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H.R. 906, A BILL TO MODIFY THE EFFICIENCY STANDARDS FOR GRID-ENABLED WATER HEATERS

THURSDAY, MARCH 19, 2015

House of Representatives,

Subcommittee on Energy and Power

Committee on Energy and Commerce

Washington, D.C.

The Subcommittee met, pursuant to call, at 10:03 a.m., in Room 2322 of the Rayburn House Office Building, Hon. Ed Whitfield [Chairman of the Subcommittee] presiding.

Members present: Representatives Whitfield, Shimkus, Latta, McKinley, Griffith, Flores, Mullin, Hudson, Rush, Tonko, Green, Welch, Loebsack, and Pallone (ex officio).

Staff present: Nick Abraham, Legislative Clerk;

Charlotte Baker, Deputy Communications Director; Leighton Brown, Press Assistant; Allison Busbee, Policy Coordinator, Energy and Power; Patrick Currier, Counsel, Energy and Power; Chris Sarley, Policy Coordinator, Environment and the Economy; Michael Goo, Democratic Senior Counsel, Energy and Environment; Caitlin Haberman, Democratic Professional Staff Member; and John Marshall, Democratic Policy Coordinator.

Mr. {Whitfield.} I would like to call the hearing to order this morning. I know we are going to have some votes. This is a very important hearing, and we certainly want to give everyone an opportunity to give their opening statement and ask questions.

Today's hearing is about H.R. 906, a bill to modify the efficiency standards for grid-enabled water heaters. Many of you may remember a singing group called Dire Straits, and they had this marvelous song, Money for Nothing and the chicks are free. And in the lyrics of that song they talk about moving and selling microwave ovens, refrigerators, and color TVs. And we know in today's world, you can't sell a microwave oven or a color TV or a refrigerator or anything else without a government dictating what is in the product.

So we find ourselves in a world where the government is really micromanaging through regulations really everything in our society, whether we are talking about healthcare, the requirements for a community bank to make to a farmer in Kentucky, to make a loan. And now today, last March I guess it was, the Department of Energy came out with a regulation about hot water heaters.

So we are here today to discuss a bill that will bring regulatory relief to many electricity providers, manufacturers, and consumers across the country. There are approximately 250 electric cooperatives in 34 states that utilize these large electric resistance water heaters in demand response programs to help with reliability and consumer costs during peak periods of energy use.

As I said, the Department issued this new efficiency standard in March of 2010, and they are prohibiting the manufacture of water heaters that are 55 gallons or larger if they are electric resistance heaters, and they are mandating that they go to heat pump technology.

You know, all of us here in Congress, we have groups come in all the time talking about the government's control in what kind of fan motor you can have, what kind of light bulb you can have, whatever. This is one of those issues that I think just about every Member of Congress agrees that when you are interfering with demand response programs, it is counterproductive.

So hopefully we can introduce this bill, and if people want to try to amend it or whatever, do regular order and try to bring some relief to the American consumer. I get really

excited when I think about hot water heaters, and I would like to say more, but right now I am going to yield 1 minute to Mr. Latta of Ohio.

[The prepared statement of Mr. Whitfield follows:]

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Mr. {Latta.} I appreciate the chairman for yielding, and you are absolutely right. We all love those hot water heaters when you get in there in the shower in the morning. But Mr. Chairman, thanks again for having this very important hearing today to discuss this very important legislation to modify the efficiency standards for grid-enabled hot water heaters. I am pleased to be a cosponsor of the legislation. I hope the committee can advance the legislation quickly as you said, that there is great bipartisan support.

The rural electric cooperatives are very important in my district. They provide power to agriculture and manufacturing operations that are important to the local, state, and national and global economy. In fact, I have seven rural electric co-ops in my district, and all seven use voluntary demand response programs to reduce peak demand, increase the use of renewable energy, and decrease costs to the consumer. This legislation permits the continued manufacturing of electric resistant hot water heaters above 75 gallons for use in thermal energy storage and demand response programs. Enabling the manufacturing of these water heaters is vital for the demand response programs. I look

forward to today's testimony, Mr. Chairman, and I yield back. I appreciate it. Thank you.

[The prepared statement of Mr. Latta follows:]

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Mr. {Whitfield.} The gentleman yields back. At this time I would like to recognize the gentleman from Illinois, Mr. Rush, for his opening statement.

Mr. {Rush.} Thank you, Mr. Chairman. I want to thank you for holding this hearing. Mr. Chairman, my first request is for unanimous consent. We would like to hear you sing that song that you mentioned.

Mr. {Whitfield.} I object.

Mr. {Rush.} Mr. Chairman, I really want to--as you know, I have been unavoidably absent, and I want to thank my friend from California, Mr. McNerney. He is not here right now--for sitting in the chair for me during my absence, and I want to also thank you, Mr. Chairman, for holding today's hearing on this very important bill, H.R. 906. This is a straightforward bill that seeks to modify the Department of Energy's efficiency standards regarding low-capacity electric resistant water heaters in order to allow the continual manufacture and use of electric resistant water heaters above 75 gallons for use in thermal energy storage and demand response programs because as I understand it, Mr. Chairman, in 2010, energy efficiency standards issued by the Department

under the Energy Policy and Conservation Act require nearly 200 percent efficiency for large-capacity electric resistant water heaters for those manufactured after April 16, 2015.

Supporters of H.R. 906, such as National Rural Electric Cooperative Association, argue that the rule as drafted would effectively prohibit the continual manufacture of large-capacity electric resistant water heaters which would then have to be replaced by heat pumps that are not compatible with certain utility thermal energy storage and demand response programs.

So Mr. Chairman, as you can see, this is a very important hearing, and I look forward to hearing the testimony from the expert witnesses today. And with that, I yield back the balance of my time.

[The prepared statement of Mr. Rush follows:]

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Mr. {Whitfield.} The gentleman yields back.

Mr. {Rush.} There is somebody that--

Mr. {Whitfield.} I tell you what. If you all wouldn't mind, I will recognize you all for 5 minutes, and you can split it up the way you want to. Is that okay? Okay. All right.

Is there anyone on our side that would like to make any comments about this bill? Okay. Then Mr. Welch, I will recognize you for 5 minutes.

Mr. {Welch.} Well, I can't match your lyrics, but I can agree with everything you have said and my colleague, Mr. Latta. You know, the Department of Energy does really good stuff, and I actually think standards are a very important tool. But we also have to have it match what realistically can be done in order to get the benefit of demand response. And there are a lot of homes that have these water heaters that are going to benefit, and this is going to save folks money. So the regulation I think has to have as a goal the maximum deployment and the maximum energy efficiency. And I think that is what is uniting us in this effort here.

I am like Congressman Latta. The local cooperatives are

fantastic and really a lifeline for a lot of our citizens in rural areas. And homeowners are doing everything they can to try to save money on their bills. They need an opportunity. They know that less is more if they can save some money. And then when they have their cooperative working with them in this demand response that actually integrates this opportunity of savings with the technology that people actually have in their homes, let us take advantage of it.

So this is great bipartisan legislation, and I am hopeful that we can get this done. And I appreciate, Mr. Chairman and Mr. Ranking Member, your cooperation on this in leading the committee. Thank you. I yield back.

[The prepared statement of Mr. Welch follows:]

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Mr. {Whitfield.} Did you want to yield to Mr. Loebsack or--

Mr. {Welch.} I yield to Mr. Loebsack. Thank you.

Mr. {Loebsack.} Thank you, Mr. Welch. Thank you, Mr. Chair. My wife often refers to me as what Second City used to call mainstream-challenged. I don't know if you know what I am talking about or not. That probably means that I really am mainstream-challenged if I am the only one who knows what I am talking about. But talking about water heaters I think puts me in the mainstream, and talking about Dire Straits really does--I would love to hear you sing, Mr. Chairman, but I would like to have Sting accompany you as he does on that song that you mentioned.

But it is great to be here. It is really wonderful because this is a bipartisan effort, something that the American public and everyone in this room knows happens all too infrequently here in the U.S. Capitol here in Washington, D.C. A problem was recognized, and a problem is going to get rectified with this legislation. And also on a bipartisan basis, we are here to really recognize the importance of these rural electric cooperatives as well. You know, they

date back a long ways to the 1930s in Iowa certainly and about 15 percent of our population are served by these RECs now. And I visit as many of them as I possibly can. I have had meetings. They have let me hold meetings there, not just to go see what they have to do but so I can talk to other folks as well. But they get it. They understand how to service the population in these rural areas. And so their concerns I think need to be our concerns, and that is in large part why we have this legislation today.

So I thank you, Mr. Chair, and thank all those folks on a bipartisan basis who joined together on this, and I do look forward to your testimony. Thank you. And I yield back to Mr. Welch.

[The prepared statement of Mr. Loebsack follows:]

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Mr. {Whitfield.} Okay. They yield back. That concludes the opening statements. Now I have just been notified that we have two votes on the House Floor right now, and they have already started, 10 minutes left in the first vote. So we are going to recess, and then when we come back, we really look forward to the testimony of you four gentlemen because you all are very much aware of the ramifications of this legislation, the impact of the regulation as well. So we look forward to that. Did you want to say anything? Okay. So we will recess, and hopefully we will be back within about 15 or 20 minutes. So thank you all for your patience. I am sorry for the interruption, but we will be back as soon as we can.

[Recess.]

Mr. {Whitfield.} I would like to call the hearing back to order, and we do expect some of the other members to be here shortly. As I said, we have a great panel of witnesses. I want to thank all of you for coming, and I am just going to introduce you individually as you prepare to give your statement. So our first witness this morning is Gary Connett who is the Director for Member Services and Demand-Side

Management at the Great River Energy entity. So Mr. Connett, you are recognized for 5 minutes. And I would just ask all of you to pull the microphone up close enough so that we can hear you clearly. And thank you for being with us, Mr. Connett.

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^STATEMENTS OF GARY CONNETT, DIRECTOR, MEMBER SERVICES AND DEMAND-SIDE MANAGEMENT, GREAT RIVER ENERGY; STEVEN KOEP, UTILITY SALES MANAGER, VAUGHN THERMAL CORPORATION AND ELECTRIC WATER HEATERS; STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY; AND ROBIN ROY, DIRECTOR, BUILDING ENERGY EFFICIENCY AND CLEAN ENERGY STRATEGY AND NATURAL RESOURCES DEFENSE COUNCIL

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^STATEMENT OF GARY CONNETT

} Mr. {Connett.} Thank you. Chairman Whitfield and members of the Subcommittee, thank you for inviting me to testify today on legislation to protect grid-enabled water heaters.

You mentioned my name. My name is Gary Connett, Director of Demand-Side Management at Great River Energy, a generation and transmission cooperative that serves 28 member retail distribution cooperatives located in Minnesota and Northwestern Wisconsin. And I, by the way, am one of these people that actually has one of these water heaters that we are talking about today. I want to thank the subcommittee

for addressing this important and timely issue. Large-capacity electric resistance water heaters are essential demand response tools for electric cooperatives. Immediate action is needed to mitigate the impacts of a 2010 Department of Energy efficiency rule and help maintain our ability to use those water heaters in voluntary demand response programs.

The DOE rule which goes into effect on April 16, as you mentioned, effectively bans the manufacture of electric resistance water heaters with this storage capacity of over 55 gallons. As manufacturers prepare to shut down production lines, this widely supported legislation is urgently needed.

The electric industry is searching for a low-cost battery to store electricity. At Great River Energy, we think we have it. It is in the basements of nearly 100,000 homes in Minnesota. It charges each night and discharges every day in the form of hot water. It does this night after night, year after year, storing and discharging over 1,000 megawatt hours every day. I would argue that it might be the largest battery in the upper Midwest. This battery consists precisely of the same water heaters that the DOE wants to ban.

Through demand response programs offered by electric cooperatives, these super-insulated, high-efficiency water heaters store low-cost off-peak energy which is available in the nighttime hours. We store it in the form of hot water. They allow for the better utilization of renewable energy and more efficient operation of the electric grid. More importantly, water heaters play an important role in cooperatives' efforts to provide its member-owners with safe, reliable, and affordable electric energy.

Even when not tied to renewable energy, cooperatives across the country use these water heaters to reduce demand for electricity during peak hours which would otherwise be served by additional and less efficient electric generators. Today over 250 electric cooperatives across the country are engaged in voluntary demand response programs using large-capacity electric-resistance water heaters.

They are one of the best tools cooperatives have for integrating renewable energy and encouraging demand response and improving system reliability.

So on April 16 a new efficiency standard will take effect. This standard will require all large-capacity electric water heaters to operate at about 200 percent

efficiency, a level that only heat-pump water heaters can achieve. While heat pump water heaters are energy efficient, they don't work so well with utility demand response programs and they don't work so well in cold climates, such as Minnesota.

The DOE, despite its good intentions, was unaware of the impact that its rule would have on utilities' demand response programs. However, due to regulatory hurdles, the DOE has not been able to resolve the issue.

In a great cooperative fashion, the National Rural Electric Cooperative Association worked with a large stakeholder group to come up with a legislative solution that will not only help protect these water heaters but will also advance water heater technology by establishing criteria for grid-enabled water heaters. The widespread stakeholder support for this solution should make it an easy decision to pass this urgent legislation immediately.

H.R. 906 doesn't repeal the DOE standard but rather permits the continued manufacture of large capacity water heaters above 75 gallons for use in demand response programs. The legislation includes language to prevent these water heaters from entering the market unless they are used in

utility demand response programs.

As the subcommittee is aware, the consensus legislation has been incorporated into numerous pieces of energy efficiency legislation in both the House and the Senate over the past 2 years. Last March the House passed H.R. 2126, the Energy Efficiency Improvement Act, by an overwhelming vote of 375 to 36. Three of the four titles of H.R. 2126 were recently attached to S. 1, a bill to approve the Keystone pipeline, a bill that passed both the House and Senate in this Congress but was vetoed for reasons unrelated to the water heater title.

In summary, H.R. 906 is a good bill. It fixes things to everyone's liking. On behalf of Great River Energy and the other cooperatives across the Nation who face the threat to this new DOE standard, I want to thank Chairman Whitfield and Representative Welch as well as Representatives Latta, Loebsack, Cramer, and Doyle for their leadership on the current legislation and persistence in seeing it through. Thank you.

[The prepared statement of Mr. Connett follows:]

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Mr. {Whitfield.} Mr. Connett, thank you very much for your statement. At this time, I would like to recognize Steven Koep who is the Utility Sales Manager at the Vaughn Thermal Corporation and the Vaughn Electric Water Heaters. Thank you very much for being with us this morning, and we look forward to your 5 minutes of testimony.

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^STATEMENT OF STEVEN KOEP

} Mr. {Koep.} Good morning and thank you.

Mr. {Whitfield.} And if you wouldn't mind turning it on and get it up closer so that we can hear you?

Mr. {Koep.} Okay. Am I coming through?

Mr. {Whitfield.} Yes, sir.

Mr. {Koep.} Thank you.

Mr. {Whitfield.} Thanks.

Mr. {Koep.} Good morning and thank you. Chairman Whitfield, Ranking Member Rush, members of the subcommittee, thank you for inviting me to today. My name is Steve Koep. I am the National Utility Sales Manager at Vaughn Thermal Corporation. We manufacture electric water heaters in Salisbury, Massachusetts. We also manufacture a wide range of water heating and electronic control technologies. I would like to thank the subcommittee for addressing this important issue and for inviting me here today.

Vaughn has been in the business of manufacturing high-efficiency, long-life electric water heaters for electric utility programs for over 50 years. We are an active member

of AHRI, and as such, I am here to represent Vaughn but also the other water heater manufacturers whose support of the legislative effort. That would be A.O. Smith and Rheem and General Electric who are all part of that stakeholder group.

Following the general outline of my written testimony, I would like to touch on some pertinent questions and topics.

First is why the urgency? It has been almost 5 years since the final rule was announced, and it has been 2 years since DOE held a meeting on the proposed rule-making to establish a waiver process to address the concerns of the electric utility industry. As we have heard the DOE rule will most certainly cause the erosion of existing demand response resources, resources that by DOE's own admission the country needs and the country wants.

Secondly, why are we also concerned about this fraction of a fraction of the electric water heating market? While large-capacity residential electric resistance water heaters make up less than 5 percent of the electric water heating market, they are more than 90 percent of what gets installed in utility demand response programs. That is why they are so important.

As you know, the legislation contains the provision for

a grid-enabled product classification. I feel it is important to point out that utilities, manufacturers, and public policy organizations, all of those represented here today, all support this legislation. This is as close as we can get to unanimous support on any utility industry issue.

In addition, there is an activation key provision within the legislation that will equate to a very low likelihood of leakage for these products through traditional wholesale and retail channels. In previous presentations on this issue, I have used the phrase change the technology or change the source energy. It is fair to characterize the DOE approach as change the technology since efficiency gains will lead to reduced carbon emissions. But it is also true that changing the source energy and maximizing of the renewable input to these appliances reduces carbon as much or more. We need to pursue both strategies simultaneously. It needs to be and not or. We need to change the technology and change the source energy, and by doing so we have the unique opportunity to double the carbon reduction potential in the electric water heating market. That is exciting.

I think it is fair to look at this as a renewable storage opportunity. Again, a phrase that I have used: What

happens when the forgotten appliance meets the internet of things? You get the grid-enabled water heater. High-speed two-way communication to this appliance and aggregation on the scale of the Great River Energy Program, which means we have the potential for the largest aggregated interactive thermal battery probably on the face of the earth.

I am sure you are all familiar with the issues of curtailed wind and spilled hydro. In this country we have excess low-cost and no-cost renewable energy that goes for the asking at certain times of the year and certain times of the day. So please remember that electric thermal storage is the low-hanging fruit when it comes to renewable storage and electric storage technologies. ETS storage is 1/10 the cost of batteries of fly wheels.

In summary I just want to touch briefly on the market potential and the potential market impact of grid-enabled water heaters. Within this country there are over 50 million installed electric water heaters in households across the country. Roughly 4 million of those are replaced annually. That money is being spent, that investment is being made on an annual basis. If we could divert or convert 10 percent of the annual turnover to grid-enabled water heaters, that would

be 400,000 water heaters a year. That would be like implementing four Great River Energy Programs on an annual basis. But you know, the potential here is very large. And as I said, the investment is being made. We could do this for just the incremental cost of the controls. The tanks are being manufactured and sold and installed every year to replace the water heaters that are failing.

Historically, my personal experience is telling me that timing is everything. So if doing the wrong thing at the right time or any other time isn't going to get us where we want to go, even the right thing at the wrong time doesn't help. We need to do the right thing at the right time, and this legislation is the right thing at the right time. So I want to thank you for the opportunity to visit with you today, and I welcome any questions you may have.

[The prepared statement of Mr. Koep follows:]

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Mr. {Whitfield.} Thanks very much, Mr. Koep. At this time I would like to introduce Mr. Steve Nadel who is the Executive Director of the American Council for an Energy-Efficient Economy. Thanks for being with us, and you are recognized for 5 minutes.

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^STATEMENT OF STEVEN NADEL

} Mr. {Nadel.} Okay. Thank you, Mr. Chairman, Mr. Ranking Member, the members of the committee. As you noted, I am with the American Council for an Energy-Efficient Economy. We are a non-profit research organization that works on technologies, programs, and policies to advance energy efficiency. We have been doing this for 35 years now, and over this period, substantial progress has been made on energy efficiency, due in part to strong bipartisan support from Congress. As you, Mr. Chairman, stated at a previous hearing I testified at, no one is in favor of energy waste.

I am here today like the other witnesses to testify in support of H.R. 906. Water heating is a major use of home energy use, second only to space heating. For homes with electric water heating, the water heater is generally the single-largest electricity user. Due to the high cost of water heaters, they were included in part of federal energy efficiency standards passed by Congress in 1987 and signed by President Regan. Congress set the initial standards, and DOE periodically revises these standards based on criteria that

Congress established.

A 2012 analysis estimates that the standards already enacted on water heaters as well as other products are saving consumers and businesses in the United States a cumulative trillion dollars. So these are enormous savings, not million, not billion, trillion.

In 2010, as we have already heard, after a multi-step rule-making process, DOE established new efficiency standards for water heaters that take effect next month. The standards apply at the point of manufacture and do not affect water heaters already in houses or in the sales distribution system. The new standards require moderate efficiency improvements in water heaters with a storage capacity of 55 gallons or less but much larger efficiency improvements in both electric and gas water heaters over 55 gallons. I would note that 50 gallons is the average electric water heater. So these only apply above those stronger standards, above that.

Households with very large water heaters use more hot water on average, making higher efficiency levels cost effective. When DOE established the standards, it estimated that the average household with a very large electric water

heater would save over $600 over the life cycle of their high efficiency unit.

Now, as we have heard, many electric cooperatives as well as some other utilities have long sponsored programs to use water heaters to heat and store hot water during off-peak periods such as overnight permitting lower energy use during peak periods. These programs help utilities manage their systems by reducing peak loads. A timer or radio control or other type of communication device controls the water heaters to generally stop them from operating during peak periods.

After DOE issued the rule in 2010, some utilities realized that the very large electric-resistance water heaters they sometimes use in demand response and thermal storage programs would no longer be manufactured. There are heat pump water heaters, but these have not yet been fully evaluated and field tested for use in demand response and thermal storage programs.

To address these concerns, as we have all heard, many organizations negotiated the language in H.R. 906, and we very much appreciate the Chairman and the other cosponsors. It carefully balances opportunities for saving energy via high-efficiency water heaters with the benefits to utilities

of using large electric water heaters and demand response and thermal storage programs. It allows for the continued manufacture of these large electric resistance water heaters with a variety of provisions to limit their use to homes participating in demand response and thermal storage programs. The bill also provides guidance so that DOE will carefully consider both energy efficiency and demand response opportunities in future rule-makings.

So as I said, we do support this bill. We also recommend that his committee consider other energy efficiency bills. We hope that this is just the beginning of what we think could be a very productive Congress in terms of energy efficiency. So with that, I look forward to your questions, and thank you for the opportunity to testify.

[The prepared statement of Mr. Nadel follows:]

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Mr. {Whitfield.} Thank you very much, Mr. Nadel, for that statement. At this time I would like to recognize Mr. Robin Roy who is the Director for Building Energy Efficiency and Clean Energy Strategy at the Natural Resources Defense Council. Thank you very much for being with us, and you are recognized for 5 minutes.

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^STATEMENT OF ROBIN ROY

} Mr. {Roy.} Thank you, Mr. Chairman, and members of the subcommittee. Thank you for the opportunity to share the views of the Natural Resources Defense Council on grid-enabled water heaters which we believe present a promising opportunity for a more efficient, more economic, and ultimately lower emissions electricity system overall. We really appreciate your leadership on this issue and your sponsorship of this bill.

In brief, NRDC supports H.R. 906 to allowed continued production, use, and evaluation of grid-enabled water heaters. One of NRDC's top institutional priorities is creating and facilitating a clean energy future, and to that end we have long supported and advocated for greater energy efficiency, greater productivity and using federal energy appliance standards as one tool in the portfolio for getting there.

Given our longstanding support for stronger energy efficiency, it may seem surprising that we support this legislation which allows for continued production of electric

resistance water heaters that may use double or more the energy of a heat pump water heater that would otherwise be required. But there is a good reason. We explored the opportunities. We talked to our colleagues here and many others in manufacturing and among utilities, and we found the case persuasive. We worked with these colleagues from manufacturing, utilities, other efficiency and environmental organizations, and we came up with an approach that delivers on the opportunity for efficiency savings and delivers on the opportunity for grid-interactive water heating, demand response and--services. It doesn't undermine the opportunities from the efficiency standards. This language is a product of that work.

I have to say as a bit of an aside, sometimes when a lot of folks get together, it is hard work to come up with something that we can all agree on. We come with different perspectives. And sometimes that goes into an abyss. We never hear anything from it again. And it is so pleasing to see something like H.R. 906. I really do appreciate the effort. We see the result of our hard work, and it kind of encourages us at NRDC to do more of that, reaching out to other parties, and I really do appreciate that. I know I

burned some time on that, but it is really important.

The key opportunity here is, as my colleagues have already expressed, is the achievement of benefits at a system level. Federal energy appliance standards focus on the component level. We recognize the difference. We are looking towards having while maybe more energy use, having that energy use at more attractive times, lower cost, lower emissions, overall just a much better outcome. We are very keen on that. We recognize that that is the opportunity that is presented by this water heater energy storage, this large battery as my colleagues have said. We are very keen on it.

One of the key elements of H.R. 906 that we are so delighted by is that it allows for, really encourages, much more analysis of consumer and environmental impacts from grid-enabled water heaters. It is built right in. There is so much to be learned about the effectiveness of these water heaters. Actually, there is so much to be learned about not just grid-enabled water heaters but about heat pump water heaters and what might be done to optimize our energy use delivering the greatest consumer and environmental outcomes.

We are at a really early stage analytically. It is inherently complex. There are a lot of other water heater

technologies existing and emerging. Conditions in Mr. Connett's area are different from conditions in the Pacific Northwest, and those are different from those in the South. Getting analysis right is not always that easy, but it is really worth doing for water heaters. They are 15 percent or more of residential energy use. They are big. If we get this one right, even small improvements can deliver great consumer and environmental outcomes.

One issue that is often on some people's minds is whether this grid-enabled water heater legislation will pose a problem for heat pump water heaters. We don't think that is the case. We think that grid-enabled water heaters, this legislation, focuses on a fairly small market segment where heat pump water heaters may not be most well-suited and in fact, the attention to water heating, the further analysis that will come from this, may actually end up delivering much more advance in all sorts of water heater technologies, both in development of technologies and understanding them and deploying them through good utility programs and consumer choices.

I think that is really pretty much all I want to say. I can talk a little bit more about our long and abiding love

for federal energy standards as one of the tools in the portfolio that give us a more efficient, economic future, but I think that is already on the record pretty well. I appreciate the opportunity.

[The prepared statement of Mr. Roy follows:]

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Mr. {Whitfield.} Mr. Roy, thanks very much, and thanks for being here. At this time we will ask questions, and I would like to recognize myself for 5 minutes.

First of all, I was not aware that hot water heaters were the largest users of electricity in most homes, and I think someone did say that. But Mr. Koep, I think you are involved in the manufacture of water heaters, and let us say we are not successful in adopting 906. Would a heat pump water heater that would be manufactured under the new regulation, would that be more expensive than the heat resistant water heater that is currently being used?

Mr. {Koep.} Chairman, thank you for the question. Yes, it would. Large-capacity heat pump water heaters in general will be about twice the cost of a large-capacity electric resistance water heater. You add the compressor cost and the installation cost, and it is more expensive by about a factor of two. So it does have a cost impact. The question has also been asked whether heat pump water heaters can be grid-enabled and grid interactive. The technology is taking us in that direction, but you know, in the short term, we are just not there yet. There is important work to do in that area,

but right now the grid-enabled large-capacity units are the tools that we need.

Mr. {Whitfield.} So what would be, if you double the cost, what kind of costs are we talking about for a large hot water heater?

Mr. {Koep.} Well, an 80-gallon heat pump water heater is going to be in the $1,500 range--

Mr. {Whitfield.} $1,500?

Mr. {Koep.} --at retail.

Mr. {Whitfield.} Yeah.

Mr. {Koep.} I think that an 80-gallon is the small end of the range. Generally with large-capacity units for thermal storage, you will see 100-gallon and we are gearing up to build 120-gallon water heaters. So we are moving in that direction.

Mr. {Whitfield.} Well, without getting too technical and just for laymen's understanding, why is it that a heat-resistant water heater is more compatible with demand response than--heat pump would be less compatible than the heat resistant?

Mr. {Koep.} Well, it has to do with the ability to control the wattage of the element. You know, the finer

element control enables a lot of the ancillary services in terms of frequency control and other things that the independent system operators are willing to compensate for. So to the extent that we can control those elements, we can provide these services.

The heat pump water heater with the compressor, we can vary element wattage to the compressor. Turning a compressor on and off in short periods of time shortens compressor life. It is just not a real compatible technology for the fine level of control that we can achieve with elements.

Mr. {Whitfield.} Right. And Mr. Connett, what do you think would be the overall impact for electric co-ops around the country if we are not successful in passing this legislation?

Mr. {Connett.} Mr. Chair, a lot of the electric cooperatives have a fair amount of electric water heaters in their territory today. We might call those uncontrolled water heaters. A lot of the co-ops' service territory doesn't have natural gas. It has propane as an option, and in many of those areas, the choice for heating water would be an electric water heater. It is less expensive to operate than a propane one.

Mr. {Whitfield.} Okay.

Mr. {Connett.} And so if those were all to go in without any control capability, we are going to add to our peak demands, and if we start to add to our peak demands, that means additional cost to our consumers. It means additional emissions, additional fuel costs, additional power plants potentially. And so having this ability to have a water heater that is a large volume water heater that allows us to take that entire electric load and shift it to an off-peak period is good for our memberships and good for our co-ops.

Mr. {Whitfield.} Okay. Well, I want to thank all of the groups that work together. You know, we have a lot of issues up here in which there are strong philosophical differences, and the only way we are going to move forward is for groups to recognize, including those on my side, we can't always get everything we want. And that is why the regular order is so important. So thank you all for working together on this, and hopefully we can pass this legislation.

And at this time I would like to yield 5 minutes to the gentleman from Illinois.

Mr. {Rush.} Thank you, Mr. Chairman. Mr. Nadel, in the

initial legislative effort to address this grid-enabled water heater issue, you actually testified before the Senate Energy and Resources Committee in June of last year, June of 2013 rather, expressing your organization's concern over the legislative language proposed at the time. Would you assert ``allow widespread use of less efficient water heaters and application without off-peak water heating or load management''? Since that time your organization has been--at the negotiating table and actually helped draft the new language contained in this bill. Can you speak to your organization's involvement and investment in this new language and have your fears been addressed in the current bill that we have before us today?

Mr. {Nadel.} Yes, I thank you for bringing that up. Yes, our concerns have been addressed. In fact, after that hearing some of the people here in this room came up to me and said can we talk? Can we try to work something out? The bill originally basically just allowed unlimited sales of these water heaters for these applications. We have, as you have heard in the testimony here, the bill has a number of provisions to effectively limit its use to those households where there is a demand response or thermal storage program.

With those limitations and those protections, and I describe them in more detail in my written testimony, we are very comfortable with this bill. It allows demand response programs but doesn't allow widespread leakage.

Mr. {Rush.} Thank you. Mr. Roy, are you convinced that this bill will have a positive impact on both consumers and the environment by allowing the use of grid-enabled water heaters?

Mr. {Roy.} Yes, I am, sir. I believe the light that will be shown on this opportunity for grid-enabled water heaters, the analysis that will come with it will focus a lot of attention. So we will get benefits not just directly from the application of grid-enabled water heaters as they are called for here, but I think we will have more utilities, more demand response service providers and aggregators for utilities. I see that we have a representative from a Pennsylvania, a PJM, transmission organization in the room here today. We will have much more attention on the broader set of opportunities that are available in water heating.

I think the direct and spillover effects both can be great from this. I know my organization will be working hard with all these parties to see what can we do now that we have

something that is powerful and productive in this space? How can we really work forward and help each other with the programs, help deliver better consumer and environmental outcomes?

Mr. {Rush.} Thank you. Let me ask across the table. Is there anyone who has any concerns with this bill in thinking that it may have unintended consequences that we have not covered today? Does anyone of you all think that there is anything that we haven't focused on, that we haven't covered, that may have an unintended consequence that we should be aware of?

Mr. {Roy.} I think we always find some unintended consequences in most things we do, either as actions or through inaction. What is important is that we are aware of it, are responsive, and we work forward.

What we have here is an industry segment and a degree of attention that I think will help us all address any unintended consequences in a timely fashion and deal with those and move onto the great opportunities that are available.

Mr. {Rush.} Mr. Chairman, with that I yield back the balance of my time.

Mr. {Whitfield.} The gentleman yields back. At this time I recognize the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. {McKinley.} Thank you, Mr. Chairman, and thank you for having this hearing. I am curious back on the comment that I think it was you, Mr. Koep, said about the heat pump water heater at around the cost of $1,500. Also labor would be a little higher, too, wouldn't it, installing that?

Mr. {Koep.} Yes. Installation costs with heat pump water heaters are generally higher than electric resistance.

Mr. {McKinley.} And so building on that, what kind of payback, what should someone expect to pay back on that?

Mr. {Koep.} On a heat pump water heater in general?

Mr. {McKinley.} Yes, 10 years, 15 years?

Mr. {Koep.} I think in the marketplace today there are a lot of incentives for heat pump water heaters, and generally heat pump water heaters are operating at twice the efficiency of electric resistance. So most of our experience is with 50-gallon heat pump water heaters replacing standard 50-gallon electric resistance. And I think payback is less than 5 years.

Mr. {McKinley.} Even in a place other than--in West

Virginia, we are probably paying around 7 cents a kilowatt hour, but in New York it is 19, 20 cents a kilowatt hour. So are you saying generally speaking across the country or are you talking--

Mr. {Koep.} Well, generally, I am saying that there are--as an example in Iowa, there are a number of cooperatives that have $500 rebates on heat pump water heaters. So they are buying down the cost of this technology, and that is what makes the payback period more attractive. In the Pacific Northwest we have seen $900 rebates on heat pump water heaters. But that has helped to make them more cost effective and reduce the payback time. But the fact remains that, you know, trying to control a heat pump water heater for grid-enabled functionality, that has not been worked out yet.

Mr. {McKinley.} Okay.

Mr. {Koep.} And that is the major difficulty.

Mr. {McKinley.} Mr. Nadel?

Mr. {Nadel.} Yes. Department of Energy did examine the exact question you ask, and they estimate the average simple payback is 6 years for a heat pump water heater. That is the average. If it is more expensive electricity, it will be

less. If it is only 7 cents a kilowatt hour, it will be more.

Mr. {McKinley.} Yeah.

Mr. {Nadel.} I think that is based on about 11 cents as I recall, average.

Mr. {McKinley.} Mr. Koep, back on, you know, we received some promotion--my former firm, we had an architectural engineering practice, and so we were always being promoted to put those in-line electric units so that weren't storing water. We never used those, but how inefficient are they to be able to have instant hot water instead of having a 50- or 100-gallon tank sitting there trying to maintain a low temp or a high temperature for a period of time? How inefficient is it to have just simply the in-line augmented?

Mr. {Koep.} The in-line or instantaneous electric water heating technology at an efficiency level is very high in terms of converting kilowatt hours, you know, to BTUs. But the general consensus is that whole-house applications of instantaneous electric or electric tankless, they cause problems in terms of transformer sizing, demand charges for the home or the business, impact for the cooperative or the

utility. Most electric tankless technologies that I refer to as point-of-use are the ones who have the best application because you can run one line to one location and put a point-of-use water heater in for a lavatory or for hand-washing or something like that. But whole-house applications have been problematic.

Mr. {McKinley.} Okay. The last question more is about efficiency. What should we be anticipating in the industry, should be the next move in efficiency, whether it is hot water heaters or other appliances that we have in our households? What is the next generation of efficiency we should be anticipating?

Mr. {Koep.} Well, I think heat pump water heater technologies will continue to gain in efficiency. In 5 years, you know, they have moved from 2.0 to somewhere over 3.0 in terms of performance factor meaning that for every kilowatt hour you provide to that compressor, you can move 3 kilowatt hours' worth of heat. So I would say that is probably going to be the major improvement. I don't see a new major technology on the horizon. I think that, you know, the introduction of water heaters to the internet of things and high-speed two-way communication to the appliance offer

us multiple levels of efficiencies that we can explore. But in terms of raw technology, you know, it has taken us 20, 25, 30 years to get heat pump water heaters into the market.

Mr. {McKinley.} Sure. Mr. Nadel, do you have a comment about that?

Mr. {Nadel.} I totally agree with that. I just expand slightly for gas water heaters. We have condensing water heaters. During the break a number of us were talking about opportunities to meld the water heater with the space heating and cooling systems, combination appliances. So this is something--

Mr. {McKinley.} Eventually we have run out of our time, but condensing and non-condensing, I would like to have more discussion about that. Thank you.

Mr. {Whitfield.} If you would meet Mr. McKinley right after the hearing to talk about that? At this time I would like to introduce and recognize the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. {Tonko.} Thank you, Mr. Chair, and welcome to our panelists. Mr. Connett, what are your estimates for savings to the utility and to the customer, to consumers, achieved through the use of demand-response programs?

Mr. {Connett.} Thank you. In terms of the consumers, we sell the energy that goes to these large-capacity water heaters. We call them off-peak water heaters if you will. We sell the energy to them at a fairly low price. And so they can heat their water for around $240 a year. And that compares to say propane. And propane is rather volatile, at least it is in Minnesota, or has been. And so sometimes propane for that same amount of water could be $500 or $600 or $700 cost. It would vary. In terms of natural gas, it would be competitive with natural gas if you could heat your water for $240 we will do the same with an off-peak water heater.

Mr. {Tonko.} And the savings to the utility?

Mr. {Connett.} Those are savings to the consumer. In terms of the utility, it has to go back to this notion that without these programs, we would have to buy high-cost energy in the market. And the notion is is that we have a peak at every utility every day, and that peak for a lot of co-ops occurs at suppertime. That is when we are all home and we are having dinner. And by the way, that is usually the largest time of hot water consumption. And so if all these water heaters were not able to--if we weren't able to control

them, they are adding to our peaks and we would have to build peaking plants to serve that load or buy high-cost energy. The cost to build the peaking plant for 100 megawatts is about $80 million. It gets fairly expensive to serve that peak power that we can avoid.

Mr. {Tonko.} I hear you. Thank you. What percentage of the demand-response programs used by our rural co-ops are due to the use of electric thermal storage devices?

Mr. {Connett.} You know, I would say it this way, that premier program for the co-ops, demand-side management programs is water heating.

Mr. {Tonko.} Okay.

Mr. {Connett.} It is by far the most successful and the most widespread program that we have.

Mr. {Tonko.} And in that regard, what proportion of your customers participate in the demand-response programs using electric thermal storage?

Mr. {Connett.} Yes, I can speak to Great River Energy. And about 20 percent of our membership has a demand-response water heater.

Mr. {Tonko.} And just as to how the consumers benefit from the use of water heaters that are incorporated into a

demand-response program?

Mr. {Connett.} Again, for the consumer, it is cost savings. They are not going to spend as much to heat hot water as they would otherwise.

Mr. {Tonko.} Okay. And obviously the ancillary piece of the avoidance of peak capacity plants, that would have to be addressed.

For Mr. Nadel and Mr. Roy, a question about water heaters and the fact that they are replaced about every 15 years, often when they have failed. So consumers often need to make quick choices about replacement. I have a few questions related to consumer purchasing. Will water heaters exempted from the standard be identified as such to the consumer?

Mr. {Roy.} Yes, there is a clear requirement for labeling that is permanent, water resistant. They will know for a long time. Also importantly, they won't be that readily available unless they are part of a utility program because there is a lock-and-key arrangement required by the legislation.

Mr. {Tonko.} And then for either of you, will the consumer know that these products will not deliver more than

50 percent of hot water if they are not part of a utility-demand response program?

Mr. {Nadel.} The warning label on it says they will only operate properly. I don't think it gives the exact details, but it does say they will not operate properly unless enrolled in a program and enabled by a technician associated with that program.

Mr. {Tonko.} But it doesn't mention a percentage? It just--

Mr. {Nadel.} No.

Mr. {Tonko.} Okay. And then consumers do use the yellow energy usage information on appliances to make purchasing decisions. Do these labels need to reflect the dual nature of the energy usage of these systems?

Mr. {Nadel.} On the labels, they will have to talk about their current--the energy use of these products under this typical test procedure, and they give a range of comparability. I have to look at the exact details of the Federal Trade Commission rules to say what will be on the range of comparability for these particular types of water heaters.

Mr. {Tonko.} And if they are installed and are not part

of a demand-response system, aren't they less efficient than the identical appliance installed as part of a demand-response program?

Mr. {Nadel.} Yes, they are not as efficient, so they do use more power that is compensated for the ability to control them. But if you somehow defeat the protections which are quite substantial, yes, you will get higher energy use and you won't get the benefit. But we I think very carefully constructed it to minimize the chances of leakage.

Mr. {Tonko.} Okay. Gentlemen, I thank you. With that, Mr. Chairman, my time is--

Mr. {Whitfield.} Okay. Did you want to say anything, Mr. Koep? You look like you were--

Mr. {Koep.} No, I don't have anything to add at this time. Thank you.

Mr. {Whitfield.} Okay. At this time I would like to recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. {Griffith.} Thank you very much, Mr. Chairman. I appreciate you all being here, and listening to your testimony today is making me think I should go ahead and get a new hot water heater because mine clearly is not going be

nearly as efficient as what you all are talking about.

I am concerned about some things. The gentleman just brought up the warning label. I do think that we probably need to take a look at that and see if we can make sure we let folks know that it will go to 50 percent of efficiency if it is tampered with, and the whole lock-and-key mechanism concerns me some. I will tell you that when this was a part of a Senate amendment to a House bill, I looked at it, and fortunately the penalties do not include incarceration for trying to get around the system by doing something to the machine. But it does include a fine penalty which causes me concern. It always makes me nervous when we are mandating things. And so I am trying to figure out--and I know most consumers will just, you know, this is what is available on the market. If something happens, their plumber tells them this is what you need to buy. They will buy that or they will go to the Home Depot and get something off the shelf. But if somebody really wants to have 100 gallons ready whenever they want it, what would keep them from buying two, 50-gallon hot water heaters under this program or this bill?

Mr. {Koep.} Thank you for the question. There is nothing that stops a consumer from buying two smaller-

capacity water heaters. There is nothing that prevents them from buying a commercial water heater and putting it into their residence.

Mr. {Griffith.} Let me ask that question because I am trying to find answers, and anytime the government is mandating stuff, it makes me nervous. So if I wanted to buy a commercial hot water heater, this wouldn't be a problem?

Mr. {Koep.} No. This relates specifically to residential. This goes back to the DOE ruling which is specifically for residential--

Mr. {Griffith.} But I could put a commercial hot water heater into my residence?

Mr. {Koep.} My understanding, there is no law that prevents a homeowner from buying a commercial water heater, gas or electric, and putting it into their residence.

Mr. {Griffith.} Okay. Now, let me ask this because I know a lot of people will have this question, too. I read somewhere that if you have the heat pump type water heater and it is in an area that is normally heated, it may actually cool the air a little bit as well. Is that accurate?

Mr. {Koep.} A heat pump water heater will cool and dehumidify the space that it resides in because it is pulling

heat out of that space and putting it into the tank. There are some ducting options that are being developed for heat pump water heaters that would allow them to pull outside air in and expel, you know, cool air. You know, so the technology is evolving in that direction. But most of the technology that is on the market today does cool and dehumidify the space that it resides in.

Mr. {Griffith.} Okay. And so when you say that the unit would cost more if you had it say in the middle of your basement and you converted the basement or the house had a basement converted into a living space, you would have to spend some more money getting the outside air brought in so that you wouldn't cool your basement where perhaps your daughter has taken up residency? Just saying.

Mr. {Koep.} Well--go ahead.

Mr. {Nadel.} Yes. A good question. In fact, there was a study published just a few weeks ago in the Pacific Northwest looking at this issue. It found that yes, it does occur. It was relatively rare. As I recall, they found out across a sample of homes with heat pump water heaters in the Northwest relatively cold, instead of getting that co-efficient performance of two when you factor this in, it

might be 1.9 or something.

Mr. {Griffith.} All right.

Mr. {Nadel.} On average.

Mr. {Griffith.} Let us translate that into that alleged daughter's bedroom area. How much is the temperature going to drop? Are we talking 1 degree or we talking, you know, she is going to notice 10 degrees cooler? Do we know?

Mr. {Connett.} I should speak for Minnesota. And we have installed a number of heat pump water heaters in employees' homes just to get a sense of how well they do work, and there is no doubt about it. In Minnesota, every water heater is in a basement, and those basements are conditioned. And we heat those basements. And so to put a heat pump water heater into I will call it the furnace room, it is going to cool that furnace room down quite a bit. It has been described as I can hang dead deer in there now. It is cold. And what it is doing is a heat pump water heater extracts heat from that room. That is what a heat pump does. It extracts heat and puts that heat into the water heater.

Think of a refrigerator for a minute. That is extracting heat from inside the refrigerator and putting it into your kitchen. That is a heat pump in action. This is

another heat pump. It is going to extract heat from its environment. You need a fairly--the heat pump manufacturers will tell you, you need so much area in your furnace room to have a heat pump water heater because it has to extract heat from that space, and it is going to condense it and squeeze it all together and put it into the water heater. So that mechanical room is going to be a little cool. And that might spill over into the family room or the living room down in the basement as well.

Mr. {Griffith.} All right. I do appreciate it. Thank you all so much for being here. We are all trying to be more efficient, but we want to make sure we balance out all the interests concerned. Thank you so much. I yield back.

Mr. {Whitfield.} Thank you, Mr. Griffith. At this time, I recognize the gentleman from Texas, Mr. Green, for 5 minutes.

Mr. {Green.} Thank you, Mr. Chairman. I would like to put my statement into the record, and I can go straight to questions.

[The prepared statement of Mr. Green follows:]

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Mr. {Green.} Mr. Roy, I have some questions, and I have to admit, coming from Texas and refining and oil, we normally don't agree with the NRDC. But today that is a different case. Does NRDC have a sense of why new efficiency standards were proposed by DOE?

Mr. {Roy.} There have been a series of efficiency standards on increasing numbers--

Mr. {Green.} I was just going to say.

Mr. {Roy.} --in 1987, signed into law by President Regan. This is an update on the water heater standards that were first put in then.

Mr. {Green.} In 1987?

Mr. {Roy.} Yeah.

Mr. {Green.} We would hope the technology has changed since then.

Mr. {Roy.} The technology is moving at a quick pace but in part because of this. I think the major manufacturers now are introducing products. Vaughn is introducing great new products in the heat pump water heater space and condensing gas water heaters. It really is moving.

Mr. {Green.} Your thoughts on the DOE proposed waiter

authority for water heaters. Is that something you all support?

Mr. {Roy.} We talked to the other stakeholders, the manufacturers, the utilities consumer groups, other efficiency environment groups after it was brought to our attention that there was a challenge with the DOE standard. We heard what they said. It made sense to us. So we worked together to support a waiver approach by DOE under their existing legislation. We would still like to see that move forward.

Mr. {Green.} Okay. Mr. Koep, on your position as National Utility Sales Manager, can you describe what the U.S. water heater market looks like? For example, coming from Texas, we don't mind--how many natural gas versus electric water heaters are sold. Have we seen it in the last few years particularly with the cost of natural gas cheaper?

Mr. {Koep.} I think that would have been expected, but from what I have seen from the industry numbers, it is still roughly a half-and-half market, that half is electric and half is natural gas. It varies greatly by region. The Pacific Northwest has much more electric water heating. If you go to California, it might be 95 percent gas. There is

also a split between rural and urban. Metro areas are usually decidedly more gas water heating because natural gas is readily available.

Mr. {Green.} Pipelines are available and everything else.

Mr. {Koep.} Yes. But on the national average that I have seen, it hasn't moved much from just about a 50-50 split between gas and electric, and that is sustained over the years.

Mr. {Green.} Okay. What is the standard size for a home now? Because I know I have heard over the years our homes have gotten so much bigger compared to the last generation. What is the standard size of a water heater now?

Mr. {Koep.} The 50-gallon electric is still the most popular size, and you know, it might be 80 or 85 percent of the marketplace. But this is an uncontrolled 50-gallon electric water heater generally not part of a demand-response program or an off-peak program because of the size limitation. On the gas side I think the most popular historically has been the 40-gallon gas, but I think that is moving--both electric and gas seem to be slightly toward larger capacity units because we are building larger houses,

and we have more uses for hot water within the home.

Mr. {Green.} Yeah. What are the market share for new technologies like the tankless and heat pump water heaters, the pump heaters?

Mr. {Koep.} That is a great question, and we talk about that at the ACEEE Hot Water Forum that they hold fairly regularly. Tankless gas technology was introduced roughly 15 years ago, and they spent a lot of money promoting that technology, and it is just within the last couple years they have gotten about 5 percent market share or now they might be slightly above that. So you know, that concerted effort has garnered them some market share.

Heat pump water heaters as a generally available technology has only been in the market about 5 years, and after 5 years, they are just approaching or have just gone over the 1 percent market share mark. So despite all the best efforts and the money and the promotion and the education efforts, there seems to be a regular schedule for technology adoption by the American public. Nobody is running out to buy the newest water heater. People buy a water heater when they need one.

Mr. {Green.} When they need it, yeah. Okay. Given

that the DOE standards take effect next month, have the supply chains for larger water heaters closed down or do you think that it -- because sometimes when the standards change, the supply is not there because plants haven't been doing it. Do you think there is enough supply to match what the DOE is doing?

Mr. {Koep.} Well, I think the supply chains are beginning to be impacted. A lot of the electric cooperatives and utilities that buy product directly for their programs had preordered in order to put in a stock of qualifying products so that when the rule goes into effect, they would not be immediately impacted. In terms of the manufacturers and the supply chains, they are already making the changes.

Vaughn is a very small manufacturer. You know, the big players in the industry, A. O. Smith and Rheem, you know, they are 80 percent or more of the water heating market with two companies. So you know, their production facilities, you know, they can stop building large-capacity residential, but they will still be building large-capacity commercial units. So the impact will not be that great.

Mr. {Green.} Okay. I know I am over time. Thank you, Mr. Chairman.

Mr. {Whitfield.} Notice how patient we are, Mr. Green. Well, that concludes the questions today, and I want to thank the panel for joining us and for your input and working with us in trying to formulate this legislation. And we look forward to working with you as we move forward, and we will keep the record open for 10 days for any material that needs to be inserted, and that will conclude today's hearing. Thank you very much.

[Whereupon, at 11:34 a.m., the Subcommittee was adjourned.]