gas and electric plan. This change will be beneficial for work plans and budgets.

NEEC-CT supports provisions found in Section 11 and Section 12 of the proposed bill, which will empower owners to market their energy efficiency buildings. Disclosing the energy usage of homes for sale and of some apartments and commercial buildings will help prospective buyers and tenants save money and reward building owners who invest in efficiency. This proposal will allow sellers a greater incentive to incorporate energy efficient measures in their homes, while allowing buyers to have the information they need to know the energy costs in that residence.

NEEC-CT would like to see in the final version of the bill, a steady funding mechanism to allow residents who use oil to access Connecticut's award winning efficiency programs. The state's goal of weatherizing 80% of the homes by 2030 can only be met with more residential customers using the efficiency programs. By weatherizing homes, residents see an immediate decrease in their energy bills. This work will also create jobs.

Connecticut administrators understand how cost effective energy efficiency measures are. Energy Efficiency is the way to go. There is a large return on an investment. Energy efficiency measures are documented and verified through independent evaluations and audits. There is a 4 to1 return on energy efficiency investments. For every $1 invested, the return is more than $4 in savings. These savings benefit everyone in Connecticut. Businesses and residential rate payers will have more money in their pockets, which may then be spent on other goods in Connecticut. With a larger commitment to energy efficiency, more can be done that will benefit all residents. With Massachusetts and Rhode Island continuing to increase their commitment to energy efficiency, Connecticut needs to do the same to keep our businesses competitive and in the state. The energy efficiency programs are an alternative to high bills.

Thank you for your time. We look forward to continuing discussing HB 6360.

Testimony of
Sharon E. Lewis
Before the Connecticut General Assembly Energy and Technology Committee
March 7th, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY. educate members in many environmental health issues, including asthma risks and triggers, toxic substances, and health effects of trash incineration.

Senator Duff, Representative Reed and members of the committee, thank you for the opportunity to comment on House Bills 6360, 6532 and 6535.

My name is Sharon Lewis and I am the Executive Director of the Connecticut Coalition of Environmental Justice or CCEJ. At CCEJ we are diligently working to create a world where no group of people, -racial, ethnic or socioeconomic group -bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, or commercial operations. We advocate for equitable policies and practices that promote healthy communities.

Some of our work includes fighting to reduce emissions of outdoor air pollutants in communities with high exposure because we believe that poor air quality contributes to a myriad of health problems such as asthma. Our asthma education and outreach efforts thru our asthma speakers bureau educates thousands of Hartford, Bridgeport, and New Haven residents about asthma treatment options, and how managing indoor and outdoor environments can help control the condition. We have also been active educating residents in major Connecticut cities on the public health benefits of recycling, and most importantly we have played a major role closing trash incinerators and curtailing industrial pollution near major cities in this state. We are currently trying to shutdown one of the boilers at Hartford's trash-to-energy incinerator, the nation's 5th largest, which operates 24/7 and is a major source of pollution which releases many dangerous chemicals such as dioxin and mercury to name a few.

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

"Stop complaining about the cold and put on a sweater!"

That is my mantra. And it works for my family. But I am fortunate because my house is well insulated, and I have water saving faucets and shower heads and energy efficient lighting, not to mention insulated pipes and sealed ducts. It is comfortable, if a little cooler than some in my family would wish. And I have the Home Energy Solutions (HES) program to thank for that. The HES technicians did most of this work, and I took their recommendations to heart and had insulation installed, replaced my whole house fan with one that keeps out the cold in the winter, and installed a reset control on my furnace so my oil burner doesn't constantly re-heat the water in my water tank. I spent good money on these energy saving measures, and helped the local economy to boot! My electricity and oil bills have been reduced significantly.

The Westport Home Energy Challenge reached out to the community (partnering with 20 organizations) to get the word out about the HES program. And it worked.

Over 660 Westport homeowners (including those on energy assistance) have taken advantage of the Home Energy Solutions program in the last 2 years and have reduced their electricity use by 2,386,365 kWh, resulting in a reduction of 1,918,399 lbs of carbon dioxide AND they are avoiding $281,491 annually in electricity costs! Add in the heating savings and that number increases significantly!

As chair of the program, I have had the opportunity to speak with numerous homeowners who completed the HES visit, and were very pleased with the program, its effect on their bills, and home comfort. And I had several new homeowners tell me they were pleased to know their home efficiency, information they received from the HES visit, done by the seller. Others have followed through with deeper energy upgrades, further improving their home energy efficiency, and Connecticut's employment base in many industries . Energy Efficiency is the low-hanging sustainability fruit in Connecticut.

But over 60% of Westporters heat with oil. The HES program will be closed to families with oil heat in June unless more funding is made available.

I ask that you establish a stable funding source for heating oil energy efficiency (i.e. a surcharge on fuel oil), as has been done for electricity and natural gas.

And secure funding would allow the state to consider expanding its programing, and not just through utility bill inserts and ads that many people ignore. The Westport Home Energy Challenge has proven that getting the word out in a variety of ways makes a big difference to community involvement.

I ask that you expand the energy efficiency programs and the methods of engaging residents, to include partnerships with community organizations.

This is an important issue for me and Connecticut residents. Without proper support and funding for these programs, Connecticut will lose the energy efficiency battle, a loss the state cannot afford. You can play a vital role in ensuring the future of Connecticut's energy efficiency programs.

I look forward to hearing from you.

Sincerely,

Pippa Bell Ader
62 Woodside Avenue
Westport, CT 06880
(203) 803-3247

ENERGY & TECHNOLOGY COMMITTEE

March 7, 2013

The Connecticut Conference of Municipalities (CCM) is Connecticut's statewide association of towns and cities and the voice of local government - your partners in governing Connecticut. Our members represent over 92% of Connecticut's population. We appreciate the opportunity to testify on bills of interest to towns and cities.

CCM **supports** House Bill 6360 *"An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy"*

The proposal would, among other things, provide a greater ability to municipalities, who participate in the virtual net metering program created in PA 11-80, to lease or own the Class I Renewable facilities. It also expands the program to include Class III renewable facilities and raises the statutory cap of $1 million to $10 million. ***Section 5***

The proposal would make the installation of Class I and Class II renewable energy resources more economically viable for municipalities by alleviating the financial barriers that the ownership requirement in PA 11-80 posed for municipalities interested in the program. As well, the increase in the statutory cap from $1 million to $10 million will allow a greater amount of facilities to qualify throughout the state.

Additionally, CCM supports the technical changes made to the microgrid program by allowing connectivity across state highways and roads, as well allowing connectivity to multiple sites.

CCM urges the committee to **favorably report House Bill 6360**.

★ ★ ★ ★ ★

If you have any questions, please contact Mike Muszynski, Legislative Associate at (mmuszynski@ccm-ct.org) or via phone (203) 500-7556.

Written Testimony of Mark Harris and Gina Crist, Good Life Energy Savers LLC,

Before the Connecticut Assembly Energy and Technology Committee

March 7, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

We are the owners and operators of Good Life Energy Savers LLC, a building insulation contractor located in Danbury, CT. We employ 13 Connecticut residents and are residents of Connecticut ourselves. We thank the Committee for holding the public hearing and inviting our comments.

FOCUS ON BUILDING ENVELOPE UPGRADES

We are encouraged by the Governor's commitment to making Connecticut the most efficient state in the nation. We understand the reasons to include natural gas conversion as part of the state's energy strategy. Rather than relying primarily on fuel conversion, we feel strongly that the focus of the strategy should be on energy efficiency upgrades. Efficiency upgrades have a much more immediate impact and are imperative to reducing energy usage, regardless of the ultimate fuel source. Without proper building upgrades, significant levels of heating fuels of all types are simply wasted due to air infiltration and air leakage. We often find that a typical Connecticut home can have air leaks throughout the building envelope equivalent to having a large window open all year long!

According to the Department of Energy (DOE), 80% of homes built prior to 1980 have little or no insulation, and adding insulation is the number one way to become more energy efficient. Connecticut consumers and businesses are burdened with the second highest energy costs in the United States. Simple upgrades to the building envelope in the form of air sealing and insulation can result in immediate energy savings of 30-50%!

EXTEND AND ENHANCE INCENTIVES FOR ALL FUEL TYPES

In our experience, the most effective way to promote upgrades is with Connecticut's energy efficiency programs that offer low cost assessments, rebates and low interest financing for customers with all fuel types. We see a direct relationship between the number and magnitude of these upgrades to the level of rebates and low interest financing offered. When incentive programs are interrupted due to lack of funding, there is an immediate and dramatic reduction

in the number of consumers who are willing and able to invest in basic building upgrades that would produce significant reductions in energy usage.

Good Life Energy Savers highly recommends that the efficiency programs continue and are fully funded for customers with all fuel types. The extension of the program for heating oil customers past June 2013 is critical to our state's energy strategy. We suggest that a modest surcharge on fuel oil, such as the one implemented for gas and electric customers would create a way to contribute to the Energy Efficiency Fund. In order to provide a full range of options for heating oil customers and ensure assistance when they are ready to upgrade, it is imperative that the funding of this program continue.

ADVERTISE & EDUCATE

Our company dedicates substantial advertising dollars to educate Connecticut consumers on the importance of air sealing and insulation as well as the rebates and financing offered by our state programs. Still, we often find residents who are completely unaware of these energy efficiency incentives. Program enhancements and extensions should be coupled with marketing and outreach initiatives to educate residents on the importance of upgrades and the financial support Connecticut offers.

REQUIRE ENERGY USAGE DISCLOSURES

We support legislation that requires energy usage disclosure and benchmarking for commercial and residential buildings to make energy efficiency a quantifiable factor in real estate offerings.

Thank you for the opportunity to submit our comments.

Sincerely,

Mark Harris & Gina Crist
Good Life Energy Savers LLC
50 Beaver Brook Rd, Suite #2
Danbury, CT 06810

Testimony by Paul R. McCary
before the
Energy and Technology Committee on
HB 6360 AAC
Implementation of Connecticut's Comprehensive Energy Strategy

March 7, 2013

Mr. Chairman, Madam Chairwoman and Members of the Committee. My name is Paul McCary and I am pleased to have the opportunity to submit this written testimony regarding the Legislature's efforts to address submetering. By way of introduction, I am an attorney at Murtha Cullina. During my 30 years of practice I have frequently represented utilities and businesses in utility regulatory matters. In addition, I serve as an adjunct law professor at the University of Connecticut School of Law, where I teach a class on energy regulatory policy. Today I represent PMC Property Group, an owner and manager of residential and commercial properties in Connecticut and elsewhere throughout the Northeast and the East Coast generally. PMC focuses on adaptive re-use: converting older urban commercial buildings into residential apartments. Examples include 55 Trumbull Street in Hartford and the Chapel Square Mall in New Haven.

First, I would like to applaud the Governor and DEEP for identifying submetering as a critical energy policy issue for Connecticut. For the past six years I have been representing PMC and others entangled with this state's antiquated submetering rules. As I will explain today, the negative impact of these rules far outweighs any benefits. Many states around the country embrace submetering, including states that touch our own borders. Connecticut already leads the way in many aspects of energy policy. The time is now for Connecticut to join its neighbors and states around the US with respect to submetering.

Submetering Permits Smarter, Cleaner, More Efficient Energy Systems

Connecticut has long put energy efficiency at the top of its policy priorities. Our state has also sought to encourage and develop high-tech, clean, and renewable sources of energy. Despite these many steps forward, Connecticut's submetering policy hampers the implementation of these measures. Connecticut's current submetering rules were written for a time far before electric restructuring, distributed generation, net metering, microgrids, and many of the cutting-edge technology and policy developments Connecticut has been so accomplished in adopting. As currently interpreted by the Connecticut Public Utilities Regulatory Authority ("PURA"), submetering is permitted only in campgrounds and marinas. This interpretation results in wasteful consumption of energy in adaptive re-use buildings and significantly limits—and in many circumstances outright prohibits—the deployment of distributed power

generation and combined heat and power systems the state so earnestly seeks to support.

Submetering Promotes Energy Efficiency

As the Comprehensive Energy Strategy notes at page 109, many of Connecticut's older repurposed apartment buildings and commercial complexes are master metered, meaning that individual tenants are not metered and billed separately for their utility use. The building receives one electric bill and the landlord includes the cost of electricity in the rent. Master metering, however, is terribly wasteful because there is no direct benefit to self-regulation of energy consumption by the ultimate customer, and is inherently unfair because customers are not billed for their actual utility usage. This increases wasteful energy use, since tenants are not directly responsible for their bill.[1] Because the electrical bill is averaged across all apartments in the building, tenants that actually make efforts to conserve energy subsidize those that waste energy. This result runs counter to the millions of dollars Connecticut spends annually on conservation programs, energy efficiency overhauls and other state supported measures to reduce energy consumption and lower Connecticut's historically high electric rates.

Installing direct utility metering in an adaptive re-use conversion can add hundreds of thousands of dollars to an adaptive re-use project. Without a progressive submetering policy, some adaptive re-use projects will not proceed. In others, the building will revert to master metering (electricity costs are averaged and included in rent), which has been proven to waste energy, is unfair to tenants who use energy wisely, provided virtually no incentive for individual conservation and fails to allocate costs fairly. Attached to this testimony (Attachment A) is the testimony of two experts, Frank Radigan and Phil Teumim, who prepared testimony for PMC that was submitted to PURA. That testimony details the severe problems with master metering and makes sound policy recommendations for submetering in Connecticut.

Submetering Complements Distributed Generation

In 2010, construction was completed on 360 State Street in New Haven, the first residential building in Connecticut to gain Leadership in Energy and Environmental Design ("LEED") Platinum status. The building employs numerous energy efficiency measures and includes a 400 kW fuel cell on site that produces clean, renewable power for the building's residents. Because on site distributed generation like this fuel cell must be "behind the meter," it cannot effectively distribute power to the 500 residential apartments if there are 500 separate residential utility meters. To use distributed generation, the fuel cell needs to be behind one utility meter that serves the building. Then, electricity from the fuel cell or the grid is measured in each apartment by a

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[1] A study by the New York State Energy Research and Development Authority for example demonstrated that, on average, tenants who were mastered metered used 20% more energy than those who were submetered Residential Electric Submetering Manual, New York State Energy Research and Development Authority (October 2001)

submeter. Today, owing largely to our inflexible submetering rules, that fuel cell is operated at partial load; none of the electricity from the fuel cell is used by the residential apartments.

Likewise, submetering rules have similarly knotted the state's microgrid grant and loan program. In legislation passed by this Committee, Connecticut situated itself in the forefront of energy policy issues by passing legislation fostering the development of microgrids. For many reasons, microgrids offer considerable benefits to Connecticut's electric consumers. In spite of the many benefits microgrids provide, during the—still ongoing—pilot project review, significant questions were raised as to the legality of many of the proposed projects on account of conflicts with state submetering rules.

This mismatch in regulatory policy—encouraging development of on-site generation, yet simultaneously narrowing the scope of eligible projects—needlessly stymies the development of distributed generation and renewable energy projects in Connecticut.

Submetering Includes Consumer Protections

As the attached testimony of Messrs. Radigan and Teumim makes clear, consumer protections can easily be incorporated into submetering policy. Meter accuracy, protection from shutoffs and the ability to challenge an inaccurate bill are all part of PMC's proposed consumer protections. These rules go beyond what is required in most other states that allow submetering. And PURA is well positioned to enforce these rules.

Conclusion and Recommended Amended Language

Despite the benefits submetering redeveloped residential properties offer, PURA's current interpretation of Connecticut's submetering rules limits submetering to campground and marinas. Accordingly, *it is critical that HB 6360 make clear that submetering is permitted in revitalized urban buildings.* The Comprehensive Energy Strategy concludes that permitting submetering in revitalized residential buildings advances the energy goals of this state. For this reason, any legislative change should enable these buildings to implement submetering as a matter of right.

To accomplish this result, I recommend that the following additional phrase be added to new clause 3 of Section 6: "or where an existing building has converted as part of an adaptive reuse redevelopment."

Thank you for considering our comments.

ATTACHMENT A

Docket No. 12-10-14
October 15, 2012
Exhibit B

STATE OF CONNECTICUT

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

PUBLIC UTILITIES REGULATORY AUTHORITY

DOCKET NO. **12-10-14**

PETITION OF PMC PROPERTY GROUP, INC.

FOR APPROVAL TO SUBMETER ELECTRICITY AT CERTAIN LOCATIONS

TESTIMONY OF
PHILLIP S. TEUMIM AND FRANK W. RADIGAN
ON BEHALF OF
PMC PROPERTY GROUP, INC.

October 15, 2012

1 I. INTRODUCTION

2 Q. PLEASE STATE YOUR NAMES AND BUSINESS ADDRESSES.

3 A. My name is Phillip S. Teumim. I am a consultant affiliated with Hudson River Energy
4 Group. My business address is 37 Ruxton Road, Delmar NY 12054.

5

6 My name is Frank W. Radigan. I am a principal in the Hudson River Energy Group, a
7 consulting firm providing services regarding the electric utility industry and specializing
8 in the fields of rates, planning and utility economics. My office address is
9 237 Schoolhouse Road, Albany, New York 12203.

10

11 Q. PLEASE SUMMARIZE YOUR EDUCATION AND BUSINESS EXPERIENCE?

12 A. **(Teumim)** I hold a Bachelor of Science degree in Electrical Engineering and a Master's
13 Degree in Business Administration from Rensselaer Polytechnic Institute in Troy, NY. I
14 was employed by the New York State Public Service Commission (NYPSC) from 1970
15 to 1988, and again from 1992 to 2002. During the period 1988 to 1992, I worked for the
16 consulting firm of Theodore Barry & Associates, and later Resource Management
17 International. During my initial tenure with the NYPSC, I worked extensively on
18 telecommunications, electric, gas, and water matters. During my second tenure with the
19 NYPSC, I was the Director of the Energy and Water Division, and later the Gas and
20 Water Division. In 2002 I became a consultant, and have worked on gas, electric and
21 water matters for a variety of clients in various jurisdictions since that time. I have
22 appeared before a number of regulatory commissions, the FERC, and several legislative
23 committees. I have also been an instructor at Camp NARUC and other regulatory

1 training workshops and have been an invited speaker at a number of regulatory, trade and
2 industry conferences nationally.
3 During the period 1985 - 88, I was Chief of the Policy and Compliance Section of the
4 Consumer Services Division for the NYPSC. In that capacity, I had supervisory
5 responsibility for analysis of submetering petitions to the NYPSC and the development of
6 the NY Commission's formal rules for submetering installations.
7
8 **(Radigan)** I received a Bachelor of Science degree in Chemical Engineering from
9 Clarkson College of Technology in Potsdam, New York (now Clarkson University) in
10 1981. I received a Certificate in Regulatory Economics from the State University of New
11 York at Albany in 1990. From 1981 through February 1997, I served on the Staff of the
12 New York State Public Service Commission (PSC) in the Rates and System Planning
13 sections of the Power Division. My responsibilities included resource planning and the
14 analysis of rates, depreciation rates and tariffs of electric, gas, water and steam utilities in
15 the State and encompassed rate design and performing embedded and marginal cost of
16 service studies as well as depreciation studies.
17
18 Before leaving the Commission, I was responsible for directing all engineering staff
19 during major proceedings including those relating to rates, integrated resource planning
20 and environmental impact studies. In February 1997, I left the Commission and joined
21 the firm of Louis Berger & Associates as a Senior Energy Consultant. In December 1998,
22 I formed my own Company.
23

In my 29 years of experience, I have testified as an expert witness in utility rate proceedings on more than 100 occasions before various utility regulatory bodies including the Arizona Corporation Commission, the Connecticut Department of Public Utility Control (DPUC or Department), the Delaware Public Service Commission, the Illinois Commerce Commission, the Maryland Public Service Commission, the Massachusetts Department of Telecommunications and Energy, the Michigan Public Service Commission, the New York State Public Service Commission, the New York State Department of Taxation and Finance, the Nevada Public Utilities Commission, the North Carolina Utilities Commission, the Public Service Commission of the District of Columbia, the Public Utilities Commission of Ohio, the Rhode Island Public Utilities Commission, the Vermont Public Service Board, and the Federal Energy Regulatory Commission (FERC). I currently advise a variety of regulatory commissions, consumer advocates, municipal utilities and industrial customers concerning rate matters, including wholesale electricity rates and electric transmission rates.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of our testimony is to support PMC's petition for approval to submeter electricity on a pilot basis. Our testimony highlights the policy reasons supporting submetering, practical issues associated with submetering and consumer protections to ensure tenants receive the benefits of submetering. It also analyzes submetering policies adopted in jurisdictions that permit submetering.

1 II. SUBMETERING POLICY CONSIDERATIONS

2 Q. WHAT IS SUBMETERING?

3 A. Submetering is the measurement and billing of a utility service to an end-use customer
4 using a third party's meter installed between the utility's meter ("master mcter") and the
5 customer. While a variety of utility services (e.g., electric, gas, water) and many types of
6 premises may by submetered, as used here we are referring to the measurement and
7 billing of electricity to a utility master-metered, multi-family building, in some cases with
8 a few commercial establishments in the building as well.

9

10 Q. PLEASE EXPLAIN YOUR OVERALL PERSPECTIVE ON SUBMETERING.

11 A. In most situations, utility metering of the end-use customer is the preferred alternative. In
12 some cases, there are competing objectives -- it is cost-prohibitive for the utility to
13 directly meter the end-use customers. Typically, this occurs in a metropolitan area where
14 an older building which might otherwise be vacant is being rehabilitated and possibly
15 repurposed, generally a highly desirable outcome consistent with good public policy, and
16 it is not cost-effective to install direct utility metering to each end-use customer unit.
17 In those case, the options are a master meter, with costs of energy passed on to end-use
18 customers through a mechanism other than one directly tied to energy usage (e.g.,
19 included in rent), or submetering.

20

1 Q. **PLEASE EXPLAIN WHY INSTALLING INDIVIDUAL UTILITY METERING**
2 **AT THE SUBMETERED PREMISES IS COST PROHIBITIVE.**

3 A. Using United Illuminating ("UI") terms and conditions as an example clearly illustrates
4 how converting the properties in question would be cost prohibitive. Section 3(b) of UI's
5 terms and condition, included as Exhibit PMC-1 requires that for service on a customer's
6 premises, service will be delivered at a single point and each point of delivery will be
7 billed as a separate customer. Thus, someone who is redeveloping or repurposing a
8 building with multiple tenants and wanted to comply with UI's rules would need to wire
9 the building so that utility wires would run to each individual customer. Naturally, this
10 would require all step down transformers to be located at one section of the building and
11 lower voltage wiring provided to each tenant within the building. The cost impact on a
12 developer is substantial compared to being able to re-use most of the existing wiring in
13 the building.

14 We have attached, as Exhibit PMC-2, four estimates that PMC obtained from an
15 electrical contractor to convert the buildings that are the subject of PMC's petition to
16 utility metering. Although we are not electrical contractors, our review indicates that
17 neither the work scope nor the pricing strikes us as unreasonable.

18 This impacts not only the up-front economics and the decision to rehabilitate the
19 building, but also the competitiveness of the units in the rental market, as any additional
20 costs of refurbishment must be recovered in rents, and a developer must consider whether
21 he will price himself out of the rental market for a cost element that is not necessarily
22 obvious to a prospective renter.

1 Q. **WOULD IT BE POSSIBLE TO INSTALL INDIVIDUAL UTILITY METERS**
2 **WITHOUT RETROFITTING THE SUBMETERED PREMISES?**
3 A. No. As noted in the case of UI, the utility requires that the wiring be at the voltage to be
4 received by the customers. Thus, if UI were serving each of the PMC buildings, all
5 existing wiring, which is at a higher voltage and then stepped down to the customer at its
6 location within the building, would have to be removed and utility equipment installed in
7 its place.
8
9 Q. **PLEASE SUMMARIZE THE POLICY ISSUES THAT SUPPORT**
10 **SUBMETERING IN SITUATIONS WHERE DIRECT UTILITY METERING IS**
11 **COST PROHIBITIVE.**
12 A. The policy issues fall into several categories - fairness of charges for electricity,
13 conservation, and customer protections. Those topics are addressed in the following
14 sections. There are a number of other issues, such as converting existing master metered
15 residential buildings to submetering and submetering in new construction, that are not
16 addressed herein, as the proposed pilot approach does not challenge existing policy and
17 regulation in those areas.
18

1 **III. FAIRNESS OF CHARGES**

2 **Q. HOW ARE CUSTOMERS IN MASTER METERED PREMISES CHARGED FOR**
3 **ELECTRICITY?**

4 A. Master metered service charges are generally passed on to tenants by spreading all
5 electric service charges across all tenants based on some allocation factor, such as square
6 footage of the units, or number of units in the building, which may be correlated with
7 usage but is not a direct measurement.
8

9 **Q. HOW ARE SUBMETERED TENANTS CHARGED?**

10 A. Submetering allocates cost based on actual usage within the unit - a tenant pays for the
11 amount he or she uses, regardless of how much any other tenant uses.
12

13 **Q. WHAT ARE THE EFFECTS OF THE TWO METHODS ON TENANTS' BILLS?**

14 A. If a tenant makes an effort to curtail energy waste and use power responsibly (see below),
15 he/she stands to save considerable money under the submetering scenario. Consider, for
16 example, a hypothetical apartment building of 20 equally sized units in which one tenant
17 is very conservation-minded, installing compact fluorescent lighting, high efficiency
18 appliances, and turning off lights when not in use, while the other 19 tenants are
19 indifferent to electric usage. If charges are assessed based on square footage or number
20 of units, the conservation-minded tenant will only realize one-twentieth of the total
21 savings as a reward for his or her efforts and expenditures. Submetering appropriately
22 passes on all savings to the conservation-minded tenant and none to the indifferent
23 tenants.

1

2 Q. **DOES THE LANDLORD MARK UP THE COST OF ELECTRICITY OR MAKE**

3 **ANY MONEY IN ANY OTHER FASHION FROM SUBMETERING?**

4 A. No, not under our proposal. Most jurisdictions do not allow markup, although we are

5 aware of at least one state that does.

6

7 **IV. SUBMETERING AND CONSERVATION**

8 Q. **DOES SUBMETERING SUPPORT CONSERVATION-BASED OR "ECO-**

9 **FRIENDLY" STATE AND FEDERAL POLICIES?**

10 A. Yes. Although some states have yet to include submetering in the lexicon of conservation

11 issues, the practice has been singled out by many states and the federal government

12 specifically as a proactive "green" approach to energy management that encourages

13 property owners and tenants alike to make their living and working spaces more energy

14 efficient.

15

16 Q. **HOW DOES SUBMETERING ENCOURAGE CONSERVATION?**

17 A. As stated by the United States Department of Energy, *If you can't measure it, you can't*

18 *manage it.* Exhibit PMC-3, US DOE Tenant Space Submetering, June 16, 2011, 3rd

19 unnumbered page. A submeter monitors a unit for the energy consumed within that unit

20 and nothing else. Therefore, when the rent is due, a tenant is paying for his/her

21 consumption only instead of paying into a whole property's utility bill, which may

22 include tenants who consume far more energy or are routinely wasteful. Therefore it is

23 naturally in the best interest of each tenant to conserve whenever possible. This can be

done by turning off unused appliances, or installing high-efficiency appliances, adjusting air conditioners to lower settings, sealing off drafts between rooms, outfitting lamps with timers, and unplugging inert charge ports that bleed energy. When usage drops, so does the monthly bill for each tenant.

Q. DO THE PROPERTY OWNERS BENEFIT FROM THE CONSERVATION EFFORTS SUBMETERING ENCOURAGES?

A. Yes. When tenants conserve, the entire building uses energy more efficiently, resulting in substantial savings which can be used to offset the rising cost of utilities (for the landlord) and rent (for the tenant). By contrast, studies have shown that tenants who are not financially accountable for their energy usage tend to use more energy than those who pay their own energy bills. As we show later in this testimony, actual savings of 12% to 21% have been achieved. This is not surprising. Thus, with master metering, total occupancy costs for all tenants increase since they end up paying the excess energy charges passed through by the landlord. From the owner's perspective, the building becomes that much less competitive against other properties in the marketplace. Further, a tenant willing to be more conscious of energy usage in his or her unit is more likely to notice problems and tend to the building better, identifying opportunities for conservation in common areas. Many property owners have themselves become proactive in making their buildings more "green" by installing high-efficiency windows that significantly reduce heating and cooling costs. The owner enjoys a return on his or her investment after the building cuts energy waste, as well as the added appeal and prestige that come with maintaining an eco-friendly property.

1

2 Q. **HAVE TENANTS IN MULTI-UNIT PROPERTIES IN OTHER STATES**

3 **EMBRACED CONSERVATION THROUGH SUBMETERING AS A WAY TO**

4 **SAVE MONEY?**

5 A. Yes. Many of the initial complaints about switching to a submetered system have

6 stemmed from tenants who believe the new system is inherently more expensive because

7 their bills initially seem high. In fact, the bill only appears high because submetering

8 shines a light on just how much money the tenant is spending on power they are not

9 using, or using in excess. Says one owner:

10 *"'After about four or five months the angry shareholders stopped*
11 *complaining. People started to realize that they had to conserve; that they*
12 *couldn't leave the AC on all the time and that they had to turn off lights when no*
13 *one was in a certain room. It took them a while to understand that by conserving*
14 *their electrical usage they would see some real savings. Nobody complains now.*
15 *If they have a high bill it's because they used too much electricity. There is no one*
16 *to blame but themselves."*[1] Exhibit PMC-4, p. 3.
17

18 Q. **HAVE ANY INDEPENDENT STUDIES IN OTHER STATES CONFIRMED THE**

19 **VALIDITY OF SUBMETERING AND ITS USE IN CONSERVATION?**

20 A. Yes. Energy Conservation Service (www.enconcorp.com), recently compiled

21 information on the results of submetering residential properties. Regarding the outcome

22 of submetering the New York-based Carlyle Towers complex, it was stated:

23 *The impact of sub-metering on residents has varied widely, based on each*
24 *resident's individual usage habits, conservation efforts and occupancy patterns.*
25 *Overall, 73% of residents in Carlyle Towers now use less energy than the pre-*
26 *sub-metering average, so they PAY LESS for electricity than they would have*
27 *without sub-metering. Only 7% are using significantly more than the pre-sub-*
28 *metering average, so they pay more, and should, because they use more than their*

---

[1] Leslie Bernstein, (Cooper) "Submetering Saves Money", *The Cooperator: The Co-Op and Condo Monthly, September 1996.*

neighbors. Those who take extended vacations can also save with sub-metering, since they won't pay for what they don't use.'" Exhibit PMC–5, New York State Energy Research and Development Authority Residential Electric Submetering Manual, October 1997, Revised October 2001, Appendix A, p. 2.

Or, as a former officer of a federation of housing cooperatives noted: *"Users of electricity will vote for submetering. Abusers will vote against it."* Exhibit PMC-5, Appendix A, p. 2.

Q. ARE YOU AWARE OF ANY STUDIES THAT HAVE BEEN PERFORMED WHICH IDENTIFY THE LEVEL OF SAVINGS THAT HAVE BEEN ACHIEVED THROUGH USE OF SUBMETERING IN RESIDENTIAL STRUCTURES?

A. Yes. Several studies have been sponsored by the New York State Research and Development Authority (NYSERDA) and Consolidated Edison of New York, Inc. which demonstrated the following results: Exhibit PMC-5, p. 7.

Savings Results from Submetered Buildings

Building (Year Submetered)	Year Analyzed	kWh % Savings	kW% Savings	$ Cost Savings
Carlyle Towers (1987)	1991	12%	25%	12%
	1995	15%	29%	16%
Scott Towers (1987)	1991	19%	20%	20%
	1996	17%	24%	20%
Goddard Riverside (1989)	1990	20%	23%	21%
	1996	19%	30%	19%

As may be seen from the above table, energy (kWh) savings ranged from 12% to 29%, demand (kW) savings ranged from 20% to 30%, and dollar savings ranged from 12% to 21%, all highly significant outcomes.

V. CONSUMER PROTECTIONS FOR SUBMETERED CUSTOMERS

Q. PLEASE DESCRIBE THE CONSUMER PROTECTIONS PROPOSED BY PMC TO SUPPORT THE AUTHORITY'S APPROVAL OF SUBMETERING AT THE SUBMETERED PREMISES.

A. PMC is proposing the following consumer protections in connection with its petition to submeter:

- ***Billing methods to ensure that tenants are not overcharged***, e.g., charges to be equal to the per kWh charge calculated by dividing the most recent utility bill to the entire building by the number of kWh included in that bill, no charge for common area usage and no separate charge if tenants' electricity costs are included in rent);
- ***A meter testing policy*** allowing tenants the right to request one meter test in a twelve (12) month period;
- ***Providing a notice to tenants*** informing them that the Submetered Premises are subject to submetering;
- ***Backbilling*** only as allowed by the provisions of Section 16-259a of the Connecticut General Statutes ("CGS");

- ***The landlord may only terminate service to a unit under*** circumstances where PMC reasonably believes that continued service creates a risk of personal injury or property damage;
- ***Adopting a PURA Complaint Process*** whereby PURA will handle submetering questions and complaints and related billing questions or complaints; and
- ***Maintaining utility and tenant billing records*** for at least twenty-four (24) months and to provide such records to PURA or OCC upon request.
- ***Periodic reports*** will be available to tenants to verify that there is no markup and that the sum of the submeter reads plus common area use is equal to the master meter read.

Q. DO THE PROPOSED CONSUMER PROTECTIONS PROVIDE ADEQUATE PROTECTIONS FOR TENANTS AT THE SUBMETERED PREMISES? PLEASE EXPLAIN.

A. Yes. The protections are generally equivalent to those provided to utility customers, including the ability to appeal to the PURA.

V. SUBMETERING IN OTHER JURISDICTIONS

Q. IS SUBMETERING OF MULTI-UNIT DWELLINGS AUTHORIZED IN OTHER STATES?

A. Yes. Submetering for residential and commercial properties is legal in many other states that were selected for review in preparing this testimony. We selected a representative sample of states that have cities with tall buildings. Large, multi-unit properties such as

apartment high-rises and similar structures would benefit the most from submetering, and states with concentrations of said properties would likely have the most data available. The search did not look at specific buildings, but rather sought which of these states allowed electrical submetering and under what circumstances.

We examined submetering laws and regulations in 10 other states without prejudice toward region or demographics. They were: Arizona, California, Georgia, Hawaii, Illinois, Nevada, New York, Oklahoma, Pennsylvania, and Texas. All ten permitted submetering under specified conditions at the discretion of the property owner and required notification to tenants that submetering was installed and consumer protections similar to those provided to utility customers in that jurisdiction.

Q. HOW DOES PMC'S SUBMETERING PROPOSAL COMPARE TO THE SUBMETERING PROGRAMS AUTHORIZED IN OTHER STATES?

A. The proposal is generally within the bounds of submetering as approved in the sample of states we reviewed. We did not find any substantive conditions or requirements in other states not addressed in PMC's proposal.

VI. CONCLUSION

Q. DO YOU BELIEVE THERE IS SUFFICIENT SUPPORT FOR THE AUTHORITY TO AUTHORIZE SUBMETERING AT THE SUBMETERED PREMISES?

A. Yes. We believe submetering as proposed herein is consistent with good public and regulatory policy. It is both consistent with and promotes adaptive reuse of buildings that

might otherwise remain vacant or be razed, it encourages energy conservation, and it provides consumer protections equivalent to those provided to direct-metered utility customers. Further, because this is a pilot program, the PURA will have the opportunity to modify it or discontinue it over time without requiring a full-blown rulemaking process.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

City Of Torrington

RYAN J BINGHAM
Mayor

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Tel (860) 489-2228
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ENERGY & TECHNOLOGY COMMITTEE

March 7, 2013

As the Mayor of Torrington, I wish to express my support for **HB 6360 - An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.**

The proposal would, among other things, provide a greater ability to municipalities, who participate in the virtual net metering program to own or contract with a third party the Class I or Class III Renewable facilities. It also raises the statutory cap of the program from $1 million to $10 million and raises the capacity rating from 2 to 3 megawatts. ***Section 5***

The proposal would make the installation of Class I and Class II renewable energy resources more economically viable for municipalities by alleviating the financial barriers that the ownership requirement in PA 11-80 posed for municipalities interested in the program. As well, the increase in the statutory cap will allow a greater amount of facilities to qualify throughout the state.

In Torrington, we are exploring the installation of a Class I facility that would provide renewable energy utilizing the city's unused landfill site for a solar farm. The City of Torrington is excited about this possibility and look forward to this project coming to fruition with the passage of this bill.

Therefore, I urge you to favorably report HB 6360.

Sincerely,

Ryan J. Bingham
Mayor

via e-mail - March 7, 2013

Testimony of James O'Reilly, Director of Public Policy
Northeast Energy Efficiency Partnerships (NEEP)
On HB 6360 - An Act Concerning Implementation of
Connecticut's Comprehensive Energy Strategy

Chairman Duff, Chairwoman Reed, and members of the Committee: On behalf of Northeast Energy Efficiency Partnerships (NEEP)[1], thank you for the opportunity to provide comments in support of HB 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.

NEEP was founded in 1996 as a non-profit organization whose mission is to serve the Northeast and Mid-Atlantic states to accelerate energy efficiency in the building sector through public policy, program strategies and education. Our vision is that the region will fully embrace energy efficiency as a cornerstone of sustainable energy policy to help achieve a cleaner environment and a more reliable and affordable energy system.

To echo what we offered as comment on the Draft Comprehensive Energy Strategy (CES) for the State of Connecticut back in December, NEEP commends Governor Dannel Malloy, DEEP Commissioner Dan Esty, and the entire DEEP staff for their leadership in developing the Strategy, which clearly defines and prioritizes energy efficiency as a first order energy resource for the state. We, therefore, are strongly supportive of the effort to codify the provisions of the CES through this legislation.

There are two major policy initiatives this bill supports that we'd like to call out in particular to highlight their importance and benefit to the residents and businesses of Connecticut:

1. Connecticut has for several years had a policy, established legislatively, that its distribution utilities must procure **all cost-effective energy efficiency** on behalf of their customers. However, regulatory implementation of that policy has never been wholly realized, mainly because the former Department of Public Utility Control never fully implemented decoupling mechanisms required by law, and also because the Department was never willing to authorize Conservation and Load Management (C&LM) budgets that would fully fund a program strategy that captured all cost effective energy efficiency. In addition, recent orders from the Public Utilities Regulatory Authority were ambiguous in their requirement of additional information from the utilities and additional proceedings in order to establish a new funding mechanism to ensure the full funding of all cost effective energy efficiency.

   HB 6360 would address both of those shortcomings to the benefit of Connecticut's energy consumers.

   Section 1 orders the electric and gas utilities to **decouple their distribution revenues from their sales value**, effectively eliminating any ambiguity regarding the need for decoupling, thus removing for those utilities any disincentives to promoting greater levels of energy efficiency for their customers. As Connecticut Light and Power and United Illuminating have been committed and effective administrators of the state's energy efficiency programs, it is important that their interests are aligned with the state's

[1] These comments are offered by NEEP staff and do not necessarily represent the view of the NEEP Board of Directors, sponsors or partners.

public policy objectives to capture higher levels of energy efficiency, and thus ensure a cooperative and mutually beneficial pursuit of energy savings.

Further, section 3 requires PURA to ensure that the balance of revenues required to fund a C&LM budget that captures all cost-effective energy efficiency is made possible through **"a fully reconciling conservation adjustment mechanism," or CAM**. This practice would be consistent with that of other states that have recognized the economic, environmental and energy system benefits of capturing for their residents the highest amounts of the least-cost energy resource available, namely: energy efficiency. As volumes of data, analysis and highly-scrutinized program evaluation reports have continually shown, energy efficiency meets consumer energy needs at generally one-third the cost of traditional energy supply (generation, transmission and distribution), while providing the added benefits of lessening strain on overtaxed energy grids and reducing harmful emissions associated with electricity generation or the burning of heating fuels.

2. The Comprehensive Energy Strategy acknowledges in numerous instances the need to leverage private financing to supplement the Connecticut Energy Efficiency Fund programs in order to maximize energy savings in homes and buildings. However, for financing opportunities to be realized, financial markets need to be able to recognize and value energy performance in those homes and buildings. Right now, there are no ready mechanisms that would allow for a value to be placed on building energy performance. Thus, we are strongly supportive of DEEP's recommendations on **building energy rating/labeling and disclosure.**

   Specifically, sections 10 and 15 set requirements for the benchmarking and disclosure of energy use for commercial buildings in the state, both on a regularly scheduled basis and at the time of sale or lease. These requirements are imperative to provide information to consumers that will allow them to make informed choices regarding energy performance in real estate transactions. Armed with this information potential buyers will come to give preference to energy efficient properties, in turn enabling markets to value energy performance and providing a greater return on investment for projects that improve energy efficiency.

   Commercial real estate studies, including analysis from Co-Star and Jones Lang LaSalle, among others, have illustrated the positive market impacts of energy performance on commercial properties. Higher performing properties demonstrate both lower operating costs and higher sale prices and rental rates. ENERGY STAR office buildings, for example, use 40 percent less energy and command 13 percent higher rental rates compared to non-ENERGY STAR peer properties.

   Building rating and disclosure provides multiple benefits to multiple stakeholders: *property owners* are made aware of cost-effective energy savings opportunities, enabling continuous improvements and benefiting from a more secure return on investment; *buyers and renters* avoid costly surprises; and *financial lenders* are afforded better information regarding building operating costs, limiting their exposure and risk. With this proposed law, Connecticut will join a number of jurisdictions in the region that have in recent months adopted or are moving to adopt commercial building energy benchmarking policies. As Washington, D.C., Philadelphia, New York City and Boston, among others, have learned, consumers are coming to expect that since energy consumption information is made available regarding virtually every major purchase decision, they should also be provided similar information regarding real estate transactions, which represent the most significant financial commitment any of us will ever make.

In addition to the commercial benchmarking provisions in HB 6360, we also support the proposed **residential energy labeling voluntary pilot program** provided for in section 11. This program will employ the Home Energy Scoring tool being developed by the U.S. Department of Energy, allowing the state to leverage DOE's research and development, as well as educational and outreach resources. Because this program will be synched with the utility administered energy efficiency programs, it provides a natural linkage to the retrofit programs and incentives available to consumers, enhancing the program's reach and effectiveness.

Lastly, section 12 will require building owners who require tenants to pay for their heat as part of a lease agreement to provide potential new tenants with **statements of prior information regarding heat expenses** for the unit under consideration for at least the preceding year. This provision is consistent with the general benefits inherent in the other provisions of this bill regarding building rating and disclosure. Taken together, these provide consumers with information regarding a building's energy performance, which helps markets place a value on better performing buildings, which in turn helps to drive building energy efficiency improvements. We strongly support these provisions.

As the public policy director for a regional efficiency organization that tracks efficiency policies in 11 states and the District of Columbia, I can testify to the fact that the Comprehensive Energy Strategy represents exemplary leadership in a state that is clearly committed to harnessing the numerous benefits of energy efficiency. That credit should be shared with the members of the Connecticut General Assembly, who have, on numerous occasions, provided the state with the policy framework needed to build a sustainable energy future. We'd ask you now to join your commitments with those of Gov. Malloy and Secretary Esty to help Connecticut's residents and businesses better manage their energy costs by codifying these vital provisions of the Comprehensive Energy Strategy. We look forward to a continuing collaboration with Connecticut's leaders and are willing and able to assist you in any way we can to make your clean energy future a reality. Thank you.

Contact Information:
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Written Testimony of Ruth Clancy, Member of the CT Chapter of the Sierra Club,
Before the Connecticut general Assembly Energy and Technology Committee February 28, 2013

Written Testimony concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

I currently heat my home with oil and am looking for renewable energy alternatives in the future that will be more sustainable than natural gas, due to the environmental damage that can result from it's extraction (fracking), transport and burning. I would like to see the DEEP carry out an analysis of the costs to the environment and climate from natural gas operations, including the discharge of methane gas into the atmosphere in order to decide on it' safety. The DEEP and the Comprehensive Energy Strategy should also provide a full range of choices for reducing heating costs, including energy efficiency, geothermal heat pumps and air source heat pumps with solar photovoltaic connections.

When natural gas conversions are done, deep energy retrofits should be performed for those customers to avoid energy waste and unnecessary gas lines, and to create jobs and dollars for the local economy. Simply insulating attics, basement walls and air sealing without any further measures can save 30% of a home's energy use. In my own case the HES audit was beneficial even though I had performed some measures previously. I would like the $500 rebate to use towards further energy efficiency measures that I cannot perform on my own. It is imperative that long term funding for the audits be available for oil as well as gas and electric heating customers, paid through a small fee on oil or electricity bills.

Connecticut has to follow the lead of other states in allowing virtual net metering. This would remove geographic barriers to siting renewable energy sources and turn brownfields, landfills and other non-productive land into assets. Large scale hydro and trash incineration should not be made Class 1 renewables. They would do nothing to help build local jobs and would be environmentally damaging. Other measures such as smart grids, energy storage techniques and small scale hydro are 21st century energy strategies and should all be factored into our energy plan.

Ruth Clancy

76 Sunset Blvd

Wethersfield, CT 06109

Sack Distributors

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

My name is Steve Sack, I own and operate a home heating wholesale company located in Hartford. Sack Distributors is more than 100 years old and I am the 4th generation to work at the company. I am submitting testimony in support of section 18 and in opposition to section 19 of H.B. 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Every day since I began working in my family's business I have watched the energy markets. Despite new technology, sophisticated financial instruments and access to practically every piece of relevant data when it comes to energy, it is still impossible to predict future prices. And when I say future prices, I mean what the price of fuel will be tonight, tomorrow, next week let alone in 2050 like DEEP's Comprehensive Strategy attempts to do.

I have to believe that the language in section 19 is there because the state thinks that it knows natural gas will be cheaper than heating oil well into the future, or they would not have proposed to increase the hurdle rate to 25 years to help incentivize consumers to switch to natural gas. Well I can tell you as someone who has spent his entire life participating in, and observing energy markets - that is pure speculation!

I know that there has been a lot of talk about the benefit of bringing more natural gas to parts of Connecticut where it does not exist today so that businesses can come to our state. Well that is a pipe dream that will only end in failure. I am very familiar with the real-estate market in the greater Hartford area, and I can tell you that there is abundant commercial and industrial space available that is hooked up to natural gas mains.

The same can be said of Bridgeport, New Haven, Waterbury and virtually every city in the state. If natural gas is the key to economic development, then why do we have so many vacant factories in our cities? By the way, the same natural

gas that this bill wants to provide incentivizes for is available in other states that may have a more business friendly environment.

Adjusting the hurdle rate to lure consumers to switch from home heating oil to natural gas is nothing less than picking winner and losers. Our industry has no problem if the natural gas monopolies want to use their shareholders money to expand their business, but we do have a problem when the state proposes to change the hurdle rate to help our competitors take our customers from us.

As for section 18 of the bill, I am a big advocate to move to an ultra low sulfur heating oil! Going to a 15ppm product will bring a cleaner burning fuel to homes and businesses while making the off-road diesel market more competitive and vibrant.

I ask that the Energy Committee amend the language in H.B. 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY to prohibit monopolies from recovering their costs from their existing ratepayers when they expand their infrastructure.

I would be happy to answer any questions you may have at this time.

Thank you.

Respectfully,

Steve Sack

Connecticut General Assembly

The Energy and Technology Committee

March 7, 2013

House Bill No. 6360, *AAC Concerning Implementation of Connecticut's Comprehensive Energy Strategy*

Testimony of Dominion Retail, Inc.

My name is William Barkas, and I am Manager of State Government Relations for Dominion Retail, Inc. My company is a licensed retail electric supplier with more than 670,000 electric customers in nine states, including more than 60,000 small mass market customers in Connecticut together with our business partner, Levco Energy. Overall, we serve more than two million retail energy customers in 15 states.

HB 6360

This bill incorporates many facets of a comprehensive state energy strategy: electricity, natural gas (and the expansion of natural gas usage), fuel oil, energy efficiency, and a host of other related issues. The legislation is also an outgrowth of a request for comments issued by the Department of Energy and Environmental Protection (DEEP) last year and who should be complimented for undertaking this energy review. Dominion Retail provided a statement on November 16, 2012 and submitted written comments on December 21.

Dominion Retail's primary interest is in pointing out that it is well past the time to seriously analyze and recognize the benefits of natural gas choice for Connecticut's residential consumers, given the proposed comprehensive energy strategy that clearly envisions an expanded role for natural gas in the state's energy portfolio. The Connecticut Energy Advisory Board (CEAB) in its 2000 Energy Policy Report recommended an examination of residential customer choice, but to the best of our knowledge no review has ever been undertaken. In 2006 Dominion Retail delivered a presentation to the CEAB explaining the benefits of such a program. In 2007 and 2008, Dominion Retail testified before this committee in support of legislation authorizing a gas choice program for residential consumers.

Commercial and industrial customers in Connecticut have enjoyed the benefits of gas choice since 1996, but this same benefit has been denied to the residential class of

customers. Residential gas choice exists in many other states and has brought benefits to those consumers. One only needs to look at neighboring New York, as well as New Jersey, Maryland, Pennsylvania, Ohio and many other states to realize that. Based on Dominion's experience, it is convinced that a properly-designed gas choice program in Connecticut could benefit residential consumers through supplier offerings that would better meet consumers' individual needs as well as provide financial savings.

There are clearly certain institutional "roadblocks" that would need to be removed to create a well-functioning residential choice program, whether through legislation or regulations. If legislation is desirable, then there are examples of bills offered in the General Assembly in 2007 and 2008 that could serve as a model. The PURA would need to adopt gas choice regulations, but much groundwork has already been laid by the electric choice program—purchase of receivables, enrollment rules, consumer protection and education, unbundling of utility commodity and distribution costs, to name just a few. The utilities could benefit from needing less working capital for a reduced merchant role if many consumers switched to suppliers. In addition, the utilities could focus more of their resources on infrastructure development and maintenance which is their core function. Given the fact that Connecticut's three major gas utilities are now owned by UI and NU that have experience in retail electric choice, there are bound to be benefits from knowledge-sharing and systems integration that previously did not exist for the gas utilities.

We hope that the Energy and Technology Committee will seriously consider residential gas choice as it plans a greater role for natural gas in Connecticut's comprehensive energy strategy.

Regional Water Authority

South Central Connecticut Regional Water Authority
90 Sargent Drive, New Haven, Connecticut 06511-5966 203-562-4020
http //www rwater.com

Testimony to the Energy and Technology Committee

March 7, 2013

HB - 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

The South Central Connecticut Regional Water Authority (RWA) is a non-profit, public corporation and political subdivision of the state. Our mission is to provide our customers with high quality water at a reasonable cost while promoting the preservation of watershed land and aquifers. We provide approximately 48 million gallons of water per day to almost 500,000 consumers in our region. The source of this water is a system of watershed and aquifer areas that cover about 120 square miles within 24 municipalities. Much of our 27,000 acres of land is managed for watershed protection, timber resource conservation, wildlife habitat, open space, education, and research.

Thank you for the opportunity to provide comments to the Energy and Technology Committee regarding **Raised House Bill 6360**, ***An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.***

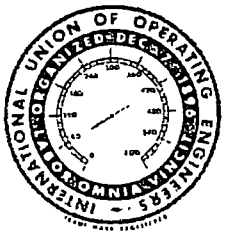
The South Central Connecticut Regional Water Authority, (RWA) **supports the provisions in Section 5 of HB-6360** which broadens eligibility for "virtual net metering" (VNM). The existing legislation for VNM only provides benefits for municipalities, the RWA supports broadening it **to expand eligibility for virtual net metering to include regional and private water companies, as defined under Section 25-32a of the Connecticut General Statutes.**

As a public water supplier serving the greater New Haven area, RWA operates more than 120 pumps and treatment facilities throughout the water district. Not all of these geographic locations within the water district are well suited for the placement of renewable energy equipment. With Virtual Net Metering, the RWA would be able to take advantage of renewable energy efficiencies by siting these installations at appropriate geographic locations while taking advantage of lower costs associated with less equipment.

This expansion would allow us to further our commitment to energy efficiency while helping our customers by reducing our energy costs and support Connecticut's Energy Strategy.

Thank you for the opportunity to express our support. If you have any questions, please contact, Lori Vitagliano, Government and Public Relations Specialist at 203-401-2720, or lvitagliano@rwater.com

Craig Metz
Business Manager
Local 478
Fax (203) 281-3749



Daniel E. Krause
Executive Director
Benefit Funds
Fax. (203) 281-5099

Good morning Senator Duff, Representative Reed and distinguished members of the Energy and Technology Committee. My name is Nate Brown, and I'm here today on behalf of the Operating Engineers Local 478 an organization that represents nearly 3500 heavy equipment operators throughout Connecticut. I am here today to respectfully request your support of House Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECICUTS COMPREHENSIVE ENERGY STRATEGY.

If you look through most Connecticut newspaper classifieds, you will find a small section that lists the price of home heating oil being advertised by a dozen or so companies. In February the average price for a gallon of heating oil was $4.17. This means that if you are like most Connecticut families who heat their home and water with oil, you can expect to pay over $3,800 for oil this year. The Governor's plan could mean good news for both Connecticut consumers and construction industry workers as his energy strategy encourages our state's business people and homeowners to convert to cleaner and cheaper natural gas. As he explained it, currently 31% of Connecticut homes use natural gas which is substantially lower usage in our neighboring states (Massachusetts and Rhode Island are at 50% and New Jersey is at 72%). There are also approximately 217,000 homes that currently have access to natural gas mains but continue to heat with oil. The Governor's proposal involves first hooking up those people who have access to current gas transmission lines and then developing new natural gas lines that could serve over 83,000 more homes and businesses – including large users like colleges and universities, factories, hospitals and office buildings – within the next seven years.

In addition to long-term energy savings and reduced carbon emissions, Connecticut's push for more natural gas would create thousands of construction jobs. In 2012, Local 478 had approximately 40 crews working for Yankee Gas changing out old cast iron pipeline infrastructure to fulfill a requirement for the US Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) that was initiated after a number of old natural gas pipelines exploded.

With the onset of the Governor's proposal, we anticipate the transmission pipeline and gas distribution line work could double or even triple in the coming years. In preparation for the workload, we have developed additional curriculum and natural gas transmission or distribution line pipeline training at our training school and through our International's Pipeline Training Program. This proactive approach has enabled us to build crews of high production operators who can safely dig in the street around utilities as well as operators who can handle mass excavation cross country pipelining. We have a solid history of working in conjunction with Yankee Gas and other energy providers and are committed to building an energy infrastructure that will serve Connecticut residents for generations to come.

Many experts agree that natural gas is the best answer for our nation's long-term energy needs and the Governor's plan addresses the biggest challenge of getting the gas from the drilling site to the consumer. Within the next seven years, the State of Connecticut will work in conjunction with various gas and utility companies to oversee the laying of an additional 900 miles of new natural gas transmission and/or distribution lines The bulk of the funding for this $800 million plus project will be paid through the utility bills of the homeowners and businesses that are hooked up to the natural gas lines The financial liability and burden on the state would be limited to short term bonding to cover upfront conversion costs

Thank you
Nate Brown

1965 Dixwell Avenue • Hamden, CT 06514-2400 • Telephone (203) 288-9261 • Toll Free: (866) 288-9261

Garrett, Bernard

From: Lela Florel <maater4@att.net>
Sent: Wednesday, March 06, 2013 6:29 PM
To: ETTestimony
Subject: Testimony Before the Energy & Technology Committee Regarding HB 6360

Testimony of Lela Florel Before the Energy & Technology Committee
Regarding
HB 6360, AAC IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Submitted by Lela Florel
March 7, 2013

Senator Duff, Representative Reed, and members of the Committee,

I am pleased to have the opportunity to comment on House Bill 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy .

We are are at the greatest physical and moral crisis in human history, and in the history of life on Earth Where will we stand, with the forces that created the problem or for the solution?

We are destroying the very life giving properties of Earth, possibly the only life in the universe, four billion years of evolution There are pole melts, massive extinctions, you should know how crucial and immediate the problem of global climate change is.

The fossil fuel industry profits from the pollution, funds the denial of the problem and corrupts the political process It has now bought up natural gas which over its lifetime contributes fully as much as oil or coal to the problem of climate change, as well as a host of other environmental dangers.

Having forced fracking with all its dangers on neighboring states they now need customers for yet another lethal product This plan is proposing that CT residents be those customers, and subsidize this deadly carbon based fuel.

Dirty natural gas, as bad as coal or oil, is now being green washed as clean To claim that natural gas is clean because it burns slightly cleaner while ignoring the extraction and other process over its lifetime is blatant misinformation To say that the pollution doesn't matter because it is in another state flies in the face of global physical reality.

There is no justification to use another polluting fossil fuel for "transition " First we are out of time for transition. Second natural gas is no better than coal or oil, contributing fully as much as they do to the problem over its lifetime Third it will take crucial resources away from the real solutions to the problem.

Promoting natural gas as you propose will.
- Put CT residents in physical danger
- Increase global climate change
- Force residents to pay money for a polluting fuel that will worsen the problem
- Take crucial resources away from true solutions
- Create permanence of the problem by converting fleets and building infrastructure for it
- Sully the reputation and moral integrity of CT by greenwashing instead if truly moving to solve the problem and becoming a truly green state
- Will put residents in a moral dilemma that just by living in the state we are knowingly contributing to the problem of global climate change, while adding insult to injury by claiming to be green

It's impossible to fight climate change while simultaneously investing in the dirtiest, most carbon-intensive fossil fuels on the planet Investment in natural gas is continuing the problem and blocking the solutions We are at the moral crossroads, the choice is clear. Please do not allow CT to be on the wrong side Do not support natural gas

Also please do not change the definition of renewable resources We live in a physical world and just changing the name of a polluting technology is not going to make it non polluting

Thank you for your work on conservation, that is important if it is not eclipsed by subsidizing pollution.

Respectfully,

Lela Florel

Apple Oil

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

I am submitting testimony in **support of section 18 and in opposition to section 19 of H.B. 6360,** AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

My name is Sharon Peterson, I work at my family business located in West Haven. Apple Oil has been in business for 30 years, we sell home heating oil in New Haven and Fairfield County. I am also the Chair of the Connecticut Energy Marketers Association (formerly ICPA) Board of Directors.

When we first heard that Governor Malloy wanted to create an energy plan that is "cleaner, cheaper and more reliable" our membership was excited.

Cleaner - with the advent of Bioheat and ultra low sulfur heating oil we have the cleanest fossil fuel on the planet. Even cleaner than natural gas!

Cheaper - for most of the last three decades heating oil has been the lowest cost way to heat homes and businesses, and now we are working with the CFTC to implement rules to reign in speculation so we can reduce the cost of oil in the future.

More reliable – heating oil is the most reliable fuel in Connecticut. Oil dealers throughout the state recently had to deliver oil to interruptible natural gas users throughout the state including the UCONN Medical Center and Yale University. We are the supplier of last resort when natural gas pressure is low and or the price spikes.

When we learned that Governor wanted an energy policy that is cleaner, cheaper and more reliable, we thought that we would fit right into his plan. Unfortunately, we found out that the Comprehensive Energy Strategies (CES) goal was to move 300,000 oilheat customers to natural gas, we were disappointed to say the least.

Section 19 of H.B. 843 seems to be an attempt to begin the process of achieving that goal, at the expense of hundreds of mom and pop heating oil dealers. It is difficult to understand why natural gas utilities need change the "hurdle rate" to get our customers to convert. This year alone, NU/NSTAR has issued millions of dollars in stock options to their Board of Directors and returned millions more in the form of dividends to their shareholders. Why do they need to change a rate that has been set by regulators at PURA?

Since no one can predict future energy prices, fuel switching is no guarantee of any savings. Beyond today, no one can tell you what the price of energy will be, and if they tell you they know, be very skeptical. Let PURA determine what is in the best interests of ratepayers when it comes to the hurdle rate. They have all of the information that they need to make a fair and educated decision. Setting the hurdle rate in law seems to circumvent the protections that PURA provides consumers.

If we can't guarantee savings on the cost of energy by switching fuels, the only option is to use less fuel. **Conservation, not conversion** is the only proven way to spend less to heat your home.

Finally, I support the cleaner fuel standard proposed in section 18 that reduces the sulfur content of heating oil from 3000ppm to 15ppm.

I ask that the Energy Committee amend the language in H.B. 6360, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY to prohibit monopolies from recovering their costs from their existing ratepayers when they expand their infrastructure.

I would be happy to answer any questions you may have at this time.

Thank you.

Respectfully,

Sharon Peterson

Written Testimony of Nina Huang,
Before the Connecticut General Assembly Energy and Technology Committee
February 7, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

I am writing on Governor's Bill 6360. I recently moved into an older apartment building and over the last few months have been shocked at the cost of my heating bills. The problem, I think, is two fold. There is first the problem of being unable to predict my heating expenses from month to month. This leaves me in a permanent state of uncertainty, where I am constantly playing with my heater in an attempt to figure out whether I can afford to have the heater on when I'm home, or whether it's more cost effective to only have it running occasionally. While not eliminating all the uncertainty of heating costs from month to month, requiring landlords to provide tenants with a statement of prior usage for heat expenses would be very beneficial. It would at the very least provide potential tenants with a template for expected heating expenses and give an idea of how much it would cost to be reasonably comfortable during the winter months.

The second part of the problem is that because the building I live in is older, it is very energy inefficient. During particularly windy days, I can actually see the shades on my window move from strong gusts. Providing incentives to landlords and building owners to become more energy efficient, by making energy efficiency a valuable and necessary asset, would be advantageous to both the building owners and tenants. Building owners would see the value of their property rise as they installed energy efficient measures and tenants would reap the benefits by paying lower energy costs. Expanding and properly funding the energy efficiency program would be another way to

achieve the same outcome by allowing more customers to access these energy assessments, rebates and low interest financing and experience the dual perk of increased property value and lower energy costs. Strengthening and expanding the path to energy efficiency would provide positive benefits to such wide swaths of society, including homeowners, building owners, tenants as well as a struggling workforce, that the state should be jumping at the chance to make this investment for the sake of its citizens and businesses.

Thank you for the opportunity to submit this testimony.

Nina Huang

1401 Chapel Street

New Haven, CT 06511

Energy and Technology Committee
Public Hearing
March 7, 2013

Submitted by Lynn Taborsak, Climate Change Specialist
concerning

HB 6360: An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

The League of Women Voters of Connecticut is a non-partisan statewide organization comprised of 1600 members in 27 local chapters and committed to effective public policy and the active participation of citizens in their government. On behalf of the League, I would like to thank you for the opportunity to comment on this measure.

The League has consistently supported policies at the state level that reduce energy consumption, emphasize energy conservation and encourage the use of renewable resources. We are grateful that the legislature is considering a comprehensive strategy that will help mitigate the impact of climate change in our region. However, a continued emphasis must be placed on efficiency programs and renewable energy to combat global warming.

HB 6360 includes many worthwhile provisions that have made recurring appearances in the committee's bill book. We strongly support benchmarking and disclosure of energy usage in residential, commercial and public buildings. It will help create real competition among property owners and developers to achieve greater energy efficiency in their buildings. We all benefit from that competition with cleaner air, lower greenhouse gas emissions and green job creation in our state since most improvements will be done by in-state firms who hire local workers and purchase materials and supplies within our borders. We support time-of-use pricing for both UI and CL&P customers and sub metering to encourage the installation of renewable energy at multi-tenant commercial and residential buildings.

We also support robust efficiency efforts including equipment replacement and rate decoupling to achieve the maximum reduction in energy usage. However, the plans do not identify a funding mechanism for efficiency programs in homes and businesses that heat with oil or propane. The promotion of natural gas use over other fossil fuels should be tempered by an assessment of the environmental and public health impacts that the gas extraction process is known to cause. It should also be consistent with our long-term climate change goals. Tax incentives to switch fuels should be limited to homes and businesses currently on gas mains and should require efficiency as part of the conversion.

Finally, please support the growth of clean, regionally-produced renewable energy by maintaining the integrity of the Renewable Portfolio Standard.

Thank you for your consideration.

League of Women Voters of Connecticut 1890 Dixwell Avenue Hamden, CT 06514 203/288-7996

Garrett, Bernard

From: Katherine Freygan <kfreygang@gmail.com>
Sent: Wednesday, March 06, 2013 7:34 PM
To: ETTestimony
Subject: Public Outreach for 6360 Energy Strategy

Katherine Freygang
10 Pine Street
Cornwall CT 06753
860 488 0204

Re: Governor's Bill 6360- Energy Strategy

To Whom it May Concern,

This is a request that public outreach be placed and funded as a high priority.

Thank you for the opportunity to report from the NW Corner, an example of existing struggles in energy advocacy. I am a Cornwall resident and chair the Cornwall Energy Task Force. CETF has won awards from the Governor, CEFIA and the EPA for promotion and administration of educational and state energy programs such as Light-Up, Clean Energy Option and Home Energy Solutions. As Co-chair of the Environmental Ministries Team of the UCC Congregational, we, the ETM, has designed outreach programs that have been adopted throughout New England, the US and by other denominations. Professionally I am a retired Museum educator and architectural designer.

My request is that public outreach be addressed fully. What is lacking is **accessibility** to state energy programs (both CEFIA and CEEF).

Advanced accessibility would included:
-comprehensive marketing materials (varying and plentiful in media).
-ease of use, meaning a clear line of point-people for administration and information, and
-simplified financial structures (including timetables). Complex financial maneuvers are the greatest barriers to public participation.

For Example:
We just finished an HES Campaign that was mired by a complex rebate plan, delays in marketing materials, confusion as to eligibility, difficulties in registration, etc. In three months of tireless work, we finished 30 completed audits with 15 more registrations. Meanwhile, the town of Sharon used a grant to create a completely free program. In two months they enlisted 240 homes. We found an annual savings from the audit repairs alone to be $350 per home making the program well worth promoting.

There are 3 important spin offs from this request for advancing public outreach.

Firstly there is potential for local jobs in the areas of marketing, data collection and administration.

Secondly, we have have a burgeoning population of elders to consider. They want to stay in their homes, are on fixed incomes, feel the pressures of increased energy bills, and are unable to administer complex incentives, often falling through the cracks being not quite low income.

Thirdly, making energy conservation and production as visible and local as possible keeps the issue a matter of local concern and consciousness. Seeing solar collectors and re-opened hydro plants stimulate discussion and action. I get calls requesting information on solar because we outfitted our school and people want to know about home-hydro possibilities.

People are ready for local involvement but need accessible tools and incentives. The need for advanced public outreach would become the source.

Many thanks for this opportunity to contribute to this bill and strategy,

Sincerely,

Katherine Freygang

Katherine Freygang
01 860 488 0204

Garrett, Bernard

From: Katherine Freygan <kfreygang@gmail.com>
Sent: Wednesday, March 06, 2013 7:31 PM
To: ETTestimony
Subject: Revised Renewable Energy Portfolio for HB6360 -Energy Strategy

Katherine Freygang
10 Pine Street
Cornwall CT 06753
860 488 0204

Re: Governor's Bill 6360- Energy Strategy

To Whom it May Concern,

This letter is to express my concerns regarding the revised Renewable Portfolio Standard and the proposed development of natural gas.

I am an ecologist, educator, volunteer and mom in Cornwall. To me, the last decade has demonstrated that our long-term view should emphasize a diverse energy portfolio that relies on local production. We learned this from relying too heavily on foreign oil.

Turning into natural gas as the solution is too similar to our original mistake, not only because of the distance and singular focus but also because the technologies are unregulated, unproven and eventually threaten the quality of our most precious commodity, water. Using hydro from Canada has similar flaws, but I'll get to that later.

I live about six miles from the border of New York. With regard to natural gas production, we have access to testimonies from former energy commissioners, scientists, and various researchers from the Cary Institute in Millbrook, Cornell in Ithaca and the Sustainability Center at Cooper Union NYC among others. The most telling images of gas production and Fracking are the images of extensive fracture damage to the underlying bedrock, causing fissures that transfer production chemicals and naturally poisonous gasses into aquifers. The bedrock is the Canadian Shield, which extends horizontally from Canada to Long Island. The fracturing maps stop at the NY/ CT border because they were contracted by New York but geologically, we are included along with other parts of New England. This brings up grave questions. Has this research been extended? Have we tested our geology? Looking at potential damage from the ground plane, will we be able to protect new infrastructure from stronger storms?
Also, Collinsville and Falls Village have non-functioning fully operable hydro facilities that could be re-opened. Have we given Connecticut's more natural resource a chance?

Meanwhile in Canada, my family has a lake cabin on Lake Huron,150 miles north of Toronto. The Great Lakes are the largest source of fresh water on the planet. We have witnessed a drop of three feet in the water level in 50 years. Enlarged waterways for freighters and water funneled out of wetlands to make hydro-plants has siphoned this precious resource out to sea. With added glacial melt, the Lakes are beings flushed away and we are losing this precious natural resource. Power lies with the consumer on many scales. Please do not buy from Canada.

My request is to extend your research on natural gas, local hydro, and other renewables before you make any commitments, especially to natural gas, and please uphold a balanced portfolio in the end. Our long-term view should emphasize a diverse energy portfolio that relies on local production.

We are on the edge of real drama here for home, community, and generations to come, I'm afraid.

Thank you for considering the contents of this letter.

Sincerely,

Katherine Freygang

Katherine Freygang
01 860 488 0204

ClearEdge Power
195 Governors Highway
South Windsor, CT 06074
(860) 727-2200 Fax: (860) 727-2319

ClearEdge POWER

Testimony of ClearEdge Power
Regarding

House Bill No. 6360
AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Before the Energy and Technology Committee
March 7, 2013

Senator Duff, Representative Reed and members of the Committee:

ClearEdge Power appreciates the opportunity to convey its support for *House Bill No. 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.*

ClearEdge Power, a company located in South Windsor, CT and Hillsboro, OR employs approximately 444 people in the development, design, production and service of fuel cells for use in stationary power and transportation. ClearEdge Power supports the proposed changes within House Bill No. 6360, "An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy".

Today ClearEdge Power is producing fuel cells for stationary applications for energy generation with system efficiencies approaching 90%. Through the use of combined heat and power, our stationary fuel cells produce no combustion, minimal noise and ultra-low criteria air pollutants.

We support the revision in Section 5(3) to General Statute 16-244u which expands the definition of "customer host" to include leased or long term contracted virtual net metering facilities. By allowing third parties to lease or sign long term agreements with customer hosts of virtual net metered facilities, the State is favorably expanding the number of consumers who can use in-state Class I generation. We also support the expansion of eligible virtual net metering facilities beyond municipalities to include state and agricultural facilities. However, we strongly support the definition of "customer host" in Section 5(2) which specifies that all "in-state retail end users of an electric distribution company" are eligible to participate in the virtual net metering program. By allowing all retail end users of an EDC to participate, commercial and industrial businesses would be included. This would drastically expand the number of Connecticut businesses that could install and use Class I generation, which would decrease energy costs for Connecticut consumers and rapidly increase in-state job growth. If the commercial and industrial sector is left out of virtual net metering, the number of jobs realized by the State could be much lower than desired. The virtual net metering policy would also be inconsistent when compared to other commendable policies, namely the renewable energy credit program, potential property tax and also potential submetering law expansions.

Contact: Katrina Fritz
Email: katrina.fritz@clearedgepower.com
Website: www.clearedgepower.com

We support the revision in Section 5(4)(A) to General Statute 16-244u which increases the value of an unassigned virtual net metering credit. The definition in this section suggests an unassigned credit value equal to the generation portion of the electric rate plus eighty percent of the distribution portion. Increasing the value of the unassigned credit, which carries over to the next billing cycle, will allow virtual net metering facilities to maximize their on-site generation which also maximizes the environmental benefits for the State.

We support the increase in the number of beneficial host accounts for microgrids in Section 5(7)(B)(d). However, the limitation on the number of beneficial accounts the host can designate in Section 121(6)(d) of Public Act 11-80 may be counterproductive to the expanded host definition. By allowing a non-microgrid virtual net metering facility to designate more than five beneficial accounts, the network of customers utilizing Class I energy generation could grow significantly. The increase in Class I fuel cell systems will help to increase direct job growth in Connecticut within the energy and technology sectors and the related supply chain.

The language suggested in Section 5(7)(B)(e) is commendable. Increasing the statewide virtual net metering cap to $10MM will further advance the amount of clean generation within the State. This cap increase also accounts for the financial success of microgrids. Many of the microgrid proposals received by the Department of Energy and Environmental Protection through their Project Feasibility Application (PFA) suggested projects that would operate continuously under normal conditions, essentially as virtual net metering facilities. Due to the large amounts of generation proposed by some of these projects, the previous virtual net metering cap would have been easily exceeded, thus potentially making some of the microgrid projects unviable. For these reasons, a $10MM cap is a good starting point and likely required for successful microgrid deployment. The State should strongly consider eliminating the cap once the program establishes active participants and can be considered a definite success.

In additional support of microgrids, we also support the language in Section 8 which allows any state or municipal entity that owns or leases Class I generation as part of a microgrid to distribute the energy to buildings across a public highway or street. This will vastly expand the microgrid configurations allowed and should be commended.

To further expand the amount of Class I generation capacity, we support the language update in Section 6(a) to General Statute 16-19ff which allows submetering for commercial, industrial and mixed-use residential buildings that receive electric or thermal energy from a Class I resource. Allowing Connecticut consumers with multiple on-site meters to assign the energy produced by their Class I generator to fully maximize its output.

Although new language is not proposed in HB 6360 regarding utility ownership of Class I generation we recommend language be included to increase the 10 megawatt limit. Through the development of microgrids, the topic of ownership continues to resurface and without an increase in the amount of Class I generation the utilities can own, several high-quality microgrids may not come to fruition. Establishing a minimum megawatt floor or setting an ownership range above 10 megawatts may send a more positive message to the ratepayers about the clean energy goals for the state.

Contact: Katrina Fritz
Email: katrina.fritz@clearedgepower.com
Website: www.clearedgepower.com

The goals within Public Act 12-148 and Public Act 11-80 would benefit significantly from the proposed changes to the energy policy being heard today. Each change represents an increase in the amount of Class I energy generation installed within the State, which directly affects the number of direct jobs created and the implementation of an overall cleaner, more reliable and less expensive energy delivery system.

Thank you for the opportunity to express our desire for HB 6360 to meet the State's objective of the cleanest and most cost effective energy policy possible, and to provide comments as to how the intent of HB 6360 could facilitate additional positive economic impacts and job creation and retention in the State of Connecticut. We would be pleased to provide any information to the Committee and the staff in support of the consideration of this bill.

Contact: Katrina Fritz
Email katrina.fritz@clearedgepower.com
Website www.clearedgepower.com

AgriFuels LLC
222 Pitkin Street
East Hartford, CT 06108

Public Hearing – Thursday, March 7, 2013
ENERGY AND TECHNOLOGY COMMITTEE

Testimony Submitted by Paul Hoar

GOVERNOR'S Bill No. 6360 an Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

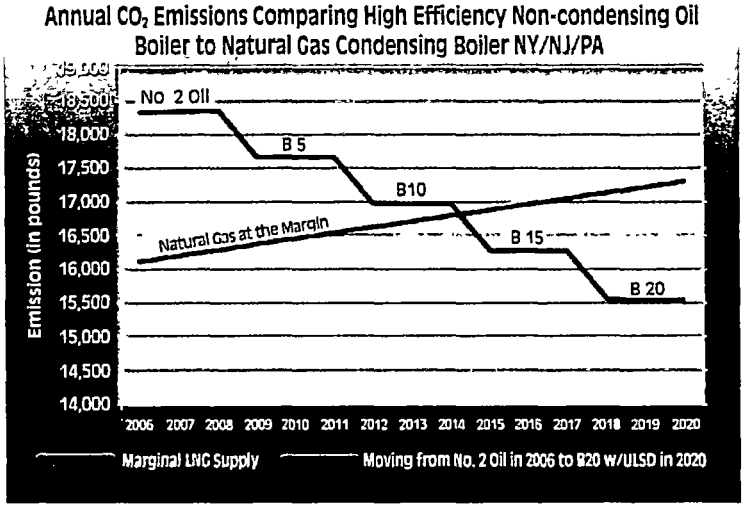
Thank you for the opportunity to submit testimony in favor of Bill No. 6360

I support the inclusive nature of utilizing the fossil fuel natural gas because it is cleaner burning and less expensive. However, the low cost of natural gas now belies the fact that encouraging reliance on "the grid" of new pipelines which might be damaged during major storm or "earth movement" events does add an element of risk which is counter to the encouragement of "Micro-Grids" in the electrical power industry for the reduction of risk of loss of service during one of these major events. I would encourage maintaining the infrastructure of the "dual fuel" nature of heating oil and natural gas in case such events should occur, where economically feasible. New high efficiency heating oil burners are designed to be able to utilize both fuels. Additional information on the capabilities of these new heating oil burners can be obtained from the Connecticut Energy Marketing Association in Cromwell, CT and the National Oilheat Research Alliance.

Prior to the advent of lower cost natural gas, when PA 10-74 was passed, the mandated use of biodiesel in conjunction with the reduction of sulfur was approved to supply a fuel that was cleaner than the very polluting 3000 ppm sulfur in use today in the nearly 500 million gallons of Number 2 petroleum heating oil consumed in the state annually. I support the current change noted in Section 18 of No.6360 as reducing the sulfur content to 15ppm Ultra Low Sulfur Diesel (ULSD) as soon as possible.

I would also encourage the use of up to 20% biodiesel (B20) in heating oil burners because a Brookhaven, NY Laboratory report indicated that if a blend of 15 ppm sulfur combined with a blend of greater than B12 resulted in emissions being "as clean as than natural gas" This is referred to the "Natural Gas at the Margin" effect and a chart illustrating the results of that study is included below. I would encourage the use of biodiesel according to the following schedule: Not later than July 1, 2014, all heating oil sold in the state shall be a biodiesel blend containing not less than two per cent biodiesel; Not later than July 1, 2015, all heating oil sold in the state shall be a biodiesel blend containing five per cent biodiesel; Not later than July 1, 2016, all

heating oil sold in the state shall be a biodiesel blend containing ten per cent biodiesel; Not later than July 1, 2017, all heating oil sold in the state shall be a biodiesel blend containing fifteen per cent biodiesel; Not later than July 1, 2020, all heating oil sold in the state shall be a biodiesel blend containing twenty per cent biodiesel.



I also support the removal of the sections in Section 18 requiring that the surrounding states of New York, Massachusetts and Rhode Island have "substantially similar" legislation in order for this reduction of sulfur and inclusion of biodiesel to become effective. The surrounding states will not have "substantially similar" legislation since New York is already incentivizing the use of biodiesel and ULSD petroleum by giving consumers a $.01 cent credit up to $.20 for B20 directly to encourage the use of B20 biodiesel as "Bioheat" for their oil burners.

In addition, I would encourage requiring a quality management system "similar to BQ 9000" be used by the producers and marketers supplying heating oil in CT as this is the standard recommended by the National Biodiesel Board. This is also the quality standard required by the CT Department of Transportation which has used over 3 million gallons of B20 on-road transportation biodiesel in its diesel vehicles since CY2000.

Thank you for the opportunity to provide testimony on this bill. If you should require any additional information, please contact me at paulhoar@agrifuels.com.

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Testimony of Lena Pavel
Before the Energy & Technology Committee

Regarding
HB 6360, AAC IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Submitted by
Lena Pavel
March 7, 2013

HB6531
HB6532
HB6535

Senator Duff, Representative Reed, and members of the Committee,

I am pleased to have the opportunity to comment on House Bill 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy. **I support the commitment to energy efficiency and a positive, long-term clean energy future for our state illustrated in this bill and in the CES.**

I am concerned about our state's contribution to climate change, and worry about the unhealthy air quality affecting our state.
In spite of having and efficient oil burner, and keeping my daytime heat at 60 degrees, I am having a difficult time paying for heating your home in the winter. I am interested in upgrades that could lower energy costs for my home.
I want to see Connecticut's economy grow sustainably with steady, well-paid, local jobs and innovative clean energy entrepreneurship.

To meet the state's carbon reduction targets, we must improve the efficiency of our buildings (particularly older housing and large commercial buildings), as approximately 40 percent of Connecticut's greenhouse gas emissions are generated by heating, cooling and providing electricity to our buildings. HB 6360 includes technical changes to finally **invest in all cost-effective efficiency measures** and help state efficiency programs operate more smoothly. Decoupling utility companies' revenue streams from actual energy usage will remove their disincentive to promote lower energy usage, making them stronger partners on promoting efficiency programs.

The state must still address the need for a **steady, fair and permanent funding stream that will allow residents who heat with fuel oil to fully access the state's efficiency programs**. I support the move towards cleaner fuel oil on the accelerated timeline described in the bill.

While conversions to **natural gas may be a necessary part of progress toward clean air, it should not be treated as a permanent solution**. I oppose all hydrofracking.It wastes too much water which is a scarce resource, without which, life cannot be sustained.
The state should compare all of the economic and environmental costs and benefits of expansions with other alternatives, such as energy efficiency measures or ground source heat pumps, and compare the job impacts. Natural gas conversions should be paired with efficiency improvements, to ensure that homes that convert to gas are not wasting that fuel. Perhaps most importantly,

Connecticut's natural gas plan should include a mechanism that ensures it is consistent with the state's long-term climate change goals.

Lastly, we must continue to **encourage the growth of truly clean, regionally-produced renewable energy by protecting the integrity of the Renewable Portfolio Standard.** I oppose HB 6531, which would dilute and weaken the RPS, and HB 6532, which would increase subsidies for trash incineration facilities. HB 6535 could be rewritten to incentivize other forms of clean energy without lessening incentives for wind and solar.

Please support strong clean energy and energy efficiency measures in HB 6360 for their benefits to our air quality and climate goals, for the cost savings these policies offer Connecticut residents, and for the additional economic activity and jobs this energy strategy will generate. Thank you for your consideration.

Sincerely,

Lena Pavel
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lpavel203@comcast.net

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CLEAN WATER ACTION

CONNECTICUT

Testimony of Roger Smith, Co-Director, Clean Water Action
Energy and Technology Committee March 7, 2013

Regarding Governor's Bill No. 6360 AAC IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Clean Water Action is a national environmental non-profit with 15,000 Connecticut members and has worked on energy policy in Connecticut since 1997. We have also promoted clean energy and energy efficiency at the town and residential level through the Clean Energy Communities initiative.

We strongly support the aim of the Comprehensive Energy Strategy to craft a long-term strategy to meet state goals regarding environmental protection, cost, security and reliability. This first CES is a positive development in that direction with many laudable recommendations that should be implemented immediately. In particular, Clean Water Action strongly supports this strategy's focus on investing in energy efficiency as the cornerstone of our state's energy policy.

We offer the following comments to improve aspects of HB 6360 which implement the CES, and also to add parts that are referenced in the CES itself but left out of the bill.

1. Natural Gas

We caution over-reliance of natural gas for heating, electricity and transportation, as natural gas is a finite fossil fuel and has gone through tremendous price swings in the past decade. Concerns over drinking water contamination are likely to limit the amount of "fracking" that will be done to extract natural gas, and if any export terminals are constructed there could be huge increases in natural gas prices (for example: natural gas sells for $3.50/MMBtu in CT and close to $16/MMBtu in Japan.) At a June 2012 presentation to the Council on Foreign Relations, Exxon CEO Rex Tillerson stated "What I can tell you is the cost to supply is not $2.50. We are all losing our shirts today. You know, we're making no money. It's all in the red."[1]

In addition, we are already seeing a regional collision between the use of natural gas for heating and electricity

> "In New England, a Natural Gas Trap", Matthew Wald, New York Times February 15, 2013. *"Electricity prices in New England have been four to eight times higher than normal in the last few weeks, as the region's extreme reliance on natural gas for power supplies has collided with a surge in demand for heating."*

We are concerned that the CES starts with the premise that it is advantageous to significantly build out natural gas infrastructure in Connecticut rather than start with the goal to reduce heating costs and to look at natural gas conversions as one tool to achieve that end.

[1] http://www.cfr.org/united-states/new-north-american-energy-paradigm-reshaping-future/p28630

We offer the following **recommendations** to improve this bill:

a. **Direct DEEP and PURA to Create a Portfolio of Heating Solutions**
We agree that Connecticut's continued reliance on heating oil is an economic and environmental challenge for the state. Fortunately there are multiple solutions to help residential and business customers. As the CES indicates that a significant portion of customers in Connecticut would never benefit from natural gas, even with the full pipeline build-out, we need the legislature to direct DEEP to create packages of solutions rather than pick natural gas as a winner.

DEEP should create packages customers can choose from and combine:

i. Oil efficiency (reductions of 20-50% are entirely feasible for existing structures): insulation, air sealing, high efficiency oil boilers and furnaces, heat pump water heaters, storm windows
ii. Electric heat pump conversions (to replace oil heat): air source heat pumps, ductless mini-split heat pumps, geothermal heat pumps, heat pump water heaters.
iii. Renewable energy solutions: solar water heating; combination solar PV and electric heat pump heating systems
iv. Natural gas conversions: high efficiency natural gas boiler or furnace and water heater.

b. **Direct DEEP and PURA to provide incentives and financing to all solutions**
The CES recommends various ways to finance natural gas expansions, and the governor's budget offers a special tax credit for gas conversions.
We urge the legislature to create a level playing field and provide convenient on-bill repayment of **any** of the above measures, and to **extend the $500 tax credit to anyone** who takes part in the above measures to reduce heating oil consumption. We should reward everyone who helps achieve the governor's goal of reducing heating oil use.

c. **Require basic building efficiency for gas conversions**
To protect consumers and the environment, the legislature should put basic minimal requirements in place for energy efficiency for anyone using state backed financing or receiving a natural gas hook-up. Financing programs must allow efficiency and conversions to be financed together.

There is no public purpose to taking a building that is wasting oil and spending public dollars to help it waste natural gas. Energy efficiency can avoid pollution and sending millions dollars out of the state economy to buy this fossil fuel. If natural gas is half the cost of heating oil, but then gas prices double over the next decade, a customer struggling to pay bills today will still struggle a few years from now.

- For residential customers, this should mean brining the home up to the standard of "weatherized," as DEEP has defined, which mostly means it has a minimal level of insulation. In addition, any new heating equipment installed should meet the US DOE EnergyStar standard.
- For commercial customers, any equipment installed should meet the EnergyStar standard.

d. **Natural gas infrastructure**
We oppose the change in this bill to extend the financing of natural gas infrastructure past 15 years as whether natural gas will be available and at a competitive price is unknowable. Under the CES, consumers could be paying back pipelines in 2044, which is extremely risky. The legislature should set a firm end date by which we will no longer pay back natural gas infrastructure.

2. Renewable Energy

We strongly support policies to diversify our energy supply with clean, renewable energy.

a. **Renewable Portfolio Standard**
We strongly oppose allowing large-scale dam-based Canadian hydro to qualify for incentives by Connecticut ratepayers. It simply sends money from Connecticut out of the country to support environmentally damaging projects that are backed by a foreign government. There are no additional reliability, energy price or environmental benefits from allowing large-scale Canadian hydro to count towards the RPS. It will have the effect of reducing investment in state and in-region in wind projects, fuel cells and other Class I technologies.

If Connecticut wishes to procure Canadian energy resources outside the RPS, it should do so through a competitive process that values energy, emissions and transmission costs, rather than by picking winners through special deals with companies like HydroQuebec.

b. **Require CT to participate in regional renewable energy solicitation**
The CES implementation bill needs to reduce CT's reliance on natural gas to generate electricity, with our subsequent vulnerability to increases in gas prices and supply disruptions.

Connecticut can meet its RPS goals at lower cost, stabilize electricity rates, and spur new projects by soliciting long-term contracts for electricity and RECs with in-region Class I generators. The other New England states are moving ahead with a regional procurement. The legislature should direct CT to join.

c. **Reject new trash incineration subsidies**
We strongly oppose additional subsidies from electric ratepayers to polluting, and increasingly uneconomic trash incinerators. The RPS is intended to support new and clean energy sources, and including existing incinerators in Class I (or creating a special class just for CRRA) wastes ratepayer money with

no additional value. As the state ramps up its nation-leading recycling, producer take back and composting programs, their economics will likely worsen. The legislature should not pick winners on waste and wrongly put incineration before source reduction and recycling.

d. Fix Virtual Net Metering

Virtual net metering is a great policy that can help break the siting barriers associated with renewable energy. Solar is not viable if a building is shaded by trees or has an old roof. Wind is strongest in Connecticut on hilltops and very close to the water. Fuel cells have minimum sizes of 300 or 400kW, which is too large for many buildings. Connecticut is full of parking lots, brownfields and other land that could be made productive, but these spaces do not consume electricity, so they can't be net metered.

We work with towns that would like to greatly expand their use of renewable energy, but are stymied by Connecticut's broken Virtual Net Metering pilot program.

We urge several changes:

i. Allow businesses, non-profits and municipalities to engage in virtual net metering (not just municipally owned systems)
ii. Remove the $1 million (or proposed $10 million) annual cap for virtual net metering and replace it with up to 2% of annual electric sales. Public entities should be exempt from this limit as these systems serve a public purpose.
iii. Allow virtual net metering to recoup most or all of the distribution costs as the presence of distributed generation is a net positive for the grid

e. **Commercial Renewable Property Tax Exemption**

We support expanding the property tax exemption which residential clean energy projects receive to commercial distributed Class I renewable energy generation. We know of towns that are in the bizarre situation of paying themselves property tax as they have signed solar power purchase agreements with a third party owner, and the agreement passes through the cost of municipal taxes. Other businesses avoid solar as they see that property tax is assessed on the capital cost of a system, which greatly penalizes solar PV, which is all capital cost and no fuel cost.

3. Energy Efficiency

a. Heating Oil Efficiency Funding Missing

While the CES itself talks about the need for stable funding for heating oil efficiency, there is no mention of it in the implementer bill. Without a permanent funding source for oil, heating oil customers will lose all access to Energy Efficiency Fund programs on July 1, 2013.

Customers who heat with natural gas and electricity contribute to the Energy Efficiency Fund and have full access to their programs. Heating oil customers also contribute on their electric bill, but pay less. As a matter of fairness, oil and propane customers should also contribute to the Fund, and then have access to rebates for oil boilers and furnaces, insulation, water heaters, as well as low-cost financing (currently at 0%, 2.99% and 4.99%).

DEEP estimates that a conservation charge of 3.5 cents/gallon will fully fund heating oil efficiency. For an average heating oil customer, that would mean less than $25 compared to the $2500 they spend on oil each year.

In past years the heating oil dealers have opposed this. This year they testified in unison on the CES about the many benefits of oil efficiency. Will they put their money where their mouths are?

b. CES Efficiency Fixes positive
We support critical changes in this bill to move to three year efficiency plans, the clarification to how funding approval works to achieve all cost-effective efficiency, and support coordination of energy and water conservation.

c. Other Efficiency Improvements Needed
As we ramp up efficiency investments as a state, it's critical to make sure that large groups of customers aren't left out and our state's programs are designed to meet their needs. To this end we support comments by ConnPIRG to balance the composition of the Energy Efficiency Board by adding more members focused on residential consumers (including elderly/hard to serve) and municipalities.

We also support giving the Energy Efficiency Board the authority to hire and fire their program administrator, to ensure that we choose the right one for the state.

Additionally, we support the legislature directing the Efficiency Fund and CEFIA to ramp-up effective community-based outreach strategies. This will be critical to reach customers who are skeptical of utilities and government.

4. Reliability

a. Safe and secure energy for each town
We support the microgrids program but $15 or $30 million doesn't go far enough. The goal should be that each town in Connecticut have shelter facilities able to house residents, conduct emergency operations, and meet basic food and medicine needs even in the event of disruptions in electricity, natural gas and gasoline supplies. We don't want to become like New Jersey and Long Island during Storm Sandy.

A portion of investments on new natural gas mains would be better invested to ensure the safety and well-being of Connecticut residents in emergencies and extreme weather events. Class III and LREC could be expanded and targeted to support generation for microgrids.

We support the critical change allowing microgrids to cross utility rights-of-way, as existing utility regulatory law likely makes the existing program unworkable.

b. Resilient Renewable Homes- create pilot program

The CES is largely silent on resiliency and reliability for individual residents. As the two 2011 storms and Superstorm Sandy demonstrated, energy policy can literally be life and death for residents. The current situation when a storm hits and the power grid goes down, results in entire communities losing electricity, communications, and as seen in New Jersey, also gasoline or diesel based transportation and emergency generators. At a community level we need some homes need to stay online and able to access radio and TV to get emergency information. We need some homes to have heat and power to help vulnerable neighbors through the crisis.

Connecticut needs revamp its renewable policies to incentivize and help finance residential solar power with in-home back-up systems (or electric vehicles), support renovations and new home construction which combine solar power systems, back-up and ductless heat pump heating. Over time all new homes constructed and renovated should be safe and secure homes.

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SOLAR Connecticut P.O. Box 515 Higganum, Connecticut 06441

MARCH 7, 2013 TESTIMONY FROM SOLAR CONNECTICUT, INC. IN SUPPORT OF HB 6363 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

Rep. Reed, Rep. Hoydick, Sen. Duff, Sen. Chapin, and members of the Energy & Technology committee, my name is Noel Lafayette. I am a member of Solar Connecticut and today I am presenting our members support and the support of others for the sections of Governor Malloy's Comprehensive Energy Strategy in H.B. No. 6360 as it relates to virtual net metering.

Late last year, *SolarConn* created a coalition of businesses in the solar, wind and fuel cell industries, end users, and others interested in clean energy, to come together to recommend improvements to the existing virtual net metering law (Sec. 5. Section 16-244u of the Connecticut General Statutes). It's our belief that the reason no clean energy projects have been completed under the current virtual net metering law is that the law is seriously flawed.

After months of consideration our coalition has agreed on a number of critical changes necessary to allow virtual net metering to flourish in Connecticut. Those changes are detailed on the attached mark-up of HB 6360.

In brief, the changes are:

1. Allow for 3rd party financing either in leases or Power Purchase Agreements in long term contracts.
2. Allow for commercial, agricultural as well as municipal and state facilities to install/participate/ finance VNM facilities.
3. "Virtual net metering credit" means a credit equal to the retail cost per kilowatt hour the customer host may have otherwise been charged for each kilowatt hour produced by a virtual net metering facility.
4. Allow for up to ten beneficial accounts per host customer if within same utility service area, and an additional five accounts if utilizing a microgrid.
5. Raise VNM cap from 10 million to 2% of the said utilities peak load.

Again, the specific changes we as a coalition are detailed in the attached mark-up. Also included is a matrix prepared by one of our coalition members that compares our changes to the existing law and the virtual net metering changes included in HB 6360.

Let it also be said that SolarConn also supports Bill 5587 regarding sub-metering.

I am pleased to answer any questions you may have.

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VIRTUAL NET METERING

COMPARISON TABLE – EXISTING TO PROPOSED

PARAMETER	SECTION 121	HB 6360	COALITION PROPOSAL
Eligible segments	Municipalities only	Municipalities, state govt., agricultural customers	Same as HB 6360 plus commercial
Eligible systems	Class I	Class I, III	Same as HB 6360
System size	2 MW	3 MW	Same as HB 6360
Beneficial accounts - number	5 accounts	5 accounts; 10 for microgrids and agricultural net metering	10 accounts; 15 for microgrids and agricultural net metering
System ownership	Host must own	Own, lease, or long term K	Same as HB 6360
Value of NEM credits	Generation only	Generation plus 80% of all non-energy charges	Same as HB 6360
Aggregate cap	$1 million in annual NEM credits statewide	$10 million in annual NEM credits statewide	2% of utility peak load

Sec 5 Section 16-244u of the general statutes is repealed and the following is substituted in lieu thereof (*Effective July 1, 2013*)

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(a) As used in this section.

(1) "Beneficial account" means an in-state retail end user of an electric distribution company designated by a customer host or an agricultural customer host in such electric distribution company's service area to receive virtual net metering credits from a virtual net metering facility or agricultural virtual net metering facility,

(2) "Customer host" means an in-state retail end user of an electric distribution company that owns, leases or enters into a long-term contract for a virtual net metering facility and participates in virtual net metering,

(3) "Agricultural customer host" means an in-state retail end user of an electric distribution company that uses electricity for the purpose of agriculture, as defined in subsection (q) of section 1-1, owns an agricultural net metering facility and participates in agricultural virtual net metering;

[(3)] (4) (A) "Unassigned virtual net metering credit" means, in any given electric distribution company monthly billing period, a virtual net metering credit that remains after both the customer host and its beneficial accounts have been billed for zero kilowatt hours related [solely] to the generation service charges and eighty per cent of the distribution and other service charges on such billings through virtual net metering;

(B) "Unassigned agricultural virtual net metering credit" means, in any given electric distribution company monthly billing period, an agricultural virtual net metering credit that remains after both the agricultural customer host and its beneficial accounts have been billed for zero kilowatt hours related to the generation service charges and eighty per cent of the distribution and other service charges on such billings through agricultural virtual net metering;

[(4)] (5) "Virtual net metering" means the process of combining the electric meter readings and billings, including any virtual net metering credits, for a municipal, commercial, state or agricultural customer host and a beneficial account related to such customer host's account through an electric distribution company billing process related [solely] to the generation service charges and eighty per cent of the distribution and other service charges on such billings,

[(5)] (6) "Virtual net metering credit" means a credit equal to the retail cost per kilowatt hour the customer host may have otherwise been charged for each kilowatt hour produced by a virtual net metering facility that exceeds the total amount of kilowatt hours used during an electric distribution company monthly billing period, and

[(6)] (7) (A) "Virtual net metering facility" means a Class I renewable energy source or a Class III source that [(A)] (i) Is served by an electric distribution company, owned, leased or subject to a long-term contract by a customer host and serves the electricity needs of the customer host and its beneficial accounts; [(B)] (ii) is within the same electric distribution company service territory as the customer host and its beneficial accounts, and [(C)] (iii) has a nameplate capacity rating of [two] three megawatts or less, and

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(B) "Agricultural virtual net metering facility" means a Class I renewable energy source that is operated as part of an agricultural business, as defined in subsection (q) of section 1-1 that: (i) Is served by an electric distribution company on land owned or controlled by an agricultural customer host and serves the electricity needs of the agricultural customer host and its beneficial accounts, (ii) is within the same electric distribution company service territory as the agricultural customer host and its beneficial accounts; and (iii) has a nameplate capacity rating of three megawatts or less

(b) Each electric distribution company shall provide virtual net metering to its municipal, [customers] commercial, state or agricultural customer hosts and shall make any necessary interconnections for a virtual net metering facility. Upon request by a municipal, commercial, state or agricultural customer host to implement the provisions of this section, an electric distribution company shall install metering equipment, if necessary. For each municipal customer host, such metering equipment shall (1) measure electricity consumed from the electric distribution company's facilities, (2) deduct the amount of electricity produced but not consumed, and (3) register, for each monthly billing period, the net amount of electricity produced and, if applicable, consumed. If, in a given monthly billing period, a municipal, commercial, state or agricultural customer host supplies more electricity to the electric distribution system than the electric distribution company delivers to the municipal, commercial, state or agricultural customer host, the electric distribution company shall bill the municipal, commercial, state or agricultural customer host for zero kilowatt hours of generation and assign a virtual net metering credit to the municipal, commercial, state or agricultural customer host's beneficial accounts for the next monthly billing period. Such credit shall be applied against the generation service component [of] and eighty per cent of the distribution and other service charges billed to the beneficial [account] accounts. Such credit shall be allocated among such accounts in proportion to their consumption for the previous twelve billing periods.

(c) An electric distribution company shall carry forward any unassigned virtual net metering generation credits earned by the municipal, commercial, state or agricultural customer host from one monthly billing period to the next until the end of the calendar year. At the end of each calendar year, the electric distribution company shall compensate the municipal, commercial, state or agricultural customer host for any unassigned virtual net metering generation credits at the rate the electric distribution company pays for power procured to supply standard service customers pursuant to section 16-244c, and eighty per cent of the distribution and other service charges.

(d) At least sixty days before a municipal, commercial, state or agricultural customer host's virtual net metering facility becomes operational, the municipal, commercial, state or agricultural customer host shall provide written notice to the electric distribution company of its beneficial accounts and the percentage of virtual net metering credits it wishes to allocate to each beneficial account. The municipal, commercial, state or agricultural customer host may change its list of beneficial accounts not more than once annually by providing another sixty days' written notice. The municipal, commercial, or state customer host shall not designate more than ten [five] beneficial accounts, except that for facility accounts connected to a microgrid, the municipal or state customer host may identify up to five additional nonstate or municipal critical facilities, as defined in subdivision (2) of subsection (a) of section 16-243y. The agricultural customer host shall not designate more than ten beneficial accounts each of which shall use electricity for the purpose of agriculture, as defined in subsection (q) of section 1-1.

(e) On or before February 1, 2012, the [Department of Energy and Environmental Protection] Public Utilities Regulatory Authority shall conduct a proceeding to develop the administrative processes and program specifications, including, but not limited to, a cap of [[one] ten million dollars per year apportioned to each electric distribution company based on consumer load for credits provided to beneficial accounts pursuant to subsection (c) of this section and payments made pursuant to subsection (d) of this section] two percent of each electric distribution company's 2012 peak demand. When eighty percent of this cap has been reached, the Public Utilities Regulatory Authority shall conduct a proceeding to determine whether the program should be expanded beyond the two percent cap.

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(f) On or before January 1, 2013, and annually thereafter, each electric distribution company shall report to the [department] authority on the cost of its virtual net metering program pursuant to this section and the [department] authority shall combine such information and report it annually, in accordance with the provisions of section 11-4a, to the joint standing committee of the General Assembly having cognizance of matters relating to energy.

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CONNECTICUT WORKING FAMILIES WF

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March 7th, 2013

To the Co-Chairs and members of the Energy and Technology Committee

Testimony regarding House Bill 6360 An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Submitted by Elise J. Willer, Legislative Policy Organizer

Senator Duff, Representative Reed, and members of the Committee,

Thank you for the opportunity to comment on House Bill 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.

I am testifying today in two different capacities. One on behalf of CT Working Families, an organization dedicated to the economic livelihoods of middle and working class families in Connecticut. Secondly, as a fellow human affected by climate change and concerned about the reality that we have but one earth to share. Sometimes it can be difficult to see how, in the short term, these two interests can work in tandem but that is not the case in Connecticut. In Connecticut we have already identified energy efficiency as a significant part of our energy future.

The Comprehensive Energy Strategy did a commendable job demonstrating that increased energy efficiency is one of the best ways to bring down energy bills, create jobs, and help reduce Connecticut's carbon footprint. It did such a good job that Working Families is suggesting even stronger policies to invigorate our existing programs and expand them to reach every corner of the state.

The establishment of the Energy Efficiency Fund has resulted in many programs that are already helping Connecticut homeowners and businesses reduce their energy costs by providing subsidies for energy audits, furnaces, boilers and other energy saving projects. However, the only contributors to this fund and subsequently the only people with access to the energy savings (past June 2013) are natural gas and electric ratepayers. With around 50% of the state heating their home with oil, we need heating oil customers to pay their fair share. As such, Connecticut Working Families supports the establishment of a stable funding source for heating oil energy.

Much of the Comprehensive Energy Strategy is focused on a large natural gas build-out potentially resulting in 300,000 homes converting to natural gas as their main energy

CONNECTICUT WORKING FAMILIES WF

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source. It seems logical to Working Families that if the reasons for such a large natural gas build-out are jobs, reduced energy bills and saving the environment; that energy efficiency measures that accomplish the same goals potentially even beyond the life of natural gas should then accompany any natural gas expansion. As such, Working Families supports integrating energy efficiency into all natural gas conversions.

While analyzing Connecticut's residential energy efficiency programs, it became apparent that reaching our goal of 80% weatherization might not be possible without increased participation and a real commitment to achieving deeper energy savings. We believe that the key to overcoming these obstacles is supporting community organizations and members in energy efficiency grassroots outreach. Working Families supports the development of a statewide community based approach to increase home and business retrofits while also addressing issues in under-served communities.

Finally, as we think about Connecticut's energy future, it is critical that we think about the jobs that we are creating. An increased energy efficiency fund, a major natural gas expansion, and greater demand for energy efficiency measures will naturally result in hundreds of new jobs. But instead of leaving it at that- the creation of jobs- I encourage Connecticut to take one more step and not just create jobs, but create careers, create a new green economy where people are paid living wages and are benefitted accordingly. Working Families supports adding wage and benefit standards to any Request For Proposals resulting from legislation associated with the Comprehensive Energy Strategy.

The foremost idea of this testimony is Energy Efficiency. By doubling our energy efficiency fund, combining energy efficiency and natural gas conversions, supporting energy efficiency community outreach, and encouraging fair labor practices for energy efficiency Connecticut will be on track for a job creating, cleaner, healthier, and more reliable energy future.

Thank you.

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Wilcox Energy

March 7, 2013

Co-Chair Bob Duff
Co-Chair Lonnie Reed
Senator Clark J. Chapin
Representative Laura R. Hoydick

Energy and Technology Committee:

I am submitting testimony in **support of section 18 and in opposition to section 19 of H.B. 6360**, AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY.

My name is David Foster, I grew up in my families heating oil business located in Seymour and now I own Wilcox Energy located in Westbrook with my partner. I am on the Connecticut Energy Marketers Association's (CEMA) Board of Directors and I serve on the state of Connecticut's Heating and Cooling Licensing Board.

I am here today to voice my **support for the language in section 18 of H.B. 6360** that would reduce the sulfur content of home heating oil from 3,000 parts per million (ppm) to 15ppm, and removes the language in the law that would require Connecticut to wait for the states of New York, Massachusetts and Rhode Island to have a similar standard.

An ultra low sulfur heating oil (15ppm) will burn cleaner and bring benefits to the environment and my customers. Our industry has reduced the fuel consumption in the average home from 1,300 gallons per year to 800 gallons since the 1970's. With the changes proposed in section 18, my customers will be able to use a cleaner burning fuel.

I am **opposed to section 19 of H.B. 6360** that proposes to set into law a 25 year "hurdle rate". My basic understanding of how the hurdle rate works is that it would allow the natural gas utilities to lower the standards that they have used in the past to facilitate conversions from heating oil to gas.

I have been told that this is a way to provide more choices to consumers who do not have a gas line on their street. Well if that is the case, it raises the question why under the current rules natural gas is not attractive enough for consumer to demand it and the utilities to make it avlaaible?

I can tell you that when I wanted to grow my business I went to a bank, obtained a loan and took a business risk to try to do better. I was not guaranteed a return, it was not certain that I would succeed and at no point was able to raise my prices to my customers to pay for my expansion!

But it seems that the proposal to change the hurdle rate provides protections to the utilities while leaving existing ratepayers with the bill to pay. Reducing upfront costs to new customers and being allowed to spread the remainder of the costs among the natural gas monopolies existing customers seems unfair.

I understand that in 2012 PURA rejected a similar proposal to increase the hurdle rate, in what I imagine was an effort to protect ratepayers from higher natural gas rates. Shouldn't the regulators decide what is in the best interest of ratepayers so that they can take into account all the factors before the hurdle rate is set?

If I am expected to compete with large utilities, then I would ask that the legislature not change the rules to favor one business over another. As publically traded companies, the natural gas utilities have immense capital resources that they can bring to bear if they choose to. Let them invest their own money if they want to lay new lines and gain new customers. Why should the existing ratepayers be required to pay for the utilities infrastructure?

I recommend that language be added to this section that prohibits the utilities from passing the cost of expanding their infrastructure to existing ratepayers. All costs that are involved in expanding their market should be the responsibility of their new customers and/or their shareholders.

Connecticut needs fuel neutral energy policies that promotes conservation not fuel conversion!

I ask that the Energy Committee amend the language in **H.B. 6360,** AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY to prohibit monopolies from recovering their costs from their existing ratepayer when they expand their infrastructure.

Thank you. I would be happy to answer any questions you may have.

Respectfully,

David Foster

Wilcox Energy

#24

energy API

Connecticut Petroleum Council
A Division of API

Steven Guveyan
Executive Director

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March 7, 2013

Testimony of
Steven Guveyan, Connecticut Petroleum Council
In Opposition to Sec. 18, Lines 795-797, HB-6360, Low-Sulfur Heating Oil Fuel
Amendments Recommended

The Connecticut Petroleum Council---a trade association representing major oil companies, refiners and terminal operators doing business in Connecticut---strongly opposes Sec. 18 (lines 795-797) of HB-6360, and seeks to amend it before the bill moves forward. It requires reducing the sulfur content of heating oil from 3,000 parts per million (ppm) to 50 ppm immediately upon passage of the bill, and to 15 ppm beginning July 1, 2013. If passed as written, the immediacy of the two-step reduction threatens to place extreme price and supply pressure on heating oil and diesel fuel consumed in this state, because no one has been given the necessary lead-time to prepare for the change in fuel specifications. We know of no manufacturer of any consumer product in any state that has been required to change its chemical composition twice in such a short time-frame with no advance notice.

Instead, we propose more rationale change: Allow the refining industry a two-part step down in reducing sulfur levels: Four (4) years to get to 500 ppm, and then 2 additional years to reach 15 ppm, a time period normally granted by EPA when fuel rules change. If that is deemed too long, then as an alternative, we ask you to: (1) Amend HB-6360 and insert a 500 ppm standard, effective 7/1/14; (2) delete the 50 ppm standard altogether; and (3) add a 15 ppm standard becoming effective on 7/1/18, thereby making the Connecticut rule consistent with the Massachusetts rule, and allowing for the free flow of fuel between the two states, which is substantial. The move to 500 ppm fuel by 7/1/14 means the state will get an 84% reduction in sulfur content very, very quickly. We don't believe it can be done effectively in any less time than that, and even that time-frame is very tight.

We strongly advise against the 50 ppm standard in the bill, because there is no 50 ppm standard anywhere in the U.S.; we also advise against making any such change in fuel rules effective upon passage, or as soon as 7/1/13, or changing it twice in such a short time-frame, because most fuel is bought and sold under long-term supply contracts. If the bill is not amended, the price impact on heating oil and diesel customers here potentially could be quite severe.

LOW-SULFUR FUEL

Currently, motor vehicles are required to use 15 ppm ultra-low sulfur diesel fuel (ULSD). An

immediate move (7/1/13) to 15 ppm for ultra-low sulfur heating oil means that homeowners and businesses will be consuming the same fuel that trucks and buses use, thereby putting homeowners in direct competition with diesel fuel users, such as trucks. Demand for diesel fuel is growing world-wide, and prices are high---higher than for standard heating oil. If passed as written, Sec. 18 will place extreme pricing pressure on diesel fuel and home heating oil, which according to this bill, would now effectively be the same fuel. Passing the bill without amending it means you support moving needlessly from a lower-priced fuel to a higher-priced fuel, one that will impact every low-income and middle-class family that uses home heating oil. It most likely will also impact every diesel user and trucker in the state, since the heating oil industry will now be buying ULSD for homeowners to burn, and ULSD will be in short supply.

The price differential between 15 ppm ULSD and standard 3,000 ppm heating oil in New York Harbor shows ULSD (diesel) to be almost always more expensive; the wholesale price spread ranged up to 20 cents-per-gallon more this past fall, according to The Wall Street Journal. Had Sec. 18 of HB-6360 passed last year, homeowners in Connecticut would have been paying substantially higher heating oil costs this winter.

The 15 ppm standard for ULSD was introduced in order to enable advanced after-treatment devices on engines that reduce tailpipe emissions in cars, trucks and buses. Removing sulfur was a prerequisite to avoid damage to catalytic after-treatment devices. The use of 15 ppm fuel is NOT required for homeowner burners, boilers and furnaces.

In extremely cold weather, ultra-low-sulfur (15 ppm) kerosene may be needed to increase lubricity, and that fuel historically is in short supply.

Finally, there is a strong likelihood that requiring ultra-low-sulfur heating oil will increase greenhouse gas emissions, in direct conflict with the legislation passed by the Connecticut General Assembly in 2008 (HB-5600, PA 08-98) requiring a 10% reduction in greenhouse gas (GHG) emissions by 2020 compared to 1990 levels, and an 80% reduction by 2050 compared to 2001 levels. Removing sulfur is an extremely energy-intensive process which will emit GHG's to burn the fuels needed to de-sulfurize. De-sulfuring of distillates (heating oil and diesel fuel) is generally accomplished by hydro-treating. To produce the hydrogen needed for hydro-treating, most refineries must "crack" natural gas or refinery fuel gas to obtain the hydrogen needed for the process. The result of this process is, ironically, to produce large amounts of carbon dioxide (CO_2), because the carbon atom being cracked is oxidized to CO_2. The amount of hydrogen needed for hydro-treating the part of the distillate pool not already at 15 ppm is significant. Therefore, a decrease in sulfur, especially to 15 ppm, will likely yield more greenhouse gases.

We bring to your attention the fact that although greenhouse gases (GHG's) emitted from refineries in order to produce low-sulfur home heating oil are out-of-state (e.g. Philadelphia, Delaware, NJ and the Gulf Coast), the Connecticut law passed in 2008 requires DEEP to use full life-cycle analysis when studying greenhouse gases, which means those emissions in out-of-state refineries somehow need to be offset here in Connecticut---a problem which no one has yet solved!

If necessary, we recommend convening a small working group to re-draft Sec. 18 of the bill. Thank you for taking our testimony.

#23

IN SUPPORT OF *Governor's Bill No. 6360*

TESTIMONY OF MICHAEL FOOTE
REGULATORY AND CORPORATE COUNSEL
NWP SERVICES CORPORATION

March 6, 2013

Ladies and Gentlemen of the Committee, my name is Michael Foote, Regulatory and Corporate Counsel for NWP Services Corporation, the largest utility billing provider in the Country to the multi-family industry, and representing the interests of apartment owners throughout Connecticut.

I'm here today to not only speak in support of Governor's Bill No. 6360, but propose that it be amended to specifically allow multi-family property owners the ability to bill back for a portion of their water and sewer charges either through the use of a submeter or a Ratio Utility Billing System ("RUBS").

Proposed Section 6 of this bill would require that each electric company or electric distribution company allow the installation of submeters for, among other enumerated uses, multi-family residential or multiuse buildings where the electric power or thermal energy is provided by a Class I renewable energy source, as defined in section 16-1, or a combined heat and power system, as defined in section 16-1, or (4) in any other location as approved by the authority [and] where submetering promotes the state's energy goals, as described in the Comprehensive Energy Strategy, while protecting consumers against termination of residential utility or propane service or other related issues.

While we believe this is a great start, it does not go far enough in promoting overall conservation of natural resources, nor does the rest of the bill elaborate on a stated goal of the legislation, which is "conservation of water resources."(C) (3) (H).

In an effort to help unify the treatment of energy conservation with the importance of water conservation, we believe it is appropriate to include language in this legislation authorizing the use of water submetering by statute without further review and approval from PURA, as well as clarifying the legality of RUBS billing in Connecticut.

While water submetering has historically been allowed upon petition and review by PURA, the legality of RUBS billing, which will be described in more detail in this testimony has been a grey area.

CONSERVATION

As you may be aware, both submetering and RUBS billing have become extremely common throughout the United States over the past 15 years because they produce significant conservation benefits. Submetering of water and sewer usage is a way to measure exact consumption (in the case

of submeters that measure all water usage) or partial consumption (in the case of meters that capture only the hot or cold water used in a unit).

RUBS is an economic allocation methodology by which a resident pays for his or her consumption taking into account factors such as the number of occupants in an apartment unit, the size of the unit, the number of water using fixtures or a combination of these and other factors. A large study compiled by the National Apartment Association ("NAA) and the National Multi Housing Council ("NMHC"), demonstrated that properties that submeter or use RUBS billing use between 6 and 39 percent less water than properties that keep these costs embedded in rent. Specifically properties that used RUBS allocation methods saw a reduction of approximately 6-18%. * This is the case because when an apartment resident is required to pay for his or her share of water service, regardless of the means used, they will manage usage more carefully.

In addition, we have observed that submetering and RUBS billing also benefits the wastewater treatment side of this process. When a person draws less water from the tap, less water is necessarily sent down the drain. Thus, for every gallon of water that is saved as a result of water conservation, approximately one less gallon of wastewater is created. This often means that the local sewage treatment plant has less stress on it, and the plant's operating costs may be lower. More importantly, the treatment plant will not need to expand as often, which may result in significant taxpayer savings.

If water and sewer billing are left in rent, (which is the case in most of Connecticut because of the burdensome process of having submetering approved by PURA and the uncertainty surrounding the legality of RUBS billing,) a resident has absolutely no incentive to conserve. Separate those same commodity charges from rent, whether through submetering or RUBS billing, and now the resident sees the impact their conservation has on their bill and as a result, uses less precious natural resources.

Nationwide, for apartment properties that have no billing program in place, the average dwelling unit uses about 150 gallons per day of water. Using the conservation results from the NAA/NMHC study, estimates can be developed for the conservation levels that are achievable in Connecticut.

- If a dwelling unit were subject to a billing program, the residents of that unit would save up to 58 gallons of water per day.
- During the course of a year, the residents of that dwelling unit would save up to 21,000 gallons of water.
- During the course of a year, the residents of a typical apartment property of 250 dwelling units would save as much as 5.3 million gallons of water.
- If all of the approximately 140,000 apartment units in Connecticut were allowed to be billed separately for water usage, this could save up to 3 billion gallons of water per year.
- The flow of wastewater would similarly be reduced in the billions of gallons.

*Submetering, RUBS, and Water Conservation. Prepared by Doug Koplow and Alexi Lownie of industrial Economics, Inc. for National Apartment Association and National Multi Housing Council. June, 1999.

BUSINESS CONSIDERATIONS

Property owners across the country now submeter or use RUBS billing on a significant

percentage of their portfolios. If Connecticut does not provide a property owner with the freedom or opportunity to submeter without the current burdensome process, and clarify that RUBS is in fact not prohibited, this can easily cause a Real Estate Investment Trust or other property owner to avoid investing additional funds in Connecticut, thereby potentially reducing Connecticut's tax base. Submetering and RUBS billing have become such a big deal that the valuation of a property when purchased or sold often rides on the ability to pass on a fair share of cost to residents through these types of programs.

APARTMENT RESIDENT REMEDIES

At the same time, we understand and agree with the need for fairness and resident protections. Payments to the landlord by its resident, whether for rental or other services such as utilities are governed by the rental agreement. Whether the resident or the landlord has breached that agreement is a matter for the civil courts to determine. These civil courts provide the resident with adequate remedies in cases where the landlord engages in submetering or RUBS billing of their property. Complaints regarding submetering and RUBS billing are similar in nature to complaints involving improper rent increases, uninhabitable premises, failure to make necessary repairs and other historically landlord-tenant issues that can and are routinely and best solved by the landlord and tenant.

Additionally, most national billing companies have better and more responsive customer service than even local utility providers for resolution of concerns.

POTENTIAL FOR RENT INCREASES

It is also the case that if a property owner cannot easily submeter and has no clarity over the legality of RUBS billing, the ever rising costs of utilities will certainly be passed along to the residents in the form of rent increases each year.

Tenant Benefits

Submetering and RUBS billing also empowers residents. We believe billing of residents puts them into a position to control their own utility costs. Conversely, if utility costs remain embedded in the rent, individual residents will have little or no opportunity to lower their utility costs through conservation.

Environmental Benefits

Submetering and RUBS billing also benefits the environment. In many areas, we have seen drought conditions so severe that local water providers are forced to make property owners adhere to mandatory conservation plans, allowing them only to irrigate on a staggered schedule. Proactive conservation by making water submetering less burdensome and clarifying the legality of RUBS billing could help to avoid situations such as these.

BEST PRACTICES GUIDELINES FOR RECOVERING WATER AND SEWER COSTS IN APARTMENT PROPERTIES

We propose that this bill add the following best practices used in most areas of the Country which provide a balance between allowing the property owner to bill, while still affording the resident with many built-in protections.

1. Billing method. *Water and sewer utility bills may be issued to residents on a submetered or RUBS basis.*

2. Not dedicated to public use. *Water and sewer service will not be provided to anyone who* is *not a resident of the property*

3. Pass through of costs. *The property owner may only recover amounts up to the total utility bills received by the property owner from the local utility. In addition, they may charge a reasonable billing fee, account setup, late fees and NSF fees.* Billing fees cover the costs of reading the submeters, calculating RUBS bills, collecting data, preparing and mailing bills, and collecting money remitted from the issuance of bills. They are also used to cover the costs of providing a highly knowledgeable customer service group to handle resident inquiries.

4. Resident complaints. *Methods shall be specified to express and resolve complaints regarding the billing service.* In some cases, property owners have put language in the lease agreement, notifying residents of the process by which complaints will be resolved.
5. No shutoff of service. *The residents' water and sewer service shall not be shut off if they do not pay their bill.*
6. Rental agreement. *The details of the water and sewer billing arrangement shall be fully disclosed in the rental agreement.*
7. Information to be included in regular billings. *The bills should clearly set forth all relevant charges and other pertinent information, including information on how to question a bill*

Conclusion

With the overwhelming conservation benefits of submetering and RUBS billing and the almost universal acceptance of the practice in the United States, NWP Services Corporation respectfully urges that this Committee include language that would make submetering automatic by way of statute without the need for further PURA approval, as well as clarifying that RUBS billing is legal in Connecticut. At the same time, the best practices outlined above should be incorporated to clarify the balance between the owner's right to bill and resident protections.

#15

STATEMENT OF MATTHEW KNICKERBOCKER

FIRST SELECTMAN, TOWN OF BETHEL

IN SUPPORT OF GB 6360 – AN ACT CONCERNING IMPLEMENTATION OF

CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

MARCH 7, 2013

Senator Duff, Representative Reed, and members of the Joint Committee on Energy and Telecommunications, my name is Matthew Knickerbocker and I am the First Selectman for the Town of Bethel. Thank you for allowing me to testify in support of the virtual net metering provisions of GB 6360.

The Town of Bethel is committed to the use of renewable energy as part of a comprehensive strategy to lower energy costs and reduce our environmental footprint. In keeping with this goal, in January of 2012 the Town issued a Request for Proposal (RFP) seeking bids from project developers for a 1 megawatt solar generation facility located at the town's closed solid waste management facility. Given the rather limited on-site energy use at the landfill facility itself, the expectation was that this ground mounted solar system would offset the usage of other, more significant municipal loads throughout the town including the town hall, school complex and police station under a virtual net metering configuration. This arrangement would not only enable the Town to put to more effective use otherwise idle land, it would offer the town greater predictability and control of our energy costs through a long-term power purchase arrangement (PPA) with the winning developer. Further, a PPA would obviate the need for Bethel to seek additional bonding authority, and assume the technology risk as would be required were Bethel to purchase the solar system outright.

Bethel received several proposals from competent solar developers. Without exception, the developers informed us that the viability of their proposals was contingent on reform of Connecticut's virtual net metering statutes. Specifically, Section 121's requirement that the Town own the solar system in order to be eligible to virtually net meter stood as an insurmountable barrier to our plans. Further, it became evident that Section 121's valuation of net metering credits at the wholesale generation rate would be an insufficient incentive for the Town to develop a cost-effective solar system capable of competing in the utilities' Zero Emission Renewable Energy Credit (ZREC) auction. In sum, it became readily apparent that the Town's plans for a virtually net metered solar system could not move forward absent a major change in law.

With that background, on behalf of the residents and businesses of Bethel, I am pleased to support GB 6360. Section 5 of this bill directly addresses the impediments to an effective virtual net metering program. Specifically, we support the provisions of the bill that would: 1) extend eligibility to systems subject to a long-term contract or lease; and 2) provide greater value for the net metering credits created by an on-site renewable energy system. If adopted by the General Assembly, we are confident that this legislation will breathe new life into our proposal, and the many similar proposals on the drawing boards in municipalities across Connecticut. It will afford us the opportunity to gain greater control over our energy costs, which represent a significant part of our overall budget, and enable the town to redeploy these savings to other important governmental functions.

We thank you for your consideration of this important matter.

Matt Knickerbocker
First Selectman
Town of Bethel
1 School Street
Bethel, CT 06801
(203) 794-8501

#16

Written Testimony of SolarCity

In Support of Governor's HB No. 6360 – An Act Concerning Connecticut's Comprehensive Energy Strategy; Particularly Sec. 5 Section 16 – 244u

Shaun Chapman, Deputy Director of Government Affairs

March 7, 2013

Senator Duff, Representative Reed, and members of the Joint Energy Committee, SolarCity offers this written testimony in support of HB No. 6360 An Act Concerning Connecticut's Comprehensive Energy Strategy. We are particularly supportive of Sections 5. Section 16-244u; as it pertains to Virtual Net Metering.

My name is Shaun Chapman; I serve as Deputy Director of Government Affairs for SolarCity. We sell renewable energy to our customers at prices below utility rates. We currently serve customers in 14 states, and we intend to expand our footprint internationally, operating in every market where distributed solar energy generation is a viable economic alternative to utility generation. We generate revenue from a mix of residential customers, commercial entities such as Walmart, eBay and Intel, and government entities such as the U.S. Military. We structure these customer agreements as either leases or power purchase agreements. Our lease customers pay a fixed monthly fee with an electricity production guarantee. Our power purchase agreement customers pay a rate based on the amount of electricity the solar energy system actually produces.

We are a leading provider of clean energy services in Connecticut; one of the key policy improvements that allowed SolarCity to do business in Connecticut was the passage of PA 11 – 80. As of the start March 2013, we now employ over 50 Connecticut workers. We offer both solar installation and energy efficiency services to homeowners throughout the country. Through our services, we make it easy for customers to switch to cleaner energy by taking a comprehensive look at our customers' energy usage and identifying opportunities for improvement.

We are pleased to offer this testimony of support for HB No. 6360 An Act Concerning Connecticut's Comprehensive Energy Strategy, as we believe it is in keeping with Connecticut's top-to-bottom strategy for deploying least cost clean energy systems. Public Act 11 – 80 went a

long way to encouraging the deployment of these systems, following up on this bold leadership with the passage of this bill will continue to drive consistent, responsible deployment of cost effective renewable energy.

We are supportive of the arrangement known as Virtual Net Metering (VNM) as we believe it is another policy tool that allows all citizens to participate in the solar value proposition, further democratizing the choice to go solar. Participating in clean renewable energy should not be limited to those with access to a large roof, a big back yard, or those willing to cut down trees. We believe this is an area where PA 11 – 80 attempted to make improvements, but fell short given unanticipated challenges.

We are supportive of some of the changes in the bill, and offer just a few other suggestions, based on successful projects in other jurisdictions:

- We believe that those who may participate in the program should be expanded to include commercial projects.
- We believe that, in keeping with a sound and important micro-grid strategy, that a VNM project should be able to allocate credits to TEN accounts, and FIFTEEN for micro-grid enabled projects.
- We believe the other changes, as proposed in sections Sections 5. Section 16-244u as submitted, are important and necessary for a meaning VNM program to exists
    - In Particular, host customers of solar projects must be given the ability to lease or enter into a power purchase agreement with project developers in order to take maximum advantage of tax incentives, particularly the credit known as the Federal ITC (Investment Tax Credit). For towns, municipalities, churches, non-profits and schools this represents a 30% savings on their energy bill they are not able to recoup, without a lease or PPA a structure, given they are not taxable entities.

We thank the committee for their time and leadership in this matter.

Sincerely Yours,

Shaun Chapman Deputy Director, Government Affairs for SolarCity

Written Testimony of SolarCity

In Support of Governor's HB No. 6360 – An Act Concerning Connecticut's Comprehensive Energy Strategy; Particularly Sec. 5 Section 16 – 244u

Shaun Chapman, Deputy Director of Government Affairs

March 7, 2013

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We thank the committee for their time and leadership in this matter.

Sincerely Yours,

Shaun Chapman Deputy Director, Government Affairs for SolarCity

#17

The Energy and Technology Committee

Public Hearing, March 7, 2013

Office of Consumer Counsel

Elin Swanson Katz, Consumer Counsel

Testimony of Elin Swanson Katz

Proposed H.B. No. 6360, *An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy*

The Office of Consumer Counsel (OCC) supports revisions to the statutory paradigm created by P.A. 11-80 to clarify the roles of the Department of Energy and Environmental Protection (DEEP) and the Public Utilities Regulatory Authority (PURA), to avoid unnecessary duplication of efforts, and to better coordinate planning for gas and electric Conservation and Load Management (C&LM) programs. OCC has some suggested revisions to this bill to accomplish those goals. OCC also supports the proposed changes that aid in implementing other policies proposed in the Comprehensive Energy Strategy (CES), with some fairly minor revisions.

OCC recommends that a change be made to Section 1 of H.B. 6360, to add to proposed subsection (b) the language that currently appears in lines 14-16 of proposed subsection (a), that "the authority shall consider the impact of decoupling on the gas or electric company's return on equity and make necessary adjustments thereto." Decoupling through a sales adjustment mechanism compensates the utility company for any type of reduction in consumption, such as warmer weather, customer loss, a

deteriorating economy as well as permanent and price-induced conservation. Through a sales adjustment mechanism the very large potential risk of revenue instability is shifted from the company to customers. In a rate proceeding, when such a sales adjustment mechanism is established and an allowed return on equity level is determined, the Authority should be required to analyze and quantify the impact of this shift in risk on the utility's allowed return on equity.

OCC has some significant concerns about what appears to be contradictory language within Section 3 of this bill regarding the authority to review and approve budgets for the C&LM programs. Under the current statutory paradigm, PURA maintains authority over any rate increases, but must be guided by the policies of DEEP. Because there is no effective statutory funding mechanism for gas C&LM, this means that PURA has authority over the entire budget for gas C&LM. DEEP has been given authority over the electric C&LM Plan, but PURA maintains authority over any DEEP-proposed increase in electric C&LM spending over the legislated 3 mill rate.

The changes proposed in this bill would further confuse the roles of DEEP and PURA in determining an appropriate C&LM budget. In lines 192 and 193, authority to review and approve the C&LM budget is given to the Commissioner of DEEP. The language in lines 193 to 198 then states that PURA "shall ensure that the balance of revenues required to fund such a budget [over and above the statutory 3 mill rate] is provided through a fully reconciling conservation adjustment mechanism." The language "shall ensure" removes any PURA discretion over the imposition of new or amended rates and charges. Later in that same paragraph, at lines 216-225, apparently contradictory language has been added that states that PURA shall open a

proceeding to review any provision requiring additional funding through new or amended rates and charges, in accordance with sections 16-19, 16-19b and 16-193 to ensure that rates remain just and reasonable. If that language is meant to give PURA authority to amend the budget if it finds it is not just and reasonable, it directly conflicts with the earlier language cited, and thus creates significant ambiguity If that language is meant to indicate that PURA has to pass through the budget approved by the Commissioner, but attempt to do so in a way that keeps rates just and reasonable, that is a direct abrogation of PURA's ratemaking authority. It also puts PURA in an untenable position, as it is impossible to ensure rates remain just and reasonable if someone else has the unchecked authority to add additional spending requirements directly to rates. Finally, the proposed language requires that this PURA review be completed in sixty days, which is not sufficient time to conduct even a cursory review of, and proceeding concerning, what is generally an 800+ page filing. Assuming that an actual review and approval by PURA is contemplated, OCC suggests that one hundred and twenty days be allowed.

The legislature delegated its ratemaking authority to PURA and its predecessor agencies with the explicit requirement that such authority can only be exercised in a contested process pursuant to the Uniform Administrative Procedures Act (UAPA), which provides a judicial check on that authority, and due process to those who will be affected by PURA's decisions. The proposed changes highlighted above create significant ambiguity regarding the continued existence of the check on the ratemaking authority that has been delegated.

Some might argue that the ability of the DEEP Commissioner to unilaterally impose a rate increase through an increased C&LM budget is checked by the proposed requirement that the budget only fund energy efficiency that is "cost effective or lower cost than acquisition of equivalent supply" [lines 191-192]. However, the definition of what is cost-effective is highly subjective, and the elements of cost-effectiveness are the subject of considerable debate among experts in the field. A subjective test such as cost-effectiveness does not provide a meaningful check on the ability to raise rates.

As an example, one element of the cost-effectiveness debate revolves around cross-subsidization, or whether benefits of reduced use of non-regulated fuels (oil and propane) should be included in deciding whether gas and electric utility ratepayer-funded energy efficiency programs are cost-effective. This is an issue because those unregulated fuel customers do not currently contribute to the conservation funds. Section 3 of H.B. 6360 proposes changes to the C&LM cost effectiveness analysis to include program benefits for "all energy savings" (lines 240-241), which would include non-regulated fuels. This is a significant departure from the historical application of cost-effectiveness testing in C&LM program review in Connecticut, and would have the effect of artificially making the cross-subsidization of propane and oil fuel measures look cost-effective for electric ratepayers. As an example, this language would make it appear to be cost-effective to use electric ratepayer money to install a more efficient oil boiler in an oil-heated home, which would cause only minimal, if any, reduction in that customer's electric use.

Counting oil and propane benefits in the cost-effectiveness test for electric C&LM programs would also significantly expand the universe of what is considered cost-

effective. Coupled with a requirement to do all energy efficiency that is cost-effective, and given the number of oil and propane serviced homes and businesses (some very large commercial and industrial) in Connecticut, this one proposed change to cost-effectiveness analysis could cause electric rate increases of billions of dollars in the near-term, for benefits that will not lower electric bills. OCC notes that this contradicts the CES, insofar as the CES calls for a funding source for oil heated homes in order to decrease cross-subsidization by electric ratepayers.

Taking all of these proposed changes together, without more clarity about PURA's role in reviewing and approving the budgets for C&LM programs, a DEEP Commissioner could be able to increase rates by billions of dollars in the short-term with no check on that authority. OCC suggests that this is not an appropriate delegation of the legislature's ratemaking authority, and suggests that the bill be changed to remove the language in lines 193-198 requiring PURA to pass through the budget approved by the Commissioner This change will eliminate what may be an untended consequence of the conflicting statutory provisions, but it is essential to maintaining a check on ratemaking authority.

Recognizing that one of the goals of the CES is to better coordinate and streamline electric and gas energy efficiency planning, OCC recommends that changes be made to Section 2 and 3 of H.B. 6360 to combine consideration of the gas and electric Conservation and Load Management (C&LM) Plans and to provide an effective statutory mechanism for gas energy efficiency funding. Both the gas and electric C&LM Plans should first be subject to a consolidated review by DEEP, followed by a consolidated review of the gas and electric plans by PURA for any changes to rates

(guided by the policies developed by DEEP), with a reasonable time limit imposed for each. This can be accomplished by combining the gas C&LM statute (which is addressed in Section 2) with the electric C&LM statute (addressed in Section 3), and by adding a new section to the bill which would add the gas companies to Section 16-19b(c), the statute used by PURA for approving and implementing an electric Conservation Adjustment Mechanism (CAM). OCC believes these changes would significantly streamline the review of the combined gas and electric C&LM plans, while maintaining PURA's authority over rates. OCC would be happy to work with the members of the Committee and any other interested parties to develop language to effectuate these changes.

OCC supports the changes proposed in Section 5 of H.B. 6360 to expand virtual net metering, in particular the applicability to customers who lease or contract with a virtual net metering facility. OCC is concerned about the level of cost-shifting to other customers if a credit is applied toward eighty percent of the distribution and other service charges, as proposed, since customers who participate in virtual net metering are still using the distribution system. OCC would be happy to work with the Committee and other interested parties to analyze the effect of that cost-shifting and develop alternative language if appropriate.

OCC supports Section 6 of H.B. 6360, which expands PURA's authority to permit electric sub-metering. OCC suggests that a section be added to amend Section 16-41 of the General Statutes, in order to bring those who sub-meter electricity, with or without PURA's approval, within PURA's jurisdiction for the issuance of penalties for any consumer protection violations.

OCC recognizes that sections of this bill overlap with others that are on the agenda today which also propose changes to clarify the roles of PURA and DEEP and processes regarding resource planning. OCC is ready and willing to continue conversations with Committee members, DEEP and other parties to resolve conflicts between the bills and ensure appropriate consumer protections continue to be part of the regulatory process.

#11

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CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

Statement of the Connecticut Clean Energy Finance and Investment Authority Regarding Governor's H.B. 6360

AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

The Clean Energy Finance and Investment Authority (CEFIA) hereby provides the following comments in support of the Governor's H.B. No. 6360 An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.

CEFIA's mission is to support the Governor's and the Legislature's energy strategies to achieve cleaner, cheaper, and more reliable sources of energy while creating jobs and supporting local economic development. By attracting and deploying capital to finance these clean energy goals, CEFIA seeks to:

- Help Connecticut become the most energy efficient state in the nation;
- Help scale-up the deployment of renewable energy in the state; and
- Provide support for the infrastructure needed to lead the clean energy economy.

To that end, CEFIA supports the policies outlined in the bill and is currently implementing various financing programs proposed in the Comprehensive Energy Strategy.

Specifically, CEFIA strongly supports the following aspects of the bill:

- **Section 3 (Conservation Adjustment Mechanism)** – with the goal of realizing energy efficiency that is cost effective or lower cost than the acquisition of equivalent supply, CEFIA supports the institution of a Conservation Adjustment Mechanism in the near-term. The Governor and the Legislature through Public Act 11-80 have expressed the need for CEFIA to focus its efforts on attracting private capital investment to support the long-term needs of the state. This will allow for the reduction of subsidies and rebates over time through the implementation of financing programs, including C-PACE, on-bill financing, and other mechanisms.

- **Section 8 (Microgrids)** & **Section 9 (Energy Improvement Districts)** – CEFIA supports the development of microgrids and energy improvement districts (EID) as these "community energy" projects provide an opportunity for Connecticut to realize cleaner, cheaper, and more reliable energy for Connecticut citizens and

businesses. CEFIA is developing financing products that will support various components of a microgrid or EID.

- **Sections 10 and 11 (Commercial and Residential Building Labels)** – building labeling is an important method to increase the demand and subsequent deployment of energy efficiency and renewable energy technologies in commercial and residential properties. The disclosure of energy consumption data before the sale or lease of such buildings will promote efficiency improvements. The use of the EPA's Energy Star portfolio manager and the DOE's Home Energy Scorecard rating tools will provide actionable information to sellers and buyers of commercial and residential buildings respectively.

- **Sections 13-15 (Data Accessibility and Benchmarking)** – Section 13 states that "Commencing January 1, 2012" electric and gas companies must make energy consumption data "available to the public".

  - What is the deadline for companies to make this data available – 5 or 10 business days, 30 days, etc.? Is there a reasonable timeframe that can be stated in statute?

  - Does "available to the public" mean the property owner, utility bill payer, or any person wishing to access this data?

Commercial buildings participating in the C-PACE program must benchmark their energy consumption in the CEFIA Database Management Platform (CDMP) which is powered by Sustainable Real Estate Solutions, a Peer Benchmarking entity for Energy Star. Participating buildings receive their Energy Star Portfolio Manager score from the CDMP through participation in the C-PACE program. CEFIA requests that such buildings will have access to such data to fulfill the requirements of sections 13 and 15.

DEEP benchmarking of state facilities and making the information public for such buildings will support the state's efforts to "lead by example" to reduce energy consumption by 20% by 2018. Such information will identify buildings that present "low hanging fruit" for energy efficiency investments by the state.

Section 19 (Natural Gas Expansion) – to support the implementation of the natural gas expansion provisions of the bill and the Comprehensive Energy Strategy, CEFIA is launching several financing programs to support fuel conversions and equipment replacement including C-PACE for commercial and industrial properties and the Smart-E Loan for residential 1-4 single family units. Through the designation by DEEP, CEFIA, if it determines on-bill financing is an

effective mechanism to attract low-cost private capital for these initiatives, will seek to also implement an on-bill financing program for residential homeowners.

CEFIA is pleased to be a part of the new energy, environmental and economic development landscape in Connecticut and looks forward to supporting the legislature's and Governor's clean energy vision to deliver cleaner, cheaper and more reliable sources of energy.

We thank you again for the opportunity to provide these comments and look forward to working with all of you as we partner to realize/achieve Connecticut's clean energy goals.

TESTIMONY OF ERIC J. BROWN
ASSOCIATE COUNSEL, DIRECTOR OF ENERGY & ENVIRONMENTAL POLICY
CONNECTICUT BUSINESS & INDUSTRY ASSOCIATION
before the
ENERGY & TECHNOLOGY COMMITTEE
March 7, 2013

Good morning. My name is Eric Brown and I serve as director of energy and environmental policy with the Connecticut Business & Industry Association ("CBIA"). On behalf of our 10,000 large and small member companies throughout Connecticut, we appreciate this opportunity to share our perspective regarding two bills on today's public hearing agenda.

H.B. 6360: AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY

Section 3, among other measures, requires the Energy Conservation Management Board to review contractors to determine whether they are qualified to conduct work related to programs funded by the board. But this strikes us as off the mark from the Governor's final Comprehensive Energy Strategy which calls for broadening and reinvigorating the Home Energy Solutions (HES) program.

CBIA respectfully suggests that this portion of Section 3 be replaced with language much more reflective of the priority discussed in the CES along the lines of:

> "The commissioner, in conjunction with the Energy Conservation Management Board, the administrators of the Home Energy Solutions Program and the Department of Consumer Protection shall develop a plan and recommendations for transforming the Home Energy Solutions program into an open-market system. Such recommendations shall include objective criteria whereby any contractor who meets such qualifications is eligible to participate in energy efficiency deployment programs funded through the Energy Conservation

Management Board. Such qualifications shall be designed so as to promote significant expansion of the numbers of contractors participating in the HES and other such programs. The plan shall also include a process whereby the public has internet access to information maintained by the Department of Consumer Protection regarding the performance of such contractors."

With the suggested revision, or something similar, CBIA supports section 3 of this bill.

Section 4 provides DEEP with the authority to adopt regulations establishing uniform emissions performance standards "or other requirements" to regulate the emissions of carbon dioxide from electricity generation in any North American location used to supply end use in Connecticut.

CBIA is very concerned about the breadth of this proposal as written. It is our hope that it is intended as a measure to help even the playing field between regulatory burdens on Connecticut energy generation units and those of other states – particularly those that are not subject to the same stringent standards and that inhibit, through air transport, Connecticut's efforts to meet very stringent federal air quality standards.

However, as drafted appears to give DEEP unlimited authority to regulate energy generators in Connecticut through whatever measures they deem appropriate. CBIA opposes the granting of such authority.

Accordingly, CBIA opposes section 4 of this bill.

Section 5 extends virtual net metering ("VNM") laws, currently limited to government facilities, to include agricultural facilities. CBIA believes a comprehensive plan for expanding access to VNM in Connecticut beyond government facilities to include privately owned buildings should be an important energy priority for our state. Such an expansion would promote further deployment of renewable energy and distributed generation. However, such an initiative has important and substantial implications for the operation of our electric grid and the price of energy - especially for sectors that remain

prohibited from taking advantage of the VNM. That is why we do not favor a piecemeal approach whereby access to VNM is expanded one sector at time.

CBIA urges this committee to reconsider this section of the bill in favor of calling for a study, perhaps by PURA, to determine a strategy for expanding access to VNM.

Sections 10-16 include a variety of provisions related to "rating", "evaluating", "benchmarking" and disclosure (both public and private) of energy consumption by a variety of categories of structures.

Section 11 proposes a voluntary pilot program with respect to residential buildings. However, the bill takes a more prescriptive approach with businesses, requiring commercial buildings above a certain size to conduct annual energy benchmarking that must be reported to DEEP and be published on the internet (section 15) and also mandates an evaluation of energy use prior to the lease or sale of all or any portion of such buildings (section 10).

CBIA supports providing tools for business and building owners to easily evaluate their energy usage and building efficiencies – along with education about energy efficiency technologies financing opportunities. But we do not support mandates that add to the burden and expense of owning commercial building.

Such owners already have ample incentives to make their buildings as efficient as possible and to promote those investments to their customers and the public if they choose to. Government should not be mandating such measures, in our view.

Accordingly, CBIA opposes sections 10, 15 and 16 of the bill.

Section 18 accelerates the compliance deadlines for sulfur content in number 2 heating oil. The bill also severs the condition of nearby states having adopted similar standards, for the Connecticut standards to take effect. The compliance deadlines and required prerequisite for other states adopting similar standards were put in place for a reason and through a lengthy negotiations process. Short-circuiting that compromise for what

appears to be an effort to make heating oil a more expensive, less competitive fuel source in the state is in our view, a mistake and counter to the diversity and customer choice goals of the CES. Accordingly, CBIA opposes this section of the bill.

Section 19 extends the existing "hurdle rate" for Connecticut gas utilities to 25 years. This measure would make the extension of gas distribution lines a more cost-effective option for both utilities and energy consumers in areas with sufficient demand. While we are sensitive to the arguments about whether taking such a step is best done through legislative versus regulatory action, Connecticut's current hurdle rates are far too restrictive relative to other states and require, in our view, a quick and substantial increase. Therefore, CBIA favors this legislative action but would also not be opposed to future adjustments being made through a regulatory proceeding at the Public Utilities Regulatory Authority.

CBIA appreciates this opportunity to provide testimony on these bills and for your consideration of our positions.

#19

Written Testimony of Cynthia R. Jennings, Esq. Councilwoman, City of Hartford, Before the Connecticut General Assembly Energy and Technology Committee March 7th, 2013

Written Testimony Concerning Governor's House Bill 6360, 6532 and 6535

Good Morning Senator Duff, Representative Reed and esteemed members of the Energy and Technology Committee, I would like to thank you for the opportunity to come before you to speak about Connecticut's energy future. I currently chair the Environment Committee for the Hartford Court of Common Council.

As a Hartford City Councilwoman, a founding member of the Connecticut Coalition for Environmental Justice, and a Civil Rights Attorney, I stand to strongly OPPOSE the inclusion of TRASH INCINERATION as a Class I Renewable Energy Source. The reason I oppose designating TRASH INCINERATION as a RENEWABLE ENERGY SOURCE is because it is HIGHLY POLLUTING, contributes to GLOBAL WARMING, and is a known ASTHMA trigger.

Hartford has a 25% asthma rate among it's children. Hartford is home to a major trash incinerator, and a high percentage of the air pollution in the City of Hartford, comes from it's trash incinerator. The Hartford trash incinerator burns garbage for almost half of the towns in Connecticut.

I have worked with a broad base of Hartford environmentalists in opposing trash incineration within our city. Most communities would not allow a trash incinerator to be built in their town. Hartford's trash incinerator burns garbage from more than 70 towns throughout Connecticut. It is an unhealthy, polluting source of energy, and it is not a renewable energy source. Once you burn garbage, you must then find a landfill to store the toxic ash. Once garbage is burned, it contributes to greenhouse gases in the environment, global warming, and lung disease. Trash incineration is not a clean energy source, and should not be classified as a Class I Renewable Energy Source.

As a member of a town that is host to a major trash incinerator, I urge this legislative committee, to protect Connecticut's air, protect children's lungs, and say NO to including TRASH INCINERATION as a class I RENEWABLE ENERGY SOURCE.

- Instead of meeting our renewable energy goals through trash incineration, Connecticut should make firm commitments to invest in true clean energy projects like wind, solar and geo thermal heating and cooling. Wind, solar and geo-thermal sources are healthier options for Connecticut residents and present new employment opportunities for Connecticut residents.

- **Lets invest in CLEAN ENERGY PROJECTS like solar, wind and geo thermal heating and cooling, and remove energy sources that contribute to air pollution, health risks and global warming. I urge this committee to say YES to clean energy projects in Connecticut, and support a cleaner, healthier, Connecticut. Thank you.**

Testimony
Elizabeth Gara
Connecticut Water Works Association
Before the Energy Committee
March 7, 2013

The Connecticut Water Works Association (CWWA) respectfully submits the following comments relative to **HB-6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy.**

As stewards of the state's water resources, we appreciate that Governor Malloy's 2012 Connecticut Comprehensive Energy Strategy recognizes that, treating and distributing water is very energy intensive. As noted in the full report, EPA found that water utilities' biggest cost is energy and that those costs can represent as much as 65% of a utility's annual budget.

Clearly, energy efficiency programs are critical to water utilities in controlling costs and customer rates as well as in promoting water conservation. Accordingly, water utilities are pursuing efforts to reduce energy costs, improve the efficiency of equipment such as pump stations, reduce leaks and adopt other measures that save energy as well as water. We are also interested in developing new strategies to utilize energy efficiency programs to reduce costs and promote water conservation.

CWWA **supports the following provisions in HB-6360** which will assist water companies in reducing energy costs and consumption:

- **Combined Conservation Plan**

HB-6360 specifies that the combined conservation plan developed by the electric and gas companies may include water conservation programs in addition to energy. Given that energy costs are huge component of overall water treatment and distribution costs, CWWA supports efforts to include specific efficiency programs for water and wastewater utilities, and water conservation measures, in general, rather than just those that reduce energy use related to heating water. This recommendation will enhance opportunities for water companies to utilize energy efficiency programs to reduce costs and promote water conservation.

- **Virtual Net Metering**

Section 5 of the bill broadens eligibility for "virtual net metering," expands the maximum size of the generating unit that can take advantage of virtual net metering, and potentially increases the value of the electric bill credit that participating customers receive.

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Under current law, municipalities are eligible for virtual net metering which allows them to share the billing credit among their electric accounts, although the number of municipalities eligible to participate is limited due to the cap. Therefore, under existing law, municipal water departments are eligible to utilize virtual net metering but regional water authorities and private water companies are not. Given the considerable benefits to the state, the environment and water utility customers in reducing energy costs and consumption, allowing all water utilities to utilize virtual net metering makes good sense.

CWWA therefore urges lawmakers to expand eligibility for virtual net metering to include regional and private water companies, as defined under Section 25-32a of the Connecticut General Statutes.

- **Microgrids**

Under current law, municipalities can share the billing credit with no more than five other municipal accounts. Under the bill, municipal or state accounts connected to a microgrid may share the credits with up to five additional non-state or municipal critical facilities, which may include water and wastewater facilities. Although this may benefit water treatment facilities in some areas, water utilities that that serve smaller communities in which microgrids are not viable would not be able to benefit. **We recommend that this provision be amended to allow municipal accounts to share credits with additional facilities in areas in which microgrids are not feasible.**

CWWA also supports provisions in the bill which adopting alternative ways of incentivizing Virtual Net Metering projects and reducing the subsidy that is paid for by other ratepayers to allow additional virtual net metering capacity within the current cap.

Thank you for the opportunity to comment.

The Connecticut Water Works Association, Inc. (CWWA) is an association of private, municipal and regional public water supply utilities serving more than 500,000 customers, or population of about 2½ million people, located throughout Connecticut.

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Written Testimony of Michael Harder
Before the Connecticut General Assembly Energy and Technology Committee
March 7, 2013
Concerning HB 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Senator Duff, Representative Reed, and Members of the Committee:

Thank you for the opportunity to provide comments on HB 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy. My name is Michael Harder, and I am a resident of Hebron, Connecticut. I am now retired, having spent my entire 32 year career in the Connecticut Department of Environmental Protection in the water quality and waste management programs. Since the days of Silent Spring, I have maintained a life-long commitment to improving and protecting our environment. After retirement, I have stayed involved and interested in environmental issues, presently serving as Vice-Chairman of the Hebron Conservation and Inland Wetlands Commission, and Chairman of the Hebron Citizens Green Committee. Please note that I am providing these comments as a private citizen, not in my capacity locally.

I would like to first commend the legislature for your commitment to energy efficiency and a clean energy future for our state. Connecticut has been a leader in enacting laws designed to reduce our demand for fossil fuels and increase the use of alternative, clean sources of energy. However, despite these efforts, and similar efforts by other states and the federal government, I am concerned that the battle against the negative effects of climate change is being lost. Further, without stronger steps being taken in the near term to deal more effectively with this problem, I fear that society may be approaching the point where catastrophic impacts are unavoidable.

It is for these reasons that I would urge you to take even stronger steps than proposed in this bill to further the cause of energy efficiency and reduced demand for fossil fuels. Just as the legislature in 1967 recognized the importance of clean water, and gave the state the authority to order polluters to clean up their discharges, the state should now have the authority to mandate that more steps be taken to achieve our energy efficiency goals. Steps such as changing the state's building code to require stricter insulation requirements for all new buildings, and retrofit requirements to higher standards upon sale of existing building, should be taken now, including for all residential structures. Mandating that improvements be made as part of the sale of existing buildings will allow the costs of those transactions to be factored into the sale at the best time: when the money is on the table. While this should address most concerns regarding costs, if it can be demonstrated that cost is a clear impediment to making the improvements, then one or more parties to the transaction should be able to access clean energy funds to make the improvements. In addition, the state should have the authority to require building owners to report on their energy use and, for certain high energy users, to retrofit their buildings and/or processes to significantly improve their energy efficiency. There is simply not enough time to rely on the hope that passive incentives, as beneficial as they may be, will drive the changes that are needed as quickly as they are needed. As we have seen from the dramatic climate-induced changes that have occurred in our environment in recent years, bold steps such as these must be taken in order for the State of Connecticut to address climate change in a meaningful way.

Regarding natural gas specifically, although this fuel will be a necessary part of progress toward clean air, and conversion will bring some climate related benefits, it should not be seen as a permanent solution. We should limit the payback period for gas main expansions so that we can transition more effectively to renewable energy in the long run. In addition, the state should compare all of the economic and environmental costs and benefits of expansions with other alternatives, such as energy efficiency measures or ground source heat pumps, and compare the job impacts. Natural gas conversions should be paired with code-level efficiency improvements, to ensure that homes that convert to gas are not wasting that fuel. Perhaps most importantly, Connecticut's natural gas plan should include a mechanism that ensures it is consistent with the state's long-term climate change goals.

I urge your support for stronger clean energy and energy efficiency measures in HB 6360, for their benefits to our air quality and climate goals, for the cost savings these policies will offer Connecticut residents, and for the additional economic activity and jobs this energy strategy will generate.

Thank you very much for your consideration of these comments.

Michael Harder
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Written Testimony of: Amanda Fargo-Johnson, Program Coordinator
Connecticut Farm Energy Program
To the Energy and Technology Committee
Thursday, March 7, 2013
Governor's Bill: 6360
House Bills: 6530, 6532, 6535

First I would like to begin by saying how pleased I am to have the opportunity to be able to give you input on such an important issue currently facing Connecticut Farms, energy costs! The Eastern CT Resource Conservation and Development Area, Inc. is a 501 (c) (3) non-profit organization that: *helps people care for and protect their natural resources, improve local economies, and sustain a high quality of life* coordinates the Connecticut Farm Energy Program (CFEP). CFEP began in 2009 and since then one of our roles has been to provide assistance to Connecticut Farms in navigating the sometimes confusing road of energy programs currently available to businesses in Connecticut that farms may or may not be eligible for. We regularly receive phone calls, emails and feedback at workshops and events we host about the high level of interest farms have in energy efficiency as well as renewable energy here in Connecticut.

In the interest of time I will briefly highlight current potential opportunities to assist farms as well as the hindrances they currently face that prohibit their moving ahead in the implementation of energy projects on their farms as well as noting why CFEP agrees and also see's potential for improvement on several proposed bills including G.B. 6360, H.B. 6530, H.B. 6532 and H.B. 6535.

As a point of reference According to 2010 University of Connecticut Study, "Economic Impacts of Connecticut's Agricultural Industry" there is 4,900 farms located in Connecticut. Most are small to mid-sized and are very important to Connecticut's economy, creating some 20,000 jobs and averaging 3.09 billion dollars in State income. It goes on to identify the need to investigate the effectiveness of policy instruments to spur growth of the agricultural industry and preserve it for future generations.

The experience of the Connecticut Farm Energy Program through interaction with farms and rural small businesses is concern expressed about long term sustainability and the high cost of energy needed to keep their operations going in Connecticut. To that point if you look at the Electric Sales and Revenue from the Energy Information Administration, Washington, DC. it is noted that Connecticut has the 2nd highest electrical costs in the country behind Hawaii. Energy consumption for the state of Connecticut, measured in BTUs (British Thermal

Units), has increased by almost 80% since 1960 and the 2006 Connecticut Siting Council Report estimates that the annual compounded growth rate will be 1.26% into the future years (http://www.ct.gov/dep/cwp/view.asp?a=2684&q=397288&depNav_GID=1619). Some of the greatest users of power in the Agricultural Community are greenhouses and dairy farms. We need to ensure that our farms will be able to stay in business and supply us with a local source of food and jobs while at the same time those with renewable energy projects could potentially contribute to Connecticut's renewable portfolio standard (RPS). The RPS goal calls for 27% of the state's electricity to come from 3 different tiers of renewable energy sources by 2020. Connecticut Farms are interested in being sustainable in their operations and additionally some farms could be in the position to act as a source of local energy by contributing into Connecticut's grid either by large solar projects or anaerobic digesters to name a few. The benefit of farms producing local energy would also mean potentially another revenue stream if virtual net metering was allowed in Connecticut.

Comments on G.B. 6360

CFEP agrees with the need for virtual net metering for farms however within the bill we see opportunities to make it more effective.

Section 3. Sec 16-245m

(c) it is noted to convene an Energy Conservation Management Board, we would recommend that since further on in the bill virtual net metering is proposed for agricultural customer hosts that it would be advantageous to include a representative from the Agricultural community either directly from the CT Department of Agriculture or a representative of their choice.

Section 5. Sec 16-244u

(3)/(4) virtual net metering will only be for municipal, state or agricultural customer hosts. In Massachusetts they allow residential and commercial customer hosts. It also makes us question what it will do to Ag producers who are currently on a residential rate, how will their rate be treated if they interconnect, will that now put them into a commercial rate?

(b)(c) it says credits carry for 1 year at the end of each calendar year the electric distribution company shall compensate the customer host, CFEP wonders why not infinite piling of credits like it is done in Massachusetts?

(d) It says Agricultural customer host shall not designate more than 10 beneficial accounts for the purpose of agriculture. It is our belief that it should not be limited to only 10 beneficial accounts that it again should be unlimited like in Massachusetts, and also that they not be limited to only beneficial accounts of agricultural use only but open it up to any beneficial account. For larger systems like an anaerobic digester that will be producing more energy than they can use will want to designate beneficial accounts above 10 other agricultural users in their service territory because of the amount of power they can create.

This bill also brings up the question about interconnection agreement costs and the upfront outlaying of moneys for those interested in being connected to virtual net metering, what

will these costs be and will they be a stumbling block to Agricultural customer hosts interested in interconnection.

Comments on H.B. 6530

The Connecticut Farm Energy Program agrees there is a need to develop Connecticut-based renewable energy sources. Connecticut Farms could be a source of that energy through large solar or anaerobic digesters to name a few that would contribute to Connecticut's renewable portfolio standard (RPS) goal which calls for 27% of the state's electricity to come from 3 different tiers of renewable energy sources by 2020.

Comments on H.B. 6535

The Connecticut Farm Energy program agrees with the expansion of including anaerobic digestion of organic waste into the definition of Class I renewable energy source. By including this language it would allow for anaerobic digesters to be eligible for virtual net metering in G.B. 6360.

Additionally in order to make anaerobic digesters feasible in Connecticut it would be best to remove the wording "Organic refuse" from Section 2 (45).

Comments on H.B. 6532

Sec. 4-6

CT Farm Energy believes the penalty PURA can impose on each electric supplier and each electric distribution company that fail to meet the percentage of standards charge of five and five tenths not be lowered to three and one-tenth as proposed in the bill. This decrease in penalty fees will lower the amount available to the Clean Energy Fund and a reduction in the RPS compliance fee will hinder the value of RECs (Renewable Energy Credits) in Connecticut. By keeping the rates high it will incentivize utilities to facilitate more Connecticut made energy including energy projects on Connecticut Farms.

Sec. 10 (b)

By allowing the purchase of renewable energy credits from a generating unit located in the state of New York, Pennsylvania, New Jersey, Maryland, or Delaware, it will jeopardize the value of CT RECs and the purchasing of RECs by Utilities should be focused on instate generation.

In addition to the comments above, what are some of the potential things Connecticut could do to be more farm friendly in terms of energy projects?
First off I would like to point to our neighbors north of us in Massachusetts as a successful example of getting farms energy independent as well as being a source of local energy back to the grid. Massachusetts provides a 10% Farm Energy Discount from the utility companies (electric and natural gas) (website to visit for additional information: http://www.mass.gov/eea/agencies/agr/land-use/farm-energy-discount-program.html), they allow virtual net metering to any host customer (including farms) and allow them to designate any percentage of excess energy to any number of other assigned accounts as well as excess credits are allowed to rollover infinitely (website to visit for additional information: http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/net-metering-faqs.html), they offer renewable energy credits and alternative energy credits, they also offer through the Mass Department of Agricultural Resources an Agricultural Energy Grant Program which is a competitive grant program that funds agricultural energy projects in an effort to improve energy efficiency and to facilitate the adoption of alternative clean energy technologies by Massachusetts farms in order that farms can become more sustainable and the Commonwealth can maximize the environmental and economic benefits from these technologies. (website to visit for additional information: http://www.mass.gov/eea/agencies/agr/about/divisions/agricultural-energy-grant-program.html)

While Connecticut has taken steps to implement some of these measures like the new LREC and ZREC program along with current bills raised addressing the need for virtual net metering we think that there is a great potential for Connecticut to incorporate some of the other measures mentioned above that Massachusetts has successfully implemented from their 2008 Green Communities Act. With additional state support it would leverage current Federal programs available which would equal more energy measures being completed on Connecticut Farms. Additionally outside of the CT Energy Efficiency Fund new or expanding farms find it hard to locate assistance with putting up new structures with energy efficient equipment in them, current federal programs only assist with existing structures. Also the energy efficiency programs only address electric and gas saving measures it would be helpful to consider a way to expand that to include other energy measures that save other types of fuel as well.

Thank you for your time in listening to some of the concerns and opportunities the Connecticut Farm Energy Program sees in relation to Connecticut farms and energy measures.

Amanda Fargo-Johnson
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Garrett, Bernard

From: katjajen@gmail.com on behalf of Jennifer Kleindienst <jennifer.kleindienst@gmail.com>
Sent: Wednesday, March 06, 2013 10:00 PM
To: ETTestimony
Subject: Written Testimony in support of Bill 6533

Written Testimony of Jennifer Grace Kleindienst

Before the Connecticut General Assembly Energy and Technology Committee

March 7, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY and Bill 6533 AN ACT CONCERNING HYDRAULIC FRACTURING

Senator Duff, Representative Reed and members of the committee, thank you for the opportunity to address this important issue. I am writing to express my support of Bill 6533 and express concerns regarding Bill 6360.

In regards to Bill 6360, I am concerned with potential natural gas main expansions. It is important that the full range of economic and environmental impacts be taken into account when making decisions on natural gas main expansions. This analysis must take into account 1) energy savings available through efficiency, 2) impacts on consumers, and 3) the environmental and climate impacts from gas extraction, transport and use. Once all of these factors are taken into account, I do not believe that natural gas main expansion will be deemed the best option.

The environmental and health issues that surround hydraulic fracturing have been well documented, and as Connecticut aims to build a 21st century energy policy, it should seek to use energy that does not harm the environment and human health. Although natural gas would be supplied by neighboring states, we cannot ignore the negative impacts extraction is having in these states. Natural gas man expansion is not a step forward, but a continuation of the status quo, which embraces temporary solutions at the expense of the long-term health of people, our economy and the planet.

With this in mind, I wish to extend my support for Bill 6533. Hydraulic fracturing waste has been associated with a wide array of negative health issues. Many fracturing fluid chemicals are known to be toxic to humans and wildlife and several are known to cause cancer. These chemicals include petroleum distillates, including kerosene and diesel fuel, polycyclic aromatic hydrocarbons, methanol, and formaldehyde. Embracing solutions that create environmental and health problems will only create a whole new set of problems for our state. As we look forward and seek to create a sustainable and intelligent energy plan, we should embrace renewable technologies such as wind and solar, while investing in energy efficiency programs that provide efficient cost savings for consumers.

Jennifer Kleindienst
70 Pearl St. Apt. 1R
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Written Testimony of Corey Guilmette
Before the Connecticut General Assembly Energy and Technology Committee
March 7, 2013

Written Testimony Concerning Governor's Bill 6360 AN ACT CONCERNING IMPLEMENTATION OF CONNECTICUT'S COMPREHENSIVE ENERGY STRATEGY and Bill 6533 AN ACT CONCERNING HYDRAULIC FRACTURING

Senator Duff, Representative Reed and members of the committee, thank you for the opportunity to address this important issue. I am writing to express my support of Bill 6533 and express concerns regarding Bill 6360.

In regards to Bill 6360, I am concerned with potential natural gas main expansions. It is important that the full range of economic and environmental impacts be taken into account when making decisions on natural gas main expansions. This analysis must take into account 1) energy savings available through efficiency, 2) impacts on consumers, and 3) the environmental and climate impacts from gas extraction, transport and use. Once all of these factors are taken into account, I do not believe that natural gas main expansion will be deemed the best option.

The environmental and health issues that surround hydraulic fracturing have been well documented, and as Connecticut aims to build a 21st century energy policy, it should seek to use energy that does not harm the environment and human health. Even though natural gas would be supplied by neighboring states, we cannot simply avoid the negative impacts extraction is having in these states. Additionally, as natural gas supplies diminish, prices will increase and fluctuate, creating the same type of price variability that has hurt heating oil customers. Natural gas man expansion is not a step forward, but a continuation of the status quo, which embraces temporary solutions at the expense of the long-term health of consumers and the environment.

With this in mind, I wish to extend my support for Bill 6533. Hydraulic fracturing waste has been associated with a wide array of negative health issues. Many fracturing fluid chemicals are known to be toxic to humans and wildlife and several are known to cause cancer. These chemicals include petroleum distillates such as kerosene and diesel fuel, polycyclic aromatic hydrocarbons, methanol, and formaldehyde. Embracing solutions that create environmental and health problems will only create a whole new set of problems for our state. As we look forward and seek to create a sustainable and intelligent energy plan, we should embrace renewable technologies such as wind and solar, while investing in energy efficiency programs that provide efficient cost savings for consumers.

Corey Guilmette
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001542
#21

STATE OF CONNECTICUT
ENERGY & TECHNOLOGY COMMITTEE

Governor's Bill No. 6360 – An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Raised Bill No. 6532 – An Act Concerning Certification of Class I and Class II Renewable Energy Sources and Class III Sources, Renewable Energy Credits and Alternative Compliance Payments

Written Testimony of
James S. Schneider
on Behalf of
Kimberly-Clark Corporation

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Emailed yesterday

March 7, 2013

WRITTEN TESTIMONY OF JAMES S. SCHNEIDER
ON BEHALF OF KIMBERLY-CLARK CORPORATION
ON GOVERNOR'S BILL NO. 6360 AND RAISED BILL NO. 6532

Kimberly-Clark Corporation ("K-C") welcomes the opportunity to provide comments to inform the discussion on: (i) Governor's Bill No. 6360 ("Bill 6360"), which advances microgrid development in Connecticut and proposes to require annual benchmarking for nonresidential building owners, and (ii) Raised Bill No. 6532 ("Bill 6532"), which introduces changes to registration, reporting, and ongoing compliance obligations for resources eligible to earn Renewable Energy Credits ("RECs") under Connecticut's Renewable Portfolio Standards ("RPS"). As detailed below, K-C:

- Supports the Governor's microgrid initiative and proposes targeted amendments to Bill 6532 intended to revitalize the Class III market to ensure Class III Combined Heat and Power ("CHP") sources remain viable options to support microgrid development in the State;
- Urges lawmakers to amend Bill 6360's benchmarking provisions to safeguard against public disclosure of business sensitive information; and
- Commends Bill 6532 for promoting parity among RPS resources regarding registration, reporting, and compliance requirements.

K-C invested $50 million to install a 35 MW Class III CHP system to meet its New Milford Mill's electric and thermal power needs. The CHP resource is crucial to controlling costs and K-C remaining competitive in Connecticut. The business case supporting K-C's decision to invest in CHP development at its New Milford Mill relied upon projections that Class III REC sales would help to offset the significant development and ongoing operating costs of this more expensive but environmentally preferred generating technology.

- **Bill 6360's Microgrid Provisions**

K-C supports Bill 6360's measures to promote microgrid development to serve critical facilities and extend microgrid opportunities to energy improvement districts. As recognized in Bill 6360, Class III CHP resources are the type of distributed generation resources that are necessary to power a microgrid. Class III CHP resources have the potential to enhance the resiliency and security of Connecticut's electric distribution system by serving as environmentally friendly generation sources for microgrids.

Severe weather events and the resulting widespread power outages in recent years have underscored the need for further microgrid development in the State. During power outages, a microgrid would automatically isolate itself from the primary distribution system, thereby permitting interconnected customers to continue operating. Like many other Connecticut manufacturers, hospitals, and educational institutions with Class III CHP, K-C's New Milford Mill operated without interruption during major storms in 2011 and 2012, thereby continuing to support the local economy. Thus, Class III CHP-powered microgrids are central to enhancing distribution system reliability in the event of extreme weather and other emergencies, thereby safeguarding the State's electricity customers, economy, and critical health and public safety functions.

The grave imbalance in the Class III market, however, threatens the success of microgrid development in Connecticut. The influx of Class III RECs produced by Conservation and Load Management ("C&LM") resources has flooded the Class III market. The current Class III market is at the floor price and saturated, creating real challenges for CHP developers to sell their Class III RECs. *See* Attachment 1. Other Connecticut Class III CHP developers share this serious concern about the viability of the Class III market in light of the oversupply situation.

Moreover, implementation of the Comprehensive Energy Strategy's recommendation for increased C&LM funding, which will result in the creation of additional Class III RECs, will likely worsen the Class III imbalance. As a result, the developers of Connecticut's 120 MW of certified CHP capacity will face the real and likely possibility of not finding any buyers for any of their Class III RECs, thereby jeopardizing an important revenue stream that Class III CHP developers rely upon to justify their significant capital investment and ongoing operating costs. This would have a chilling, if not fatal, affect on CHP development, and consequently, microgrid development in the State.

- **Proposed Amendments to Class III RPS**

In order for Class III CHP to be a viable option to support Connecticut's microgrid initiative, the Class III market must be restructured to provide the necessary incentives for operation of existing, and development of new, Class III CHP resources. To this end, K-C proposes the creation of a new class of resources under Connecticut's RPS – Class IV – that would

be comprised entirely of C&LM projects, thereby removing such resources from Class III. Alternatively, K-C proposes establishing separate subcategories under Class III for CHP resources and C&LM projects (*i.e.*, Class III and Class IIIA, respectively) akin to the proposal for trash-to-energy facilities in Raised Bill No. 6531. K-C's proposed amendments to Bill 6532 are detailed in Attachments 2 and 3, respectively.

Under either approach, K-C recommends an across-the-board 1% downward adjustment to the Class I RPS requirements and a corresponding re-assignment of those requirements to the new class for C&LM projects. The RPS requirements for Class III would remain unchanged at 4% through 2020. The proposed changes to the RPS requirements are illustrated in Attachment 4. Under K-C's proposals, the contemplated changes would become effective prospectively as of January 1, 2014.

Placing Class III CHP resources and C&LM projects in distinct classes recognizes fundamental differences in funding requirements and sources. Unlike Class III CHP resources, C&LM projects receive support from the C&LM Funds, which are funded via a statutorily mandated adder on customers' invoices for distribution service. A separate classification for C&LM projects will begin to ease the current Class III imbalance and avoid exacerbating the oversupply situation upon implementation of the Comprehensive Energy Strategy's recommended C&LM funding increase. Furthermore, because New England's REC trading platform already separately tracks RECs produced by Class III CHP and C&LM projects, this proposal could be implemented swiftly and with administrative ease.

Finally, as lawmakers may recall, because Connecticut lacks native Class I resources, approximately 95% of these requirements is met through resources outside the State. After 2017, a Class I shortage is expected. Re-assigning a portion of the Class I requirements to the new class for C&LM projects would enable Connecticut to invest more ratepayer funds in Connecticut, given that C&LM projects must be located in the State. It also better positions Connecticut to meet its RPS goals, thereby potentially reducing customers' exposure to costly alternative compliance payments.

While recognizing the Department's RPS study is underway, K-C encourages Connecticut to take action now to address these real and growing problems before the window of opportunity of this legislative session closes and further CHP and microgrid development is compromised. K-C's proposals represent a targeted measure to support CHP and microgrid development and to reduce ratepayer costs without impairing Connecticut's energy efficiency initiative, which K-C recognizes as an important facet of the State's energy policy. At the same time, K-C is open to working with Committee members to adjust these proposals, as necessary, to make sure a solution is developed that best addresses the important renewable energy matters facing Connecticut.

- **Bill 6360's Benchmarking Provisions and the Need To Protect Public Disclosure of Commercially Sensitive Information**

On a different note, K-C is concerned about the potential for competitive harm to Connecticut's energy-intensive industries stemming from Section 15 of Bill 6360. This provision requires nonresidential building owners to benchmark a building's energy usage and report the energy use data and ratings to the Department, who will subsequently make that information publicly accessible via the internet. As an Energy Star member, K-C appreciates Bill 6360's effort to cultivate a culture of energy efficiency across all customer classes. However, K-C is very concerned that the proposed benchmarking provisions mandate the release of a manufacturer's energy usage data. K-C considers such data to be highly confidential and commercially sensitive information, given that energy consumption represents one of the key operating costs in the energy-intensive and extremely competitive paper-making industry. Given the differences among nonresidential buildings, K-C is also concerned that benchmarking such buildings, even if they are in the same category in terms of size, may not provide an accurate basis to compare energy efficiency levels. Thus, K-C urges lawmakers to consider these comments and, at a minimum, introduce measures to prevent public disclosure of manufacturers' business sensitive information.

- **Bill 6532's Registration, Reporting, and Compliance Obligations for RPS Resources**

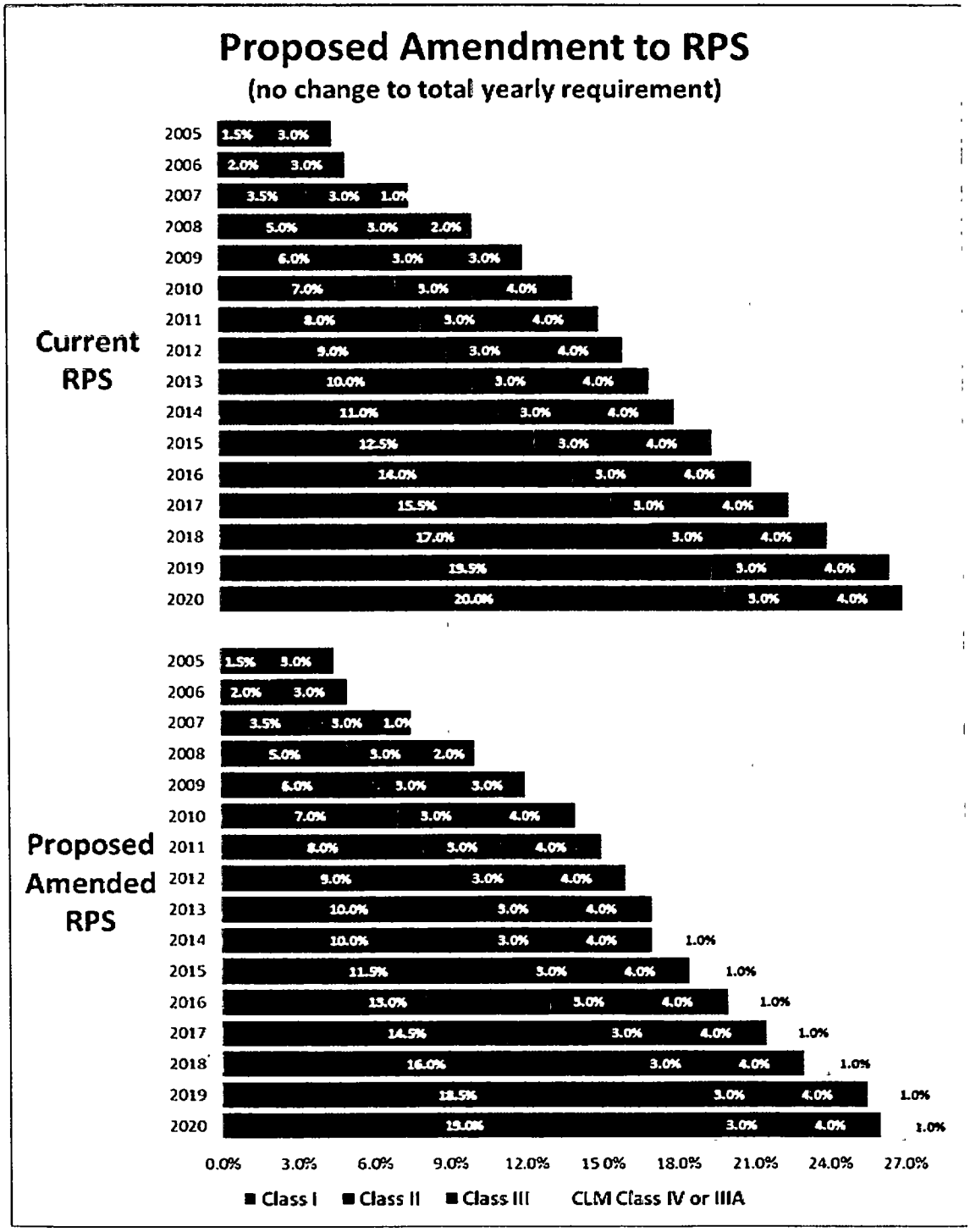
Finally, K-C would like to take this opportunity to commend Bill 6532, which introduces a number of changes designed to place all RPS resources on more equal footing with respect

to registration, reporting, and other compliance requirements. These changes will assist in more accurately tracking the creation, purchases, and sales of all RECs, thereby providing Connecticut with improved information about its progress in meeting its RPS goals.

Thank you for your consideration of K-C's testimony. K-C appreciates the Committee's dedicated efforts to advance the State's energy and environmental goals while welcoming input on approaches to support ongoing and future investment in Connecticut. I am available to answer any questions.

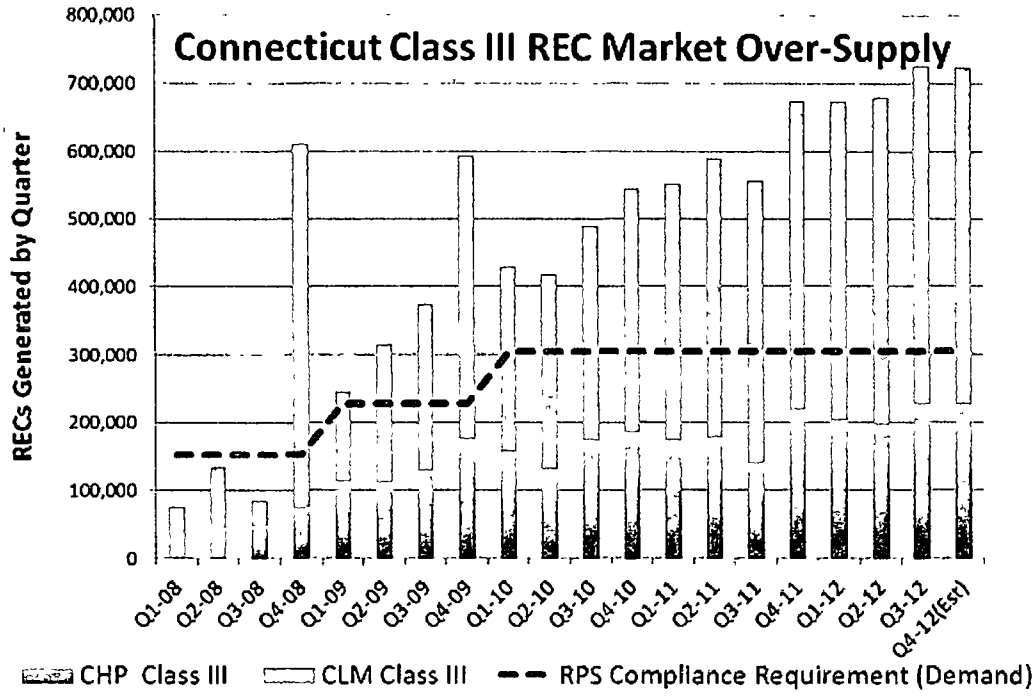
#21

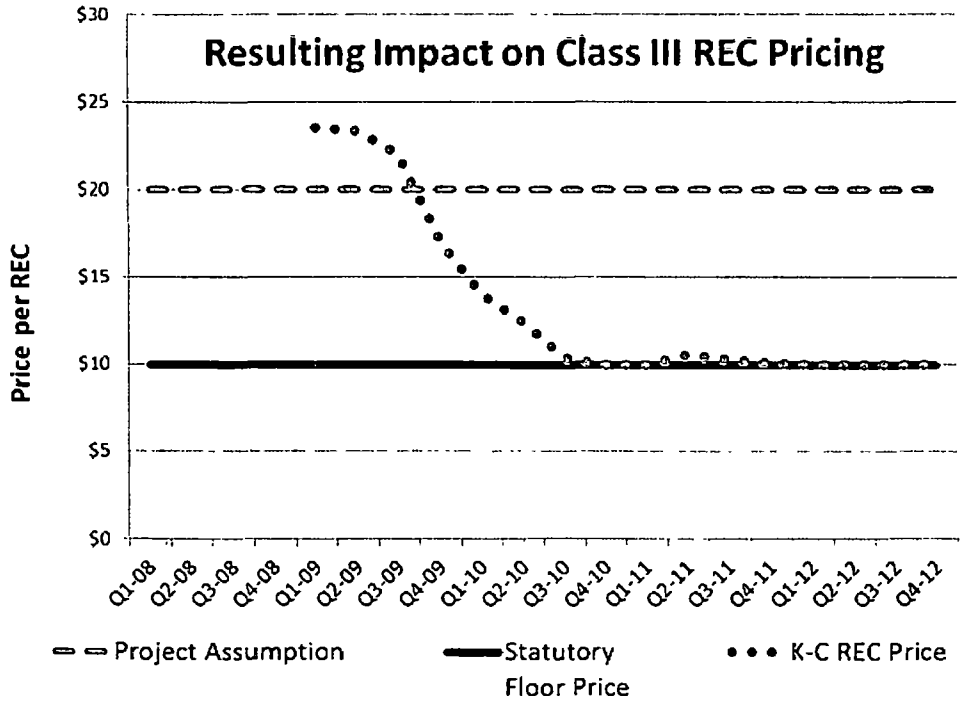
WRITTEN TESTIMONY OF JAMES S. SCHNEIDER
ON BEHALF OF KIMBERLY-CLARK CORPORATION
ATTACHMENT 4



#21

WRITTEN TESTIMONY OF JAMES S. SCHNEIDER
ON BEHALF OF KIMBERLY-CLARK CORPORATION
ATTACHMENT 1





#1

Dannel P. Malloy

GOVERNOR
STATE OF CONNECTICUT

Testimony to the Energy and Technology Committee

March 7, 2013

Governor Dannel P. Malloy

Testimony Regarding
Governor's Bill HB 6360
An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Governor's Bill SB 839
An Act Concerning Statutory Changes to Advance Connecticut's Energy Policies

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Senator Duff, Representative Reed, and distinguished members of the Energy and Technology Committee, I am writing to express my support for HB 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy and SB 839, An Act Concerning Statutory Changes to Advance Connecticut's Energy Policies.

These two pieces of priority legislation will continue our state on the path to a cleaner, cheaper, more reliable energy future.

HB 6360, An Act Concerning Implementation of Connecticut's Comprehensive Energy Strategy

Thanks to the leadership and vision of the bipartisan Energy and Technology Committee and the State Legislature two years ago, Public Act 11-80 was enacted, which led to the establishment of the Department of Energy and Environmental Protection (DEEP), and called for the creation of the state's first Comprehensive Energy Strategy.

Our environmental, energy, and economic challenges are all related – and tackling them together offers the best chance to lower the cost of electricity and home heat for our families, and seniors; make our businesses and industries more competitive; and, address environmental concerns and reduce harmful air emissions.

And, finally two years ago was time for us to reverse the trend of high energy costs by taking an approach to enhance our energy efficiency practices and deliver renewable power at prices lower than the rest of the nation.

Released in October 2012, the draft strategy called on our state to take a strong leadership role in our energy future specifically when it comes to energy efficiency, economic development, and ensuring true energy choice for Connecticut residents.

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Upon its release, the draft strategy was the subject of five public hearings held across the state and five technical meetings designed to carefully explore details of the plan. Over 900 written comments were received from the public and stakeholders.

Last month, the final report was released and elements of that report are reflected in HB 6360. The bill seeks to:

- Enhance the promotion of energy efficiency ;
- Enable customers to benefit from net metering as originally envisioned by the legislature when it passed PA 11-80 and expand the scope of sub-metering eligibility;
- Promote energy efficiency improvements in public and private buildings through the use of energy rating systems and benchmarking to evaluate and rate energy consumption;
- Support the vehicles of tomorrow through enhanced infrastructure improvements;
- Put our state on par with neighboring states on (1) the natural gas hurdle rate and (2) environmentally sound and efficient heating oil by reducing sulfur content.

Once again, I thank the Committee and the legislature on the efforts to making our state an energy leader and ask for their support to continue us on this path.

SB 839, An Act Concerning Statutory Changes to Advance Connecticut's Energy Policies

Senate Bill 839 is clarifying legislation to Public Act 11-80 which established the Department of Energy and Environmental Protection (DEEP) and the Public Utilities Regulatory Authority (PURA), and began Connecticut's energy transformation.

This legislation, which includes many of the changes discussed during the 2012 legislative session, strengthens the independence of the newly created Public Utilities Regulatory Authority's (PURA) decision-making, along with clarifying the role of energy policymaking as it relates to protecting the environment and fostering economic growth in Connecticut.

Over the past two years, we have made great strides to improve our regulatory environment while ensuring fair and judicious decisions are made for whoever appears before the PURA. This legislation is essential to further clarify administrative, regulatory and policymaking at PURA and DEEP to staff and the broader energy and environmental industries in and outside of the state.

This legislation:

- Modifies the administrative responsibilities for PURA and DEEP;
- Changes the name of PURA Directors to "Utility Commissioners";
- Provides PURA the authority to promulgate their own regulations.

Our mission and goal is for our businesses to thrive and our residents to prosper energy that is delivered cleanly and efficiently at an all-effective manner.

This legislation provides a path forward and a vision for Connecticut's energy future that the state has never benefited by in the past. Thank you and I ask that you vote in favor of HB 6360, An Act

Concerning Implementation of Connecticut's Comprehensive Energy Strategy and SB 839, An Act Concerning Statutory Changes to Advance Connecticut's Energy Policies.

Testimony
Elizabeth Gara
Connecticut Water Works Association
Before the Energy Committee
March 7, 2013

The Connecticut Water Works Association (CWWA), which represents municipal, private and regional water companies, respectfully submits the following comments relative to **HB-6530, AN ACT CONCERNING DEVELOPMENT OF CONNECTICUT-BASED RENEWABLE ENERGY SOURCES,** which directs the Public Utilities Regulatory Authority to initiate a docket to develop Connecticut-based renewable energy sources.

As stewards of the state's water resources, we appreciate that Governor Malloy's 2012 Connecticut Comprehensive Energy Strategy recognizes that, treating and distributing water is very energy intensive. As noted in the full report, EPA found that water utilities' biggest cost is energy and that those costs can represent as much as 65% of a utility's annual budget.

As such, water utilities are pursuing efforts to reduce energy costs, improve the efficiency of equipment such as pump stations, reduce leaks and other measures that save energy as well as water. To build on these efforts, CWWA encourages lawmakers to ensure that programs designed to reduce energy costs, such as Virtual Net Metering, are available to water utilities.

In addition, CWWA supports efforts to require the Conservation & Load Management Program plans submitted by the electric and gas distribution companies to include specific efficiency programs for water and wastewater utilities, and water conservation measures, in general, rather than just those that reduce energy use related to heating water. This will greatly enhance opportunities for water companies to utilize energy efficiency programs to reduce costs and promote water conservation.

The Connecticut Water Works Association, Inc. (CWWA) is an association of private, municipal and regional public water supply utilities serving more than 500,000 customers, or population of about 2½ million people, located throughout Connecticut.

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certificate that represents a process, so were something like that to work, a facility would go through this process. It would be evaluated for all of the environment criteria, and that body would give it a stamp of approval.

For the DEEP to have that, if it worked, could be convenient; it doesn't work. And I think if you talk to fisheries' biologists, themselves, they would say we know how to make a decision on what's good and bad, let us give it that stamp and decide as the Connecticut State Fisheries' biologists, at DEEP, what qualifies and what doesn't.

REP. HOYDICK: Okay. Thank you, very much.

Thank you.

SENATOR DUFF: Thank you, very much. We appreciate it.

ANDREW C. FISK: Thank you.

SENATOR DUFF: William Dornbos, with Environment Northeast, and then followed by John Murphy and Mark LeBel.

WILLIAM E. DORNBOS: Good afternoon. Thank you for the opportunity to testify today.

My name is Bill Dornbos; I'm the ENE Connecticut Director. Environment Northeast, as many of you already know, is a nonprofit research and advocacy organization that works on energy and climate change solutions in New England and Connecticut.

There are five concerns that we have that are underlying or driving our opposition to this bill, and I just want to briefly list those.

But I'm going to focus on the first and the fifth, if you have my written testimony.

The first is the issue that most folks have already testified about, which is the alteration of the Class I tier to allow for the inclusion of the large-scale, commercialized hydropower.

Our second area of concern is the need for stronger standards for biomass eligibility, including a full definition for the key term, "sustainable biomass fuel."

The third is an area that hasn't come up yet, as far as I know, but the -- the tangential involvement of the Regional Greenhouse Gas Initiative, in the provision in Section 3, concerning biomass fuel transportation emissions. That -- that, in particular, is going to cause some real complications, and we recommend that that -- that not be included in -- in any final, a final draft of this bill.

The fourth concern is the elimination of the Class III RPS support for the State's energy efficiency programs. That's going to be a loss of about $2.5 million for the programs. And that's unfortunate, coming at a time when we still have not ramped up on our -- our efficiency spending.

The fifth area of concern is the need to define, in statute, critical criteria and requirements for long-term contracts to ensure the lowest-cost energy resource procurement, particularly regarding the urgent issue of transmission cost.

On the first point, I've heard quite a bit about backstopping in the last couple days, and

I think large-scale hydropower used in that sense -- and we don't accept that premise -- we think that role can actually still be played by direct procurement by the State, outside the context of the RPS. We urge the committee to divorce the issue of large-hydro procurement from the unrelated issue of RPS performance.

In fact, a better, faster, lower-cost back start -- backstop for -- for Connecticut's RPS would actually be energy efficiency. It's available right now. It's an in-state resource. It's home-grown. ISO-New England has already forecast that for the next ten years Connecticut's energy consumption is going to rise only lightly and then plateau from 2016 to 2022. This is a practically flat energy to demand curve, even without the full benefit of a ramp-up in efficiency investment.

And I'm very eager to see the RPS study analysis, because if demand in, you know, in Connecticut is either turning flat or decreasing, then the RPS targets are going to be a function of that level of supply being consumed in the state, and those targets may actually reduce. So the 2017-to-2018 pinch may actually not happen and it may be pushed back. But I haven't seen the -- the study yet, so I'm -- I'm not sure what the analysis is on that score.

So we would just urge the committee to make sure to pass House Bill 6360, which we think will help ensure that the ramp-up happens on efficiency.

I have a bit more on contracting, but I'll -- I'll leave that to the written testimony. There's five or six criteria we lay out for what we think would need to be done to make

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HB6366D

TESTIMONY OF ENE (ENVIRONMENT NORTHEAST)
BEFORE THE ENERGY AND TECHNOLOGY COMMITTEE

Opposing Proposed Substitute Bill 1138, AAC Connecticut's Clean Energy Goals

March 19, 2013

William E. Dornbos, ENE Connecticut Director

ENE (Environment Northeast) is a non-profit research and advocacy organization that focuses on energy, air quality and climate change solutions for New England and Eastern Canada. ENE has been active in Connecticut since 1999 and appreciates this opportunity to provide written testimony to the Energy and Technology Committee on *Proposed Substitute Bill 1138, An Act Concerning Connecticut's Clean Energy Goals.*

Aside from the very real concerns about flawed process, our opposition to this bill rests primarily on five areas of concern:

(1) The alteration of the Class I tier of the Renewable Portfolio Standard ("RPS") to allow for the inclusion of large-scale, commercialized hydropower;

(2) The need for stronger standards for biomass eligibility, including a full definition for the key term, "sustainable biomass fuel",

(3) The tangential and unnecessary involvement of the Regional Greenhouse Gas Initiative ("RGGI") in the provision concerning biomass fuel transportation emissions;

(4) The counterproductive elimination of Class III RPS support for the state's energy efficiency programs; and

(5) The need to define, in statute, critical criteria and requirements for long-term contracts to ensure the lowest-cost energy resource procurement – particularly regarding the urgent issue of transmission costs.

It is important to note that we believe there are reasonable solutions to these five deficiencies, and we look forward to working with the Committee to implement them.

Commercialized Hydropower, the RPS, and the Real Backstop of Efficiency

We oppose giving large-scale, commercialized hydropower Class I eligibility through the new "contracted tier" defined in Section 1 of 1138 The fundamental purpose of the RPS is to help commercialize emerging technologies for generating clean, low-carbon electricity. Large-scale hydropower is a mature generating technology that is already cost-competitive with other

conventional, fossil-fuel-based generation like coal, oil, and natural gas It does not need market or ratepayer support

What including large hydropower does is risk weakening the traditional core of the RPS at a time when we should be evaluating how best to accelerate the growth of the cleanest renewables – particularly wind and solar power. To the extent that the Class I tier requires backstopping by large-scale hydropower, and we do not accept that premise, that role can nevertheless be played by large hydro through direct procurement by the state outside the context of the RPS. We urge the Committee to divorce the issue of large hydro procurement from the unrelated issue of RPS performance.

Besides, a better, faster, lower-cost backstop for Connecticut's RPS is actually available to the state right now – full investment in all cost-effective energy efficiency. Curbing Connecticut's energy demand can help the state fulfill its RPS by making its targets easier to meet in coming years.

ISO-NE has recently forecast Connecticut's energy demand over the next 10 years while factoring in our current base level of investment in electric efficiency. The forecast found that demand in Connecticut would rise slightly from 2012 to 2016 – from about 32,800 GWh to about 33,300 GWh, respectively – and then essentially level off from 2016 to 2022. This is practically a flat energy demand curve for our state even without the full benefit of the ramp up in efficiency investment to all cost-effective levels called for by the Governor and DEEP

We urge the Committee to pass H.B. 6360 (with slight modifications as per our previously submitted testimony) to ensure that the ramp up in efficiency happens as soon as possible This is the real backstop we need for any RPS cost or performance concerns.

Biomass Eligibility

We recommend that the Committee tighten the standards for biomass eligibility and we offer preliminary thoughts on that issue here. In recent years, scientific analysis has called into question the conventional wisdom that all sources of biomass provide climate emissions benefits when compared to traditional fossil fuel generation. There has also been growing concern about the amount of available biomass in the region and the sustainability of its use. In light of these concerns, ENE supports the inclusion of biomass within Renewable Portfolio Standards as long as the appropriate pollution control technologies and sustainable, low-carbon fuel are used.

Biomass combustion can produce high levels of traditional pollutants, such as nitrous oxides (NOx) and particulate matter (PM). ENE strongly supported Connecticut's RPS limit of .075 lb/MMBtu of NOx when it was initially proposed, and strongly supports the addition of a 02 lb/MMBtu limit on PM, as proposed in Section 1 of 1138. The Massachusetts DOER has in place an even tighter standard – a Best Available Control Technology limit of .012 lb/MMBtu of PM for biomass fuel fired steam electric generation units. The existing Pinetree Power Fitchburg biomass facility currently meets this limit, and several proposed large new biomass facilities in the state are planning on meeting this limit as well.[1]

[1] Some of the proposed facilities, such as the Russell Power Plant, will not go forward due to changes in the efficiency requirements for RECs under recent revisions to the RPS, but the existing PM standards were not a factor