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SAVING ENERGY: LEGISLATION TO
IMPROVE ENERGY EFFICIENCY AND STORAGE

WEDNESDAY, FEBRUARY 12, 2020

House of Representatives,

Subcommittee on Energy,

Committee on Energy and Commerce,

Washington, D.C.

The subcommittee met, pursuant to call, at 10:30 a.m., in Room 2322, Rayburn House Office Building, Hon. Bobby L. Rush [chairman of the subcommittee] presiding.

Members present: Representatives Rush, Peters, Doyle, McNerney, Tonko, Loebsack, Butterfield, Schrader, Kennedy, Kuster, Kelly, Barragan, O'Halleran, Blunt Rochester, Pallone (ex officio), Upton, Rodgers, McKinley, Griffith, Flores, Hudson, Walberg, and Duncan.

Staff present: Jeff Carroll, Staff Director; Jean Fruci, Energy and Environment Policy Advisor; Tiffany Guarascio, Deputy Staff Director; Omar Guzman-Toro, Policy Analyst; Rick Kessler, Senior Advisor and Staff Directory, Energy and Environment; Brendan Larkin, Policy Coordinator; Jourdan Lewis, Policy Coordinator; Elysa Montfort, Press Secretary; Tim Robinson, Chief Counsel; Medha Surampudy, Professional Staff Member; Rebecca Tomilchik, Staff Assistant; Tuley Wright, Energy and Environment Policy Advisor; Jordan Davis, Minority Senior Advisor; Peter Kielty, Minority General Counsel; Ryan Long, Minority Deputy Staff Director; Mary Martin, Minority Chief Counsel, Energy and Environment and Climate Change; Brandon Mooney, Minority Deputy Chief Counsel, Energy; Brannon Rains, Minority Policy Analyst; and Peter Spencer, Minority Senior Professional Staff Member, Environment and Climate Change.

Mr. Rush. [Presiding.] Good morning.

The Subcommittee on Energy will now come to order.

Today, we will hear from a number of witnesses on the saving energy legislation to improve energy efficiency and storage.

The chair recognizes himself for 5 minutes.

Today, the subcommittee convenes for a hearing focused on legislative proposals to bolster energy efficiency and energy storage. Through the implementation of these policies, the committee will boost consumer cost savings, offset energy supply-demand, reduce air pollution, and advance job creation.

The flexibility and reliability of our nation's grid is enhanced by any new storage capability. Energy producers use a variety of these economically- and environmentally-beneficial technologies to store excess energy from power sources. Energy producers later release this stored energy in response to energy generation demand, service disruption, or non-dispatched energy generation. Bills up for discussion today, which includes H.R. 1714, H.R. 2909, and H.R. 4447, will amplify the deployment of this strategy.

Energy efficiency is an equally important tool that harnesses technology to meet our energy needs through smart

energy use. According to a recent American Council for an Energy-Efficient Economy report, enhancing economywide efficiency standards could cut both energy use and greenhouse gas emissions in half by the year 2050. This is why I am pleased to discuss H.R. 3962, H.R. 5650, and H.R. 5758 at today's hearing.

Extensive efficiency of residential appliances, lighting systems, and buildings alone will curtail 550 million metric tons of carbon dioxide per year. This amounts to the emissions from burning 606 million tons of coal.

The intensity of energy use is contingent upon geographic location. Case in point, Chicago heat waves and winters. However, a typical household may save up to 25 percent on their utility expenses through energy efficiency measures.

In light of this, I remain deeply disturbed by the Department's failure to meet legal obligations for a new efficiency standard, and I am puzzled by this administration's continuing requests to slash funding for related programs.

Therefore, I look forward to today's discussion on these policies that require active participation from the Department of Energy, from states, and from industry to

implement these mechanisms to the benefit of ratepayers and consumers.

I want to thank my colleagues, both on the committee and off the committee, for their contributions to today's legislative hearing.

With that, I now am honored to recognize my friend, my colleague, the great gentleman from the great State of Michigan, the great ranking member, Fred "Great" Upton, for 5 minutes.

[Laughter.]

Mr. Upton. We are going to have to get you a MAGA hat with "Fred" on it.

[Laughter.]

Thank you, my friend, indeed, my friend, and chairman of this great subcommittee for sure.

This is going to be a good hearing. And today's legislative hearing is going to focus on six energy bills focused on energy efficiency and grid storage. I am pleased that most of these bills are, indeed, bipartisan and reflect close cooperation and compromise among our many members.

I also want to welcome back Under Secretary Menezes, Mark, back to the committee to provide testimony on this first panel. Under his leadership, he served as chief

counsel to the committee and helped us enact the Energy Policy Act of '05.

And on the second panel we have a range of witnesses representing energy efficiency -- advocates, architects, home builders, energy service companies that retrofit federal buildings. I look forward to gathering their views and suggestions to perform these bills.

And as we lay the framework for a modern electricity system, we know that advances in energy storage and energy efficiency, indeed, will be critical. Not only will they have the potential to provide substantial benefits to consumers in the form of lower electricity bills, which we all want, but they are also going to help us balance the power grid and use less energy, which will, obviously, reduce emissions.

DOE is dedicating substantial resources, cutting across multiple program offices and the National Labs, to accelerate the development, commercialization, and utilization of next-generation energy storage and energy efficiency technologies. I look forward to receiving an update from DOE on the programs already in place and the Department's plan for the future.

And as we work to modernize the electric grid, one of

our top priorities is certainly going to be to make sure that new technologies being developed and commercialized are resilient to cyber threats. While it doesn't appear that these bills address cyber, today I would like to explore opportunities to address this critical need as well.

With that, I want to turn to the bills to make a few remarks.

I am pleased to support H.R. 4447, the Expanding Access to Sustainable Energy Act, introduced by Mr. O'Halleran and Mr. Mullin, a targeted bill to provide energy storage and microgrid assistance in rural areas.

I also certainly support H.R. 5650, the Federal Energy and Water Management Performance Act, introduced by Mr. Welch and Mr. Kinzinger to codify DOE's existing Federal Emergency Management Program, which helps federal agencies meet energy-related goals and facilitates public-private partnerships. It is a good program. It has been in existence for a good number of years, and it should be authorized.

We also have H.R. 5758, the Ceiling Fan Improvement Act of 2020, introduced by Mr. Guthrie and Ms. Schakowsky, to make technical corrections to the energy conservation standards for ceiling fans, a narrow fix for a specific type of ceiling fan. And it should be a no-brainer for us to

support this bill as well.

The other three bills before us may require additional work before moving through the full committee.

H.R. 2909, the Promoting Grid Storage Act of 2019, implements a new government spending program that could be duplicative of existing programs and may not serve the interests of taxpayers or consumers.

H.R. 1744, the S.T.O.R.A.G.E. Act, which does impose a new regulatory mandate on states to consider technologies that may be infeasible or too costly, and H.R. 3962, the Energy Savings and Industrial Competitiveness Act, which is the "kitchen sink" of energy efficiency provisions, this bill has been around for a number of Congresses and some of the provisions, especially the Energy Codes, have been the subject of disagreement among stakeholders.

With that, I look forward to our witnesses today, and I yield back the balance of my time.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Pallone, the chairman of the full committee, for 5 minutes for his opening statement.

The Chairman. Thank you, Mr. Chairman.

I wanted to begin by welcoming back to the committee the Under Secretary, who served as a key staffer on the committee

on energy matters for many years.

Today, this subcommittee will review six bipartisan bills that continue our work to combat the climate crisis by improving energy efficiency and investing in battery storage infrastructure.

Energy efficiency is a critical tool in our efforts to address climate change while also saving consumers money on their electric bills. Residential and commercial buildings contribute nearly 40 percent to our nation's carbon pollution, and today we are considering several bills that support the use of energy efficiency technologies in residential, commercial, and industrial sectors.

Representatives Welch and McKinley have introduced H.R. 3962, the Energy Savings and Industrial Competitiveness Act, which includes a suite of measures to make buildings, manufacturers, and the federal government more energy efficient. The bill strengthens national building codes to ensure new homes and buildings are more energy efficient, and it helps manufacturers and the federal government transition to technologies that will reduce energy consumption.

While there are many important provisions in this bill, there are a few provisions that concern me. The bill repeals Section 433 of the Energy Independence and Security Act of

2007, which phases out the use of fossil fuel energy in federal buildings by 2030. To achieve a 100 percent clean economy, the federal government must lead by reducing its energy consumption and carbon pollution, and I can't support walking away from this strong standard.

I am also uncomfortable allowing companies to self-certify that their products meet Energy Star standards. Consumer must have certainty that an Energy Star product they buy will actually save the amount of energy accompanying claims that it will.

The subcommittee will also review H.R. 5650, the Federal Energy and Water Management Performance Act, introduced by Representatives Welch and Kinzinger. The federal government is the nation's largest energy buyer and consumer. The bill will drive major energy and water use reductions in federal buildings over the next decade.

We are also considering H.R. 5758, the Ceiling Fan Improvement Act of 2020, which was introduced by Representatives Guthrie and Schakowsky. And this bill provides a technical fix for large-diameter ceiling fan efficiency standards.

The subcommittee also has three energy storage bills to consider. They speed up adoption of this important

technology. Building new energy storage infrastructure is critical to expanding renewable energy technology use. As the U.S. brings online more wind, solar, and other renewable energy, storage is key to providing reliable electric service.

And today, we will be reviewing Representative Casten's H.R. 2909, the Promoting Grid Storage Act. This bill establishes programs and grants for energy storage research, technical assistance, and storage system pilot projects.

H.R. 1744, the S.T.O.R.A.G.E. Act, introduced by Representative Takano, amends the Public Utility Regulatory Policies Act of 1978, or PURPA, to require states to consider energy storage when developing energy plans.

And H.R. 4447, the EASE Act, introduced by Representatives O'Halleran and Mullin sets up a grant program to assist Rural Electric Cooperatives with energy storage and microgrid projects.

So, this committee will continue to work in a bipartisan fashion to boost energy efficiency, cut carbon pollution, and reduce consumers' bill. But, unfortunately, the Trump administration is moving in the opposite direction with the budget it released this week. The Trump budget cuts clean energy research, guts funding for the Office of Energy

Efficiency and Renewable Energy by an appalling 75 percent, and zeroes out weatherization assistance for low-income homeowners. These are all devastating cuts that would seriously undermine our ability to combat the climate crisis. Despite this administration's ongoing denial of the climate crisis, this committee will continue its work to modernize energy infrastructure, reduce carbon pollution, and make homes, businesses, and federal buildings more energy efficient.

And we have six bipartisan bills before us that accomplish all these goals, and I commend the sponsors for the hard work, and yield back to you, Mr. Chairman.

Oh, I can yield to -- where is the gentleman from California, Mr. McNerney?

Mr. McNerney. I thank the chairman for yielding.

I want to speak up briefly in favor of the Welch-McKinley H.R. 3962. Welch-McKinley strengthens national building codes to make new homes and commercial buildings more energy efficient and the code-writing process more transparent. It will deliver significant cost and energy savings for families without imposing any new mandates or increasing the deficit.

And I yield back.

Mr. Rush. The gentleman yields back. It is my understanding that the ranking member of the full committee, Mr. Walden, yields his allotted time, 5 minutes, to the gentleman, Mr. Latta. Mr. Latta is recognized for 5 minutes.

Mr. Latta. Well, thank you very much, Mr. Chairman, and thank you very much for holding this legislative hearing today.

And I thank all of our witnesses for agreeing to testify today.

Before we discuss the bills that are before us, I want to express my disappointment that we are not also discussing legislation I introduced, H.R. 2101, the Energy Star Program Integrity Act. No energy efficiency program has been as popular or effective as the Energy Star Program. This voluntary program allows manufacturers to obtain Energy Star labeling for products if specific energy-savings guidelines are met, benefitting consumers that are looking to purchase energy-efficient products. Technologies that have complied with these guidelines have resulted in tens of billions of dollars in energy savings for families and businesses and a dramatic reduction in emissions.

It is my hope that the majority will work with us to move H.R. 2101, which will improve and strengthen this great

program.

And before yielding back, I will ask if any other members on our side would like the balance of my time. And seeing none, Mr. Chairman, I thank you again for holding today's hearing, and I yield back the balance of my time.

Mr. Rush. The gentleman yields back. It is my understanding that in the President's budget he cut the Energy Star Program out of the budget.

Mr. Latta. Well, Mr. Chairman, again, if we could move forward with the bill, I would really appreciate working with the majority. Thank you.

Mr. Rush. All right.

The chair would like to remind members that, pursuant to committee rules, all the members' written opening statements shall be made part of the record.

Now I would like to welcome our first witness for today's hearing, the honorable Mark Menezes, the Under Secretary of Energy. And I certainly want to welcome you here, Mr. Secretary, and I want to thank you for joining us today. And we all are sitting on the edge of our seats awaiting your testimony.

Before we begin, though, I would like to explain -- and you are fully aware of it, but it is on the script here that

I have to read, so bear with me -- I would like to explain the lighting system. In front of you is a series of lights, as if you hadn't noticed. The light will initially be green at the start of your opening statement. The light will turn yellow when you have 1 minute remaining. Please begin to wrap up your testimony at that point. The light will turn red when your time has expired.

Mr. Under Secretary, you are recognized for 5 minutes.

?STATEMENT OF MARK W. MENEZES, UNDER SECRETARY OF ENERGY, U.S. DEPARTMENT OF ENERGY

Mr. Menezes. Thank you, Mr. Chairman. Chairman Pallone, Chairman Rush, Ranking Member Upton, indeed, it is an honor and a privilege to be back before this committee. I look forward to this hearing.

Indeed, on the way over here, I was excited to hear that over in the other body Chairman Murkowski and Ranking Member Manchin have announced that they are going to introduce a comprehensive energy bill later this month. And so, the work that we are doing here today is going to be very meaningful, and it is hoped that your committee can get together with the full committee and put some bills together. And perhaps we can help get bills considered in conference, much like we did back some many years ago now, sadly, when we last did a comprehensive energy bill, which was bipartisan and had full support, and embraced a lot of the policies.

Today, I am privileged enough to be Under Secretary of Energy over at the Department of Energy, and I am actually implementing some of those very same provisions. Typically, on any day, walking down the hall, I am either praised for some of the foresight that Congress had seen in giving the

Department of Energy authorities to do things, but on other days I am also blamed for some of the things that we put in that bill that perhaps can be improved upon. So, really, it is an honor to be here and I look forward to our discussion today.

I am going to touch on the six bills that we have. And I just want to remind everybody that the administration has not taken a formal position yet on these bills. We have provided some technical assistance in the drafting of these bills, particularly the Ceiling Fan Act, which I think has been touched on by members. And so, I won't go into that. But we did provide the technical assistance and we believe that the bill is now technically drafted in a way that it can go forward.

Regarding the Promoting Grid Storage Act, H.R. 2909, this requires the Secretary to establish a cross-cutting national program for research in the energy storage systems, components, and materials. It will require DOE to provide technical assistance and grant programs. Of course, the Department recognizes the critical importance for providing the technical assistance to state, local, and relevant stakeholders, but, indeed, we recognize the importance of storage generally. This is the true breakthrough technology

that we have to achieve; that as we make our grid more flexible and we are bringing more renewables on, we need to be able to develop storage technologies of all types to be able to address the demands and the needs of the future on a more flexible grid.

Indeed, the Department has recently announced the Energy Storage Grand Challenge. This builds on the President's fiscal year 2020 budget for promoting the Advanced Storage Initiative, which began at about $158 million, and we are now building on that to expand it to over $282 million. This is going to be an integrated Department R&D strategy to focus across the Department and drive American leadership in energy storage.

Our Department's Grand Challenge takes a comprehensive approach to energy storage, recognizing the value of different technology pathways in providing the full range of services, as I mentioned, required by the grid and transportation infrastructure, to ensure that our system is reliable, resilient, and safe. Our Challenge includes traditional bidirectional electricity storage. That would be batteries, flywheels, pumped-storage, hydropower, and compressed air energy storage, thermal and chemical storage, and technologies that increase the flexibility of electricity

generation and demand.

Now this is a cross-cutting challenge. So, we draw on many offices and agencies within our Department. It is a collaborative effort leveraging our efforts by the Office of Energy Efficiency and Renewable Energy, our Office of Electricity, our Offices of Science, Fossil Energy, and Nuclear, as well as our Loan Programs Office, and ARPA-E.

Existing technologies include the batteries, the pumped-storage, controllable loads, distributed energy, resource management, microgrids, power system planning and operations, hybrid systems, power plant dispatchability, and, more importantly, cybersecurity. And it is on this foundation that the Energy Storage Grand Challenge will develop an R&D roadmap over the course of fiscal year 2020 to guide future Department efforts.

I will say that, when you look at the legislation, to the extent, Mr. Chairman, Ranking Member Upton had said, if we can look at considering adding the cybersecurity component of this, because, again, we make things more flexible. We do not want to make them more vulnerable.

H.R. 4447 that members have mentioned, this appears to be expanding a lot of what is in H.R. 2909 to the co-ops, and that it is also modeled after the SUNDA Project. This was a

project that led to co-ops' solar capacity increasing tenfold in five years, and it has been a tremendous market success for solar technologies really without any federal mandates. So, that bill is for your consideration.

H.R. 1744, this would add the energy storage systems to the list of strategies that states should consider. This is your classic 111(d). So, this is the national standards that would require the states to look at this.

A couple of things on PURPA 111(d) for your consideration. One, consider that the world has changed. Back in the day when PURPA was passed, where you may have had only one or two companies within a state, remember, today, because of now our integrated electricity markets, you may have multiple stakeholders in different states. And so, when you put this on the states, there may be companies that have to deal with 11 or 20 or more states. So, each state will have to do it. So, just keep that in mind when you put this in PURPA 111(d).

It is a good thing, also, to consider to give credit to states that might have already considered this, so you wouldn't have to have them redo it again. And we found that it was important to consider not only prior actions, but a timetable. So, you want to incent them to take timely

action, but you may consider sunsetting it just to make sure that you send the right message to the states.

On H.R. 3962, this is a very comprehensive bill and quite creative in many respects. You all have heard what the bill does. Because I know I am already short on time, I just want to comment on a couple of things.

One, the bill --

Mr. Rush. Well, continue.

Mr. Menezes. Do you mind if I just roll this quickly up?

Mr. Rush. Yes, please. Please continue.

Mr. Menezes. I know you all are tight on time as well.

Mr. Rush. Yes. Please continue.

Mr. Menezes. Congressman McNerney made the point about being voluntary. And indeed, certainly it appears that way. There are some provisions in there that talk about how DOE shall update the milestones and shall provide technical assistance. So, the art will be in the draft and we want to make sure that the Department can work in a way to make sure that the goals of the bill are accomplished, should it become law.

We don't do everything that is in the bill there. We are not necessarily codifying things there. But, on some of

the creative things, for example, on the rebate programs, there is a rebate program for motors; there is a rebate program for transformers. We don't do that now. So, there are some new things in that comprehensive bill.

It is significantly broad that we are continuing to look at that bill. But I will say, from personal experience, that is the kind of bill that would fit in well with a comprehensive view, as you are looking at these issues and if you begin to work with the other body toward a comprehensive solution to some of these problems.

Finally, H.R. 5650, the Federal Energy and Water Management Performance Act, I will just say our comment here is that it does codify the FEMP program. It does create a FEMP Director that would make it a career SES. That is a little bit different. Right now, the Secretary has that authority. It is delegated to the FEMP Director.

In addition to the current law that it codifies, it does add water performance requirements for the federal agencies. It creates a new metric and a new baseline, and it changes the baseline from an earlier date to 2018. It also provides different metrics to the current baseline. So, there will have to be a transition if you want to see a comparison of what we have been doing since 2003.

With that, I think I have hit on all of my points. I know I have exceeded my time. Thank you for the opportunity to be here today, and I am ready to answer any questions that you might have for me.

[The prepared statement of Mr. Menezes follows:]

********** INSERT 1 **********

Mr. Rush. The gentleman yields back the balance of his time. We will conclude the opening statement, and we will move now to member questions. Each member will have 5 minutes to ask questions of our witnesses, and I will begin by recognizing myself for 5 minutes.

Before I start my questioning, in my opening statement I mentioned H.R. 1714, but I want to correct that. It is H.R. 1744, Mr. Takano's bill, the S.T.O.R.A.G.E. Act. So, I want to clarify the record.

Under Secretary Menezes, I want to again thank you for appearing before the subcommittee today, and though I appreciate your attendance, I remain dissatisfied with DOE's inaction on efficiency standards under the Trump administration. It is my intent to use the balance of my time to address these longstanding concerns.

The President's most recent budget address has this quote, and I quote, "Burdensome energy efficiency regulations," end of quote, to create, a new quote, "a more effective implementation of the energy efficiency standards program." Secretary Menezes, how are delaying efficiency standards and proposed funding cuts to the energy efficiency program contributing to, again, "a more effective implementation of the energy standards program"?

Mr. Menezes. Thank you for the question, Chairman Rush.

As all of you have heard me testify before, we have a full endorsement of catching up getting out these appliance standards. From administration to administration, it has always been a category of failure to meet the statutory deadlines category on appliance standards. We inherited it, and we are trying to reduce it. I pledge that we will strive in every way to meet the statutory deadlines. So, we are committed to meeting our legal obligations, including all the deadlines.

I am happy to report that, just since last year, we have issued 26 notices relating to energy conservation standards and 14 notices relating to test procedures, including seven final rules. I will say that, under our leadership, we have heard from you and we have been doing our best to get these appliance standards out. It is a complicated process. It is not a simple thing. But we are doing our best and we are proud as to what we have accomplished certainly since I have been over there.

Mr. Rush. I am really concerned because we need, and the Department does not have the discretion to choose when or if it must follow congressionally-mandated laws or obligations. Do you agree with that?

Mr. Menezes. No, sir, I mean, we have full intention of following all of our legal obligations. In fact, as I just mentioned, it is a high priority of ours and we work with the office regularly to try to meet these demands. It is not a simple thing to simply go there. There is testing and there is evaluation, and there is quite a stakeholder process involved. But you can compare our record against any prior administration on following the law and trying to get these appliance standards out.

We have also taken the initiative to issue some new categories for appliance standards. Because one thing, as you know, it is important to meet consumer satisfaction and performance. We buy appliances so that they perform the job that we expect them to do. Energy efficiency for the sake of energy efficiency sometimes erodes performance standards. So, it is important that, as we get these appliance standards out, that it actually does the job that the customers buy the appliance for. So, for us, it is important to make sure that we get customer choice, consumer satisfaction, and performance standards while reducing energy efficiency -- I mean increasing energy efficiency.

Mr. Rush. The chair yields back. Now I recognize the ranking member, Mr. Upton, for 5 minutes.

Mr. Upton. Well, thank you, Mr. Chairman.

And I just want to say we appreciate the work that you have done on the new standards because it ought to be a focus of the Department. And we have had hearings in past years, and I think all of us on both sides of aisle have been somewhat frustrated, and appreciate the work in that regard.

I would like to focus my attention really this morning on H.R. 3962, the Energy Savings and Industrial Competitiveness Act. It is supported by a number of businesses and product manufacturers, but there are provisions -- there is controversy, I guess you would say -- as it relates to the building codes that are opposed by some groups, such as the home builders, who are going to be on the next panel after you depart.

So, two things. What is DOE doing in the building code space today? And how would this bill, legislation, change that status quo?

And second, as it relates to this, there always seems to be a concern as relates to the payback period for the new code requirements and the increased costs that consumers are going to be forced to pay. Of course, from the home builders' perspective, it is always the homebuyer is going to spend -- they know what their "X" amount is that they are

584 going to spend on the house. And so, the home builder is
585 trying to get as many things as they can within that "X"
586 amount. But what is DOE doing to ensure that the model
587 building codes are both energy-efficient as well as cost-
588 effective as it relates to these provisions? It is something
589 that continues to haunt us as we try to get a bill through
590 the committee and through the legislative process.
591 Mr. Menezes. Right. Well, thank you, Ranking Member
592 Upton, for the question. As I had mentioned, this is quite a
593 comprehensive bill in many areas.
594 Regarding the manufacturing, we support research
595 technologies on federal buildings. We set the standards for
596 green building certification, system requirements for new
597 federal buildings, the major renovations, and revising
598 performance standards for construction of new federal
599 buildings and major renovations. We had mentioned our FEMP
600 office.
601 We establish standards for the federal green buildings,
602 the third-party certification that we have going on now. We
603 strive right now to set and certify the energy and water
604 performance requirements for federal buildings. This is also
605 with GSA that we work with. And we maintain a catalog of the
606 products that have been designed, and we work with GSA to

make sure that these standards are met and that federal buildings are contained in that.

So, we have a fairly comprehensive approach today on this. Indeed, it is important because a significant amount of our energy that is being used today is in buildings. So, it is important that we get goals out there that industry can hit and meet.

There are some technical probably details in that bill that I would probably need to get with staff, as we review how the language is written regarding our role in setting these standards and increasing the standards and getting them out. So, I am happy to work with your staff in looking at --

Mr. Upton. If you can do that, I mean, I am not quite sure what the timeframe will be. This is a legislative hearing, and I presume that at some point in the near future we will have a markup in the subcommittee and move forward. But if you can help us as we try to reach a consensus, the goal being that most of us here will be in support of the bill -- it is sort of hard to be opposed to energy efficiencies in general buildings -- so, if you can help us to really make sure that the bill is the best that it can be, and to bring us together, that would be useful. And I would encourage the Department to do that.

With that, Mr. Chairman, I yield back. Thank you.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Peters for 5 minutes.

Mr. Peters. Thank you, Mr. Chairman.

Thank you for being here.

In your testimony, you mentioned using ARPA-E as a tool for developing new technologies of storage. I am sure you are aware that the administration budget proposal zeroes that out. Do you have a comment on that? I assume you think that is a bad idea.

Mr. Menezes. Well, we are committed to following congressional appropriations and direction. Our proposal focuses on ways that we think we can really target basic R&D. That is an important distinction to keep in mind. ARPA-E tends to focus on more of the applied, so our applications of technologies that have been developed.

We look at focusing primarily on breakthrough technologies. We talked about storage.

Mr. Peters. What would be the vehicle for that outside of ARPA-E?

Mr. Menezes. Well, the way the Department currently is working. So, we issue funding opportunity announcements now. Much like the bill that we talked about on storage, it would

be that Congress would appropriate monies. It might have some directive language in it. But we would put together a cross-cutting plan to issue a funding opportunity where applicants can come in -- industry, universities, not-for-profits -- they come in; there is a cost-share requirement. But we push this out.

And we have, under this administration at the Department, we have actually established an Office of Technology Transfer for the first time. So, it is important to try to kind of cross that valley of death, so to speak, so that when you come up with a good idea and it works, maybe in the laboratory or maybe a pilot project, then you can push it out into the commercial area.

So, ARPA-E has a separate budget from the Department generally, is an interesting creation of it. So, it has its separate budget. So, just keep that in mind when you look at the budget proposal.

Mr. Peters. And the vehicle for what you just talked about was? Was it Office of Technology Transfer?

Mr. Menezes. That is one of the offices there, but it would --

Mr. Peters. How much funding does that get currently?

Mr. Menezes. I am not sure of the funding. But it

serves more of a function. It is a function to work with our program offices that issue the funding opportunities. So that when there are technologies that are pushed out --

Mr. Peters. Right.

Mr. Menezes. -- at the Department, it goes through -- what that office does is it pushes it out into the commercial sector.

Mr. Peters. So, there is a cost associated with that, too? There is an appropriation associated with that, is there not?

Mr. Menezes. I honestly would have to check. I am not sure if it is in the administration budget of the Department or if it is a special line item. I just don't know the answer to it.

Mr. Peters. We would be interested in knowing -- and maybe you could answer this for the record -- what the funding requirements for that would be to achieve the goals you talked about. Because you referenced ARPA-E in your initial statement. So, that is why I asked about it.

Mr. Menezes. I did.

Mr. Peters. Okay.

You expressed some interest in amending or a different approach to H.R. 1744, the S.T.O.R.A.G.E. Act, with respect

to PURPA. Does the administration have a view on what we should do with PURPA? I will sort of give you the open-ended opportunity to address it without referencing --

Mr. Menezes. The administration?

Mr. Peters. Yes.

Mr. Menezes. I am not aware of a formal policy on PURPA of the administration, but I can check. I will say that FERC, which is an agency within DOE, has issued some modernization proposals on PURPA, on issues within its jurisdiction.

Mr. Peters. Do you have an opinion on those, whether those are good improvements?

Mr. Menezes. Well, I believe, I think like most Members in the congressional branch, that it is always a good idea to modernize acts that might have been passed at a time --

Mr. Peters. Sure.

Mr. Menezes. I mean, PURPA was passed in 1978. I think it would be reasonable, whether you are an agency or whether you are a Member of Congress, to consider updating PURPA.

Today's PURPA provision, though, it is 111(d). It is separate from the mandatory purchase obligations --

Mr. Peters. Right.

Mr. Menezes. -- that FERC is looking at.

Mr. Peters. Just while we have you, do you have any independent thoughts, while you are here, about what we should do with PURPA in general?

Mr. Menezes. I think it is important to modernize it. I think you can look at it.

Mr. Peters. Sure. Of course, we would all agree on modernizing it.

Mr. Menezes. Yes.

Mr. Peters. But do you have specific steps you would like to see within this term of "modernization"?

Mr. Menezes. Well, and these are my opinions only, based on probably my prior role --

Mr. Peters. That's good.

Mr. Menezes. -- which I was actually looking in an opposite direction at the witness.

And that would be, I think that it is fair that you look at avoided costs definition on states, because today our electricity markets have changed considerably. Back in 1978, we had vertically-integrated utilities. We had vertical markets. We had essentially natural monopolies in place. And all of that has changed.

We also have quite a few other incentives for the building of renewables. I do think you ought to look at

definitions -- and we did this in 2005; we tried to modernize it as well. Back then, we looked at the cogen units, and I think it is fair to look at the small power production facilities as well.

Mr. Peters. Thanks. My time has expired.

Mr. Menezes. Okay.

Mr. Peters. I appreciate it. Thank you.

Mr. Menezes. And maybe you might want to look at 111(d) as well.

Mr. Rush. The gentleman's time has expired. The chair now recognizes Mr. Latta for 5 minutes.

Mr. Latta. Well, thank you again, Mr. Chairman.

And, Mr. Under Secretary, thanks very much for being with us today. I really appreciate your testimony.

Given your position and experience, I know that you have worked with the private sector to advance new technologies and solutions that would improve energy efficiency. Would you offer your perspective on the Energy Star Program and how important it has been to driving innovation in energy efficiency?

Mr. Menezes. Well, thank you for that question.

You can go back to the early days of the efficiency program and other efforts through 2005 on the Energy Star

Program. This was a voluntary program where the Department would establish standards and, together with EPA, would essentially market appliances that would meet certain energy efficient standards. I think that, generally, it has worked well with respect to the marketing of it.

Regarding expertise within each Department, I think we might want to look at that and see if, in fact, we can make any improvements there.

But, by all measures, the Energy Star Program is a good indication to consumers right away that it meets certain standards and that they can rest assured, knowing that the appliance that they purchase will have gone through a fairly rigorous process.

Mr. Latta. Since there have been efforts to establish building codes to reduce emissions, could you talk about the instances of buildings utilizing Energy-Star-certified technologies for emissions reduction?

Mr. Menezes. Well, I think what you see is, on Energy Star on buildings, it is typically buildings and the builders of buildings like to include these Energy Star appliances in all buildings. I know I just recently had a chance to move closer to the Department, and it was a brand-new building. And throughout the entire building was all Energy Star

products. In fact, it was a selling point.

Together with the building codes that they meet today -- it was not a LEED Building. You know, there are times when we do put the leading environmental and engineering design on there. That is another way that buildings can inform the public that they have made investments to meet performance standards and energy efficiency standards in the building. And the Department supports all these things.

But I think it is working well. I think it is good to inform the consumers, and anything that I think we can do to build on it would be positive. Again, I will say that I think it is fair to look at the relationship between DOE and EPA as we go forward.

Mr. Latta. All right. Thank you.

On the subject of storage, I have heard from electric utilities and rural co-ops -- and just by coincidence, I have the largest number of rural co-ops in the State of Ohio in my district -- about the need for additional research and development into storage technologies. At the same time, since my district is home to 60,000 manufacturing jobs, I understand the need for reliable baseload capacity to meet these industrial needs. Would you discuss what DOE is doing to foster storage technologies while also keeping in mind the

great demand for baseload capacity?

Mr. Menezes. No, I appreciate the question. And in my opening remarks, I did go into great detail about what we are doing in the energy storage. It is important that it is a comprehensive approach, and we need to keep in mind that it includes just more than batteries. And we need to keep in mind that a stationary storage battery would be different from transportation batteries. So now, while we have made great advances in transportation batteries, when we look at grid-scale storage, it might be different technologies.

We also need to look at the critical minerals and materials that go into these batteries today. Today, we are overly dependent on China and other countries for some of the critical minerals and materials that go into these batteries. So, our effort is to try to look at new materials that can go into these batteries.

Storage, as I had mentioned, is, indeed, truly, quote, "the holy grail," if you will, of really improving and integrating our grid of tomorrow. And that is going to be very flexible. It is going to include a lot of renewables. We are going to be driving down emissions. Indeed, EIA released its outlook the other day. For 2020, all new electricity generation, with the exception of the Vogtle

Plant in Georgia, which is a nuclear facility using the AP1000, all new generation in the United States will be renewables and natural gas, both for 2020 and 2021. In 2020, 75 percent of the new generation will be renewables; 25 will be natural gas. And in 2021, it is expected to be about 50/50. So, to accommodate that, battery storage will be important because it helps to be able to bring in these new sources of energy.

Mr. Latta. Well, thank you very much, Mr. Chairman. My time has expired, and I yield back.

Mr. Rush. The gentleman yields back. Mr. Doyle is recognized for 5 minutes.

Mr. Doyle. Thank you, Chairman Rush and Ranking Member Upton, for holding this hearing. The bills we are discussing today are important because reducing our energy consumption and building out new energy systems will be critical to reaching our goal of becoming a net-zero carbon emitter.

Energy efficiency is a really effective tool because it not only reduces the need for energy infrastructure, reduces emissions, and provides thousands of jobs, but it lowers energy bills, leaving consumers with more money in their pockets. In fact, according to the American Council for an Energy-Efficient Economy, by expanding energy efficiency

programs through efforts such as improving industrial efficiency, retrofitting buildings, and improving appliance standards, energy efficiency has the potential to cut U.S. energy use and greenhouse gas emissions by 50 percent while delivering energy savings worth more than $700 billion by 2050.

Energy storage is also a key component to a cleaner energy future because it is a multidimensional resource that its applications are almost limitless. Importantly, it has the ability to truly unlock the full potential of renewables by smoothing out the intermittency of the energy they produce. We have already seen that by making renewables function more like baseload power, renewables plus storage are already able to replace some fossil fuel power plants.

But storage is not just limited to helping renewables. It is also a key component of making the grid more resilient. It can be used in a microgrid to ensure that vital services have power during a disaster, and it can help delay or negate costly upgrades of transmission infrastructure by storing locally-produced energy near customers.

It is clear to me that we must expand the use of energy storage and energy efficient to reach our climate goals and to continue reducing consumer bills while growing a clean

energy workforce.

Mr. Secretary, in your written testimony, you said that the Department is committed to creating and sustaining American global leadership in energy storage through the Energy Storage Grand Challenge. What is the Grand Challenge currently doing to advance energy storage research and development?

Mr. Menezes. Well, thank you, Congressman Doyle, for the question.

And as I had outlined in my opening remarks, it includes many of the things that you mentioned in your statement. It is a comprehensive approach that will look at all types of different storage. It is not limited to one type or the other. It is hybrid systems. It is to make sure that the systems can discharge electricity on demand over time -- over time. It is just not simply a battery.

Mr. Doyle. I understand what the goals of the program are, but what are you currently doing in this program, this Grand Challenge? What is currently going on that is advancing research and development?

Mr. Menezes. Right. So, it is cross-cutting. We use a lot of different offices within the Department. We include EERE, as you had mentioned, Office of Electricity. That

covers the grid. It includes the Offices of Science, batteries, pumped-storage, controllable loads, Distributed Energy Resource Management, microgrids.

Mr. Doyle. But are there any projects or programs? I mean, it is a Grand Challenge to advance the R&D. Is there anything going on right now?

Mr. Menezes. Right. Yes. So, we have the Advanced Storage Initiative. We have a program that is in Colorado right now that has an integrated grid. It is over at NREL, which is our National Renewable Energy Laboratory. This is an integrated grid in real time. So, it has the wires; it has component parts in real operation.

We also have announced at PNNL -- now this is in Washington at our lab. We have the grid storage launchpad. This, too, will involve setting up the technologies that will serve as storage in real time.

Mr. Doyle. Okay.

Mr. Menezes. We are building a facility out there.

Mr. Doyle. I want to ask you a couple more questions, and I see my time is going down.

One of the challenges we have with energy storage is that most of the commercial batteries can't provide energy for more than four hours. I am curious, what is the

Department doing to advance research on longer-term storage solutions?

Mr. Menezes. Yes, that is a key factor. Our Program Office of Fossil Energy, in particular, and elsewhere, we are driving to expand the time that it takes to store, fast-charge, the length of time that you can keep a charge, the dispatchability over time, the number of times that you can call on it to discharge. It has to act like baseload.

Mr. Doyle. Yes.

Mr. Menezes. All right? So, you have to have it when you need it, but it has to be able to discharge it. And it has to do it repetitively on demand. These are enormous challenges.

Mr. Doyle. I see my time has expired. Thank you.

Mr. Menezes. Yes. But the key is that there is a difference between these stationary storage technologies and the transportation storage technologies. So, if you have a battery in a car, it doesn't necessarily mean that you can have a battery that can withstand those rigors that we need to address.

Mr. Doyle. Yes. Thank you.

Mr. Rush. Thank you. The chair now recognizes Mrs. McMorris Rodgers for 5 minutes.

Mrs. Rodgers. Thank you, Mr. Chairman.

Storage and efficiency are two crucial components to any sustainable energy strategy. Eastern Washington is on the cutting edge in innovating to help America lead on both fronts. For instance, hydropower, pumped-storage is a great solution for increasing grid flexibility with the ability to store and produce electricity when demand is high.

On energy efficiency, Avista in Spokane, Washington, is currently working with a group of companies on a first-of-its-kind energy-sharing ecodistrict. It is about five blocks in Spokane and creating one of the most sustainable building complexes in the world. This ecodistrict will be centered on zero emission, zero carbon, catalyst building, and a central clean energy plant that will enable the district to operate in its own self-contained green grid using thousands of state-of-the-art IOT sensor devices, solar panels, thermal and battery storage, and sustainable building materials like cross-laminated timber.

These types of innovative projects are going to help America lead the world in a clean energy future. And I am proud that much of this innovation is happening in eastern Washington.

I am interested in learning today how the federal

government can complement what the private sector is already doing. So, the question is, the Pacific Northwest National Lab, PNNL, just mentioned, coordinates much of the energy storage work that DOE performs on batteries, specifically large-scale batteries for the grid and relatively small batteries for electric vehicles. As they say, better batteries drive better technology. Can you talk about the work being done at PNNL on materials, manufacturing, and the design of batteries?

Mr. Menezes. Well, thank you for the question.

And indeed, after much deliberation, we chose to site the grid storage launchpad at PNNL, in part because of many of its expertises. Our job is to help educate folks as to what goes on at these labs because a lot of our labs were created for reasons that we couldn't go into initially, but now it is time to educate the population.

PNNL is a great example. It is a chemistry lab and it is a cybersecurity lab, among other of its many things, its expertise. And the importance of chemistry in these batteries is very important, grid scale. So, we chose PNNL. We are making investments there.

What we hope to do is not only to find new chemistries and new materials necessary to be the world leader on this,

but we also want to make sure that the complexities in integrating in the grid are also met. And so, that is what we hope to do there.

We have to factor in cybersecurity. It was another great location there because, as you know, PNNL has been a leader in developing some of the diagnostics that, frankly, our intelligence communities are using to help make sure that our energy systems are secure and safe.

Combined with the research that we are doing there, we will, then, develop the public-private partnerships because we do think that that is the best way to be able to drive these technologies out, so that utilities, companies, communities can take what we are developing there and help develop these kinds of microgrids, the integrated microgrids, et cetera, that you describe.

We also have several of those around the country where DOE has helped support, tried to bring communities together and all the stakeholders together to describe what you just described, the many different ways to go about it to be able to get an integrated, modern grid using right now the best technologies that we have.

But we need to do better, and that is what the Department -- and the Department should be doing that, right?

I mean, private industry is going to be doing a lot. You can see announcements every day that customers want, many of them want 100 percent renewable. Many utilities are looking at ways to bring in battery storage and storage on their systems.

In the Pacific Northwest, we have had energy storage for years; we still do.

Mrs. Rodgers. Yes.

Mr. Menezes. It is great. It is storage, right?

Mrs. Rodgers. Natural, yes.

Mr. Menezes. It works well, complements renewables. It is great. Not all places in America have that.

Mrs. Rodgers. There is lots of potential, though.

Mr. Menezes. There is plenty of potential.

Mrs. Rodgers. The largest natural battery is behind a lot of dams across the country.

I will have one last question. PNNL estimates the energy storage market could be more than 3 billion by 2022. What is DOE doing to help America stay on the forefront and customers reap the benefits?

Mr. Menezes. Right. So, the thing here, when you look at what the Department can do with our labs, breakthrough technologies really do not occur in the labs, as you would

have expected in the old days where it is experiment after experiment after experiment, and you learn through the scientific method then. Today, it is modeling. It is modeling and remodeling, and it is development of new materials.

I mean, just think about that for a minute. These are materials that do not exist, that through the modeling you are going to create. And when you layer over the artificial intelligence, so that we can look at all the data that we are getting, we are going to be able to drive to get to those new materials that are going to be necessary. So that they can withstand the demands that we are going to put on them to have the modern grid of the future.

Mrs. Rodgers. Thank you. I yield back.

Mr. Rush. The gentlelady yields back. The chair now recognizes the chairman of the full committee, Mr. Pallone, for 5 minutes.

The Chairman. Thank you. Thank you, Chairman Rush.

Mr. Secretary, as far as I can see, DOE hasn't completed a single new or revised appliance standard developed during the Trump administration. Rather, it has missed one legal deadline after another for updating standards. Chairman Rush touched on this issue, but I wanted to get into a bit more

detail.

And it is not the first time I have asked you about these missed statutory deadlines. In January 2018, you testified before this committee and gave, I quote, "full-throated support to meeting statutory deadlines". You said, and I quote, "The Department is committed to following the law, to having these changes in place according to the deadlines that are set in statute." You specifically gave the committee assurances that DOE wouldn't slow-walk or stall efficiency rules.

Now, from your time on this committee, I think you are a person who doesn't give his word lightly, and I think you meant what you said. But two years have passed since those statements and the Department has only fallen further behind and the number of missed deadlines has only increased. In January 2018, DOE had missed eight statutory deadlines for new standards. The total missed deadline count now stands at 21. And the Department has yet to complete a single updated standard.

So, let me ask you, Mr. Secretary, you just told Chairman Rush that DOE has published seven final rules in the last year. How many of these seven final rules were published as a result of a court order only after DOE held

the rules for three years, of the seven?

Mr. Menezes. Well, thank you for the question.

I am not sure I can answer that question precisely. So, allow me to get with my Department and find out.

The Chairman. All right. I mean, please get back to us. My understanding is it is about four.

Mr. Menezes. Well, that is over half.

The Chairman. Well, four that were only by court order, is what I am pointing out. But, again, you have to get back to me. I don't want to answer the question. I want you to answer it.

How many of these seven final rules related to lightbulbs? Can you answer that?

Mr. Menezes. Again, I will have to get back.

The Chairman. All right.

Mr. Menezes. You are talking about a final rule. I will have to get back to you.

The Chairman. Okay.

Has the DOE issued any final rules fully developed under this administration that advance efficiency? In other words, that were actually developed by the Trump administration, have there been any that were fully developed under the Trump administration that advanced efficiency, yes or no?

Mr. Menezes. Well, again, these are rules -- you know, you inherit a process. Each administration doesn't come in and start from scratch.

The Chairman. Well, I understand, but I think the answer you don't want to give me, but I think it is no because --

Mr. Menezes. No, but the answer I want to give you is that in the last year -- you are quoting 2018 numbers. I respect that, but --

The Chairman. But, Mr. Secretary, look --

Mr. Menezes. But my point is that over the last year we have been making tremendous progress.

The Chairman. Well, I don't agree with that because you can't answer -- you say seven final rules, but it seems like --

Mr. Menezes. Well, you are asking me very specific questions, and I am happy to --

The Chairman. I mean, you can't tell me whether or not you developed -- look, my point is, it is very nice to say you have seven final rules. But if you were forced into them by court order, okay, or if they were actually done to try to make things less efficient, that doesn't count in my opinion. They have to be final rules that were done by this

administration because they were actually trying to advance efficiency, and it seems to me there aren't any in that category --

Mr. Menezes. Let me respond.

The Chairman. -- unless you can give me one.

Mr. Menezes. Let me respond to that. One thing that we have proposed is the Process Rule, because when you look at the efficiency standards --

The Chairman. I understand. Look, it is three years. I only have a minute --

Mr. Menezes. But just allow me to answer it. Just allow me --

The Chairman. I just wanted to know if there was anything that you developed that actually advanced efficiency that you did on your own without the court telling you that you had to do it. And you can't answer it. So, I think the answer is no, or you certainly are hinting that there is nothing like that. I just want to see action from the Department to update and finalize efficiency standards that will actually save consumers money and that you are actually doing as opposed to just, you know, responding to some court order. That is all I am asking for, and not things that are making things worse and not advancing efficiency, but are

making things less efficient. That is where it seems to be going.

In fact, many times the Department or the President almost imply that they don't want to do things that advance efficiency; they want to make things less efficient. And to be perfectly honest, whether it is Democrats or Republicans, we are all in favor of energy efficiency. This isn't a partisan issue. But unless you can point out some case where you are actually doing this because you want to, I have doubts about it. Go ahead.

Mr. Menezes. Well, just give me a couple of seconds to respond.

The Chairman. You have got, sure, 20 seconds. Sure.

Mr. Menezes. Because I stand by the fact that we are absolutely committed to try to meet these statutory deadlines. Now, interestingly, when you get there, the first report you get is a category of status on appliance standards, and there is a category that says, "Failure to meet statutory deadlines." We inherited that category. That is a category. In fact, I asked my general counsel, "Is this a new category?" He says, "No, no, no, this has been in existence for some time."

The Chairman. Okay. Mr. Chairman --

Mr. Menezes. Just please allow me to finish. One thing that we did is the Process Rule. So, we have all these appliance standards and they are all statutory. You know, they are not prioritized by statute, right? They are all treated equally.

The Chairman. Yes.

Mr. Menezes. But when you look at how much time the Department has to implement all these appliance standards, what you find --

The Chairman. But these are just excuses, Mr. Chairman.

Mr. Menezes. Just allow me to finish, please.

The Chairman. But you are not answering the question.

Mr. Menezes. But just let me tell you what we are doing.

The Chairman. The question is, are you actually doing anything to promote efficiency? And you are giving me all bureaucratic answers about process. But whatever, it is hopeless, Mr. Chairman.

Mr. Menezes. So, what we have discovered is that we are spending 40 percent of our time on efficiency standards that will essentially save only 4 percent energy off of a baseline. Forty percent of our time is chasing 4 percent on energy savings. Okay? Sixty percent of our time is on

energy efficiency standards that result in 96 percent efficiency gains. So, all we are saying is let us prioritize those and let us go forward on that.

Mr. Rush. The gentleman yields back. The chair recognizes Mr. Flores for 5 minutes.

Mr. Flores. Thank you, Mr. Chairman.

And Under Secretary Menezes, thank you for being here today.

You were talking in the last set of questions/responses about new materials and new technologies for grid-scale storage. One of the things I am very concerned about is the environmental impact and the impact of certain societies on lithium-ion batteries. Why don't you talk a little bit about the greatest challenges to advancing grid-scale storage that is both environmentally-friendly and doesn't cause slave labor or human trafficking issues in other countries?

Mr. Menezes. Thank you for the question.

Two important points on that. One, on the recycling of lithium, for example, lithium batteries. So, today, we recycle -- many of you remember the lead-acid batteries. I grew up with lead-acid batteries. Recycling was an issue. Today, we recycle almost 99, almost 100 percent of lead-acid batteries. We recycle much, much less, maybe 5 to 10 percent

of lithium batteries today.

So, we put in place a battery recycling beyond lithium. We want to recycle that. We want to reuse the lithium. We want to reclaim the lithium. And so, that is just good housekeeping.

Mr. Flores. But beyond lithium -- I mean lithium still has environmental challenges that are huge -- so, where do we go beyond lithium?

Mr. Menezes. Right.

Mr. Flores. What is it that is used to get to the next battery storage solution?

Mr. Menezes. Well, that is our breakthrough technology efforts. So, we have the Beyond Lithium Program, and that is the research and development that I have been talking about before. That looks at new chemicals, new technologies, solid state, any number of different ways. And many of our labs are investigating these new materials.

I want to say that, with respect to lithium, this goes to the earlier point, right? While we have lithium available, we have to find ways that we can process it here in the United States, so that we can lessen our reliance on other countries that provide us the critical mineral.

Mr. Flores. Yes.

Mr. Menezes. So, that is a hallmark of what we do. In fact, we have an initiative at the Department on critical minerals.

Mr. Flores. Okay. Let's move to a different subject. As we know, our electricity grid has been probed by bad actors overseas and maybe a few domestically as well. And that is our current legacy system, transmission, generation, distribution, and so forth. If we incorporate a new technology, and that is grid-scale storage, it seems to me like we ought to be building cybersecurity mitigation and defense into that from the outset. How is the DOE proposing to do that?

Mr. Menezes. Well, what we did when we got over there, Secretary Perry and Under Secretary Brouillette, or Deputy Secretary Brouillette, we set up an Office of Cybersecurity, Energy Security, and Emergency Response. It goes by CESER. We have put the resources in to address the threats that you mentioned.

Mr. Flores. Okay. Moving to the next step, one of the bills we are looking at is the S.T.O.R.A.G.E. Act. Is there any additional language that ought to be included to address cybersecurity?

Mr. Menezes. Right. We talked about that earlier.

Indeed, I think that it would be very helpful if we could put some provisions in there on cybersecurity for several reasons. One, it shows the congressional intent to make sure that we put resources there. It sends the message to our appropriators. And so, it certainly helps, because we have limited resources there.

Mr. Flores. In that regard, one of the things we have noticed over in the telecommunications space is that we have bad actors like Huawei that have known security vulnerabilities for anybody that uses Huawei equipment. There may be challenges from Chinese supply chains or the impact of Chinese supply chains on components for our electrical grid, including storage. What should we be doing about that?

Mr. Menezes. Excellent question. And we are doing what we can. In addition to creating the CESER office, what we are working on is, certainly working with our intel communities -- and I can't get into it in a public setting -- but we are identifying these actors. We are identifying the potential threats.

We are also working with the supply chain providers to make sure that those that make the new devices that we are putting on our grid, to make them more flexible, more modern

-- you know, the sensors, the phasers, the industrial operating systems that we need to make it more flexible and to modernize it -- we need to make sure that they are protected as well.

Mr. Flores. Okay.

Mr. Menezes. So, we are working with our labs. We are working with industry. We are working with the intel communities to ensure that we can identify the makers of these systems that we use, and we are making sure that they are as secure as they can be in the new cyber world.

Mr. Flores. Okay. Thank you. I yield back the balance of my time.

Mr. Rush. The gentleman yields back. Mr. McNerney is recognized for 5 minutes.

Mr. McNerney. I want to thank the chairman.

And I thank you, Mr. Under Secretary, for your service and for your testimony this morning.

I am going to stray a little bit from the topic of energy storage to the topic of storage of nuclear waste, if you don't mind too much. I am the lead sponsor of H.R. 2699, the Nuclear Waste Policy Amendment Act of 2019, along with my good friend and colleague, Mr. Shimkus. This bipartisan bill came out of committee on a voice vote highlighting the desire

of our members to break the logjam and address the pressing issue of nuclear waste storage.

In a reversal from previous budgets proposed by the Trump administration, the recently-released fiscal year 2021 request omits any money for the licensing of the stalled Yucca Mountain Nuclear Waste Repository. Instead, the President has been quoted as saying that his administration will be, quote, "exploring innovative approaches for long-term storage of nuclear waste". Can you, Mr. Under Secretary, elaborate on what types of innovative approaches are under consideration?

Mr. Menezes. Thank you for the question.

Indeed, the President recognized the importance of us doing something with the nuclear waste that we have stored across our country at the nuclear facilities. He also recognizes that the law of the land is, indeed, permanent repository at Yucca Mountain. He is, as everybody that cares about this issue, frustrated in the fact that, still, we have not been able to get the resources or the authorization that we need to be able to license Yucca.

So, what he has called on is going to be an interagency process with states, with the stakeholders, so that we can get together and we can try to figure out a way forward on

this. It has been, as you expressed, the urgency to address this, it is costing us $2 million a day as we continue to delay the permanent storage, and we are trying to find a path forward to build on some of the ideas. But that is the goal here.

Mr. McNerney. Well, how does the administration envision getting the approval of the states that would be involved in the storage?

Mr. Menezes. It will be a process and that is important. What we are trying to do is to put together a process that will give us a path to permanent storage at Yucca. So, it will be a difficult way to go. But, rather than just simply pointing a finger at one another or at Congress or at other agencies of not going, we are going to get everybody together --

Mr. McNerney. I see your frustration, but I did ask what innovative approaches are being considered, and I haven't heard anything about that yet.

Mr. Menezes. Well, it is going to be some of the things that you have in your bill. For example, I mean, it is interim, potentially the interim storage, whether it is private, whether it is public, the location, who might help pay for some of the cost. It is going to be a comprehensive

view of that, so that, ultimately, we can find the ways to a permanent repository. Unless Congress decides to change the law and name another place for a permanent repository than Yucca -- and Congress can do that; that is the law -- we have got to figure out how to get there.

Mr. McNerney. Well, we are going to have to cooperate to get something done; that is for sure. The current law only allows you to do one thing with regard to addressing the issue of nuclear waste, as you just mentioned. What do you think legislation would be necessary to change that?

Mr. Menezes. Right. Well, again, the administration hasn't taken a position, please. But the Shimkus bill, your bill on interim storage, Congress needs to direct us to focus on interim storage. Otherwise, right now, the permanent storage is the repository at Yucca Mountain. So, Congress can actually help.

Mr. McNerney. Thank you for giving us that power.

Mr. Menezes. You have the power. We hope that you use it to help us.

Mr. McNerney. The Interim Storage Program would be subject to the approval of the states under consideration or Indian tribal land --

Mr. Menezes. In your --

Mr. McNerney. -- in our bill.

Mr. Menezes. Yes, right.

Mr. McNerney. So, considering the President stated that his fiscal year 2021 budget requests support for, quote, "the implementation of a robust interim storage plan," do you envision the DOE increasing research into storage programs, in the different innovative programs?

Mr. Menezes. Well, I hope it complements the process that we have established to go through. So, I would like to work with you and your staff to make sure that our process complements perhaps the goals in your bill. I think that is --

Mr. McNerney. I mean, there are different approaches that are being recommended. So, we need research into deciding if those are viable or not.

Mr. Menezes. We have definitely learned that lesson with Yucca. You are going to need the science. You are going to need the research. You are going to need everything it takes to address this very difficult issue.

Mr. McNerney. All right. Thank you. Mr. Chairman, I yield back.

Mr. Rush. The gentleman yields back. The chair now recognizes the gentleman from Michigan, Mr. Walberg, for 5

minutes.

Mr. Walberg. Thank you, Mr. Chairman.

And thanks to the Under Secretary for being here.

H.R. 1744 calls for making changes to PURPA, requiring that state electricity regulators must consider investments in energy storage when doing resource planning. I have been a leading advocate on this committee and in Congress for modernizing PURPA. As you may know I am sure, late last year, FERC announced plans to update regulations related to PURPA. Many of those changes in their regulatory reform mirror changes in PURPA that I have called for in my bill, H.R. 1502, the PURPA Modernization Act. Things like stopping the gaming, implementing innovation, and the like, those things are important.

The changes, these regulatory revisions are long overdue -- I think you identified that already -- significantly long overdue. PURPA worked. It moved us forward in looking at the means by which we could have renewables and other energy issues dealt with. These changes should provide state regulatory authorities much-needed flexibility to ensure that consumers continue to benefit from lower energy prices, and specifically, results from shale innovation and the revolution there.

Let me ask you, Mr. Secretary, does H.R. 1744, the S.T.O.R.A.G.E. Act -- and we have been talking about storage here -- but does it address any of the real reforms necessary to reflect today's new technologies, abundance of competitively-priced energy supplies, or last but not least, the needs of consumers?

Mr. Menezes. Well, thank you very much for the question and thank you very much for your leadership on the PURPA issues. You know, it is sort of an arcane law in many respects. But your leadership on this, and your willingness to get down and look at some of the --

Mr. Walberg. Arcane is an understatement at this point.

[Laughter.]

Mr. Menezes. Yes. Regarding the bill before us, it clearly amends 111(d). And so, in the PURPA world, we know that is separate from a lot of what FERC is working on. FERC is sort of working on the mandatory purchase obligations; 210(m) I think it is. And you know, we tried to address to a lot of that in 2005 on the cogen units. Today's small power production facilities may be a problem, but FERC is looking at that.

Today's bill is 111(d), and 111(d) really doesn't go to any of the things that you had mentioned with respect to

needing to reform PURPA. This bill adds to -- I think we are up to over 20 of the national standards where it looks at storage. And it puts the burden on states to open up a docketed proceeding, have stakeholders come in, get comments, and within each state -- and each state is different, right? Some states are in PJM. Some states are in regulated markets. Some are in bid-based markets. Each state is potentially unique in coming into compliance on this 111(d).

As I had mentioned, this is not a small undertaking. States do take the 111(d) seriously because it is a federal mandate to do it. And if you have them do it within a certain time period, this is going to take quite a bit of resources.

And as I had mentioned earlier, today, our energy has gotten, our energy system has gotten to be that many stakeholders operate in multiple states. And so, today's bill -- and again, the administration has not taken a position pro or against, but just in my own personal experience, you have to cover a lot of states, all dealing with this. And just keep in mind that it just takes resources from the states as well as the individuals.

However, it does set forth a national standard. And in the absence of a mandate, a 111(d) PURPA, you know, does

serve a purpose. So, after the time period, we can get all the data together and we can see. Some states will choose to go forward; some states will not.

Mr. Walberg. Well, I think the benefit of today, though, here in Congress, is that this has support from Members of both sides of the aisle --

Mr. Menezes. Yes.

Mr. Walberg. -- in doing something, in modernizing, in dealing with storage, et cetera. Can a case be made that it might be harder to fully measure the benefits of storage technology if PURPA is not modernized from its current outdated regulations?

Mr. Menezes. Well, I know PURPA needs to be updated. That is an interesting question. Really, I guess I --

Mr. Walberg. I guess what I am getting at is, with the benefit of having support from both sides of the aisle, in dealing with PURPA, we would love to have the administration jump in with us and push as hard as possible to move to the modernization, to deal with the storage issues as well.

I see my time is over, but I did want to get that point in, Mr. Chairman. I yield back.

Mr. Menezes. We look forward to working with the committee.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Kennedy for 5 minutes.

Mr. Kennedy. Sir, thanks for being here. Thanks for your testimony.

And, Chair, thank you for having this important hearing.

Mr. Secretary, as a part of the 2021 budget request released by the Trump administration on Monday, DOE would set aside $97 million for the Energy Storage Grant Challenge Program and $40 million for the grid storage launchpad. Can you discuss in a little bit of detail the specific goals that DOE would like to achieve with the Grand Challenge?

Mr. Menezes. Right, and thank you for the question.

And I have articulated this. This is going to be a comprehensive approach using many of the offices within the Department. So, it is both comprehensive in technology and in use. It is also comprehensive in us drawing in all the expertise within the Department. So, we will include the applied offices, but we will also go to the Office of Science, where we get their best work there. We had mentioned ARPA-E before. We have ARPA-E and some of their projects. And so, we are pulling together all of the efforts across the Department and its labs to be able to focus on pulling together all the expertise, so that we can help

design not only the products, but the way that they would be applied.

And then, we also have set up the Office of Artificial Intelligence and Technology office. And so, to the extent that we create data as a result of this, we will be able to use that to further make advancements on materials and applications.

Mr. Kennedy. Thank you.

And can you explain if the goals of the grid storage launchpad have changed at all since it was first proposed in 2020?

Mr. Menezes. Our goals?

Mr. Kennedy. Yes, have the goals changed since 2020 to today?

Mr. Menezes. We have added on the initial goals. So, initially, it was sort of a physical location to where we were actually going to build things and put in place, which is a key part. But we have now expanded it. It is important to know that we have expanded it to bring in basic R&D to help develop new products, materials, et cetera, that can be used in it to help further the expansion of the actual grid storage. So, together with modeling and new materials, we will be able to add to what we are doing.

Mr. Kennedy. And you mentioned ARPA-E. Do you think they would have something to add in the development of those two programs as well?

Mr. Menezes. Sure. So, it is cross-cutting. We draw on all of the offices that are involved in storage in any way. So, ARPA-E tends to be the applied side, but its tremendous results there could be used in further development of basic R&D.

Mr. Kennedy. So, thank you.

Both the programs, as I understand it, Mr. Secretary, seek to entice innovation in storage technologies, which is great. You can probably see where this is going. Once again, DOE is proposing to eliminate the Office of ARPA-E, which is, arguably, the office most poised to make significant advances on breakthrough energy technologies, especially on the storage front. And you just described some of the results there as "tremendous". So, if ARPA-E has been important on such research and development innovation, why does DOE continue to call for its elimination?

Mr. Menezes. Well, thanks for the question.

ARPA-E focuses more on applied science, applied technologies. That is, it is no longer basic R&D, right? You can force it out to commercialize it. Okay, and we think

that public-private partnerships can do that.

For the role of the government, it is important that the government spend its limited resources -- we only have so much resources -- on basic R&D, because this is what the private sector is not doing. The energy sector is so competitive today, that gone are the days when companies can have the luxury of having like Bell Labs, right, and have their own huge R&D. I mean, some companies do, but, generally, the times have changed.

The government plays the role in looking at the technologies that don't exist, the new materials that don't exist. And you can use the taxpayer resources to really drive that. ARPA-E is set up to take what has been developed and to push it out commercially. Okay? And to complement ARPA-E on that, we have established the Office of Technology Transfer. Okay, and that is where we are setting up these public-private partnerships.

Mr. Kennedy. Understood, and I guess the only thing I would highlight, and we can move on, but given that you have described the success as "tremendous," given the fact that you have said that there is an important for it to play, I do think it is interesting that the administration continues to call for the elimination of the office. That is it.

Mr. Menezes. Right, but we do have the obligation to make sure that appropriated monies are spent. And so, we have that commitment. So, we do follow the law over there. This is the President's proposal. And like I said, the reason why the President's proposal makes sense, this is to distinguish the important role of the government to really focus on basic R&D. That is where taxpayer dollars, in our view, should really be spent.

Mr. Kennedy. Fair enough, sir.

Thank you.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Duncan for 5 minutes.

Mr. Duncan. Thank you, Mr. Chairman.

Mr. Secretary, I want to align myself with Mr. McNerney's comments about Yucca Mountain. I think he is spot-on. But, as a fiscal conservative, I don't see the nation spending more money for an interim storage site when we have already spent so much ratepayer money and tax dollars on Yucca Mountain to get it to the point that it was. That is throwing good money after bad.

And we have interim storage right now, and that is currently where the nuclear waste is sitting. That's onsite at the commercial reactors around the country, 38 states and

122 sites. The permanent solution, the national solution, the national problem is Yucca Mountain. We need to get behind the Nuclear Waste Policy Amendments Act. We need to get Yucca Mountain back on track. And I appreciated your comments there.

Shifting gears to the topic of the hearing today, there are direct costs to the consumer for more stringent building codes. And Mr. McIntyre, the president of the National Association of Home Builders, who is going to testify, I think, in a little while, but he testified in front of this subcommittee last September that each $1,000 of regulatory cost displaces about 127,000 households from the market. We all support saving energy and there is a natural incentive to do so because it saves money, but in your opinion what role should the federal government play in energy-efficient efforts?

Mr. Menezes. Well, we have a role to play, as you just heard me talk about, in doing basic R&D to make sure that we can make new materials and that the public-private partnerships can take it out and implement it. One thing that this administration stands for -- and I think that it is evident in the results of the economy today -- is we have stood for deregulation. Okay. We have found that, if you

lessen the regulations on people, they will be creative and innovative, and they will be able to do the things that their consumers need, and they will be able to do it in a most efficient manner. We reformed the tax code, and you can see the evidence, again, in the economy today.

So, we believe that, without the mandates, and you provide incentives for people, that that is the way to encourage behavior. And it is the same thing, whether it is building codes or anything else, that usually gets the best results, and we see that.

We are leading the world in energy, in greenhouse gas emissions, not because it has been mandated on us. It is because we are making choices that result in that.

Mr. McNerney. I think, given a choice, a consumer is going to pick the most energy-efficient appliances readily available, as long as there is not a huge price-point difference. But when we see policies like what Berkeley County, California, has done with banning natural gas, so the consumer doesn't have a choice in choosing a very efficient natural gas appliance. Now they are forced into an electrical appliance that may not be as efficient, but it is based on the desire to end the fossil fuel usage. So, shouldn't builders and consumers be able to choose if natural

gas appliances make more economic sense, depending on where they live, instead of a one-size-fits-all approach of stretch codes in H.R. 3962? Wouldn't you agree with that?

Mr. Menezes. I would.

Mr. Duncan. You have answered a lot of questions. I am toward the end here. Let me just finish with this. I want to revert back to the Yucca Mountain for just a second, and remind members of this committee, and remind people watching this hearing, that the Nuclear Waste Policy Act that set up Yucca Mountain imposed a fee on ratepayers in this country for the construction and operation of Yucca Mountain, ratepayers as a portion of the utility bill, pennies at a time, but the consumer didn't have any choice of whether they wanted to pay that or not.

As small as South Carolina is, South Carolina ratepayers have paid upwards of $3 billion for Yucca Mountain. That is just in South Carolina. Thirty-eight other states, ratepayers paid that as well. That is on top of the tax dollars that we are paying now every year. So, South Carolina has gotten nothing for that $3 billion investment, money that was confiscated in every utility bill that South Carolinian ratepayers paid for a long period of time. It is time to get the Yucca Mountain back on track.

And with that, I yield back.

Mr. Rush. The gentleman yields back. The chair now recognizes the gentlelady from California, Ms. Barragan, for 5 minutes.

Ms. Barragan. Thank you, Mr. Chair.

Mr. Under Secretary, the Office of Energy Efficiency and Renewable Energy, did it spend all of the money that Congress allocated last year?

Mr. Menezes. Oh, thank you for asking me that question. I have some good news.

Ms. Barragan. It is a yes or no. Did they or no? Did they spend all the money that Congress allocated?

Mr. Menezes. For fiscal year?

Ms. Barragan. For last year.

Mr. Menezes. For fiscal year 2019?

Ms. Barragan. Correct.

Mr. Menezes. Right? So, for fiscal year 2019, we have completed selections on all but one of the FOAs, and we have been consistent or ahead of schedule when compared to the past five years.

Ms. Barragan. So, have you guys spent all of the money, yes or no, other than this one little program you are telling me about?

Mr. Menezes. Yes, we have a good record on that. I can get you the specific numbers, but --

Ms. Barragan. So, there is an article that says a third of the budget was unspent. Is that not accurate?

Mr. Menezes. So, this is going to get into a little arcaneness here. So, monies, we issue FOAs. All right. And then, we --

Ms. Barragan. Okay. So, let me ask you a simple question.

Mr. Menezes. Yes.

Ms. Barragan. Are you spending 100 percent of the money that Congress is allocating on the programs for energy efficiency?

Mr. Menezes. Yes, so we are complying with the law.

Ms. Barragan. Yes?

Mr. Menezes. And we are spending it as rapidly as we can.

Ms. Barragan. Okay.

Mr. Menezes. There are some of these --

Ms. Barragan. But you haven't yet --

Mr. Menezes. There are some of these obligated, but unspent monies that will be spent. But when you just do the bookkeeping, you will see that there is a carryover amount,

but they are obligated and they will be spent over the life of the project.

Ms. Barragan. Okay.

Mr. Menezes. So, it is not like you spend all your money in one year. It is physically impossible because these are very technical challenges and they are negotiated.

Ms. Barragan. Okay.

Mr. Menezes. And we expect to pay over the years.

Ms. Barragan. Mr. Under Secretary, I reclaim my time. I have another question I want to get to.

Mr. Menezes. Okay.

Ms. Barragan. I am asking you because I read an article that indicated that the Office of Energy Efficiency cancelled $46 million in grants for solar research and development before they could be awarded. Is that true or not true?

Mr. Menezes. No, that is a false statement.

Ms. Barragan. It is a false statement?

Mr. Menezes. It is a false statement.

Ms. Barragan. You guys haven't cancelled any dollars for solar research and development before they could be awarded?

Mr. Menezes. No. If we reissued a FOA, that is something completely different. The process was not

finished. And we reissued the FOA and the monies went out. So, it is a false statement. I am not sure who read that. I don't know why you would believe everything you --

Ms. Barragan. Okay. Well, that is why I am asking you, Mr. Under Secretary, because I want to make sure to get the answers.

Mr. Menezes. Yes, that is a false statement.

Ms. Barragan. And we will follow up with you with that article.

Mr. Menezes. Yes.

Ms. Barragan. So that we can make sure to expect disparity --

Mr. Menezes. Yes, if that is what they said, and, you know, the context may make it different, but that is false.

Ms. Barragan. Okay. Are you aware that on the website for the Energy Department, it says, "On the Energy Star" -- rather, on the Energy Star Program's website, it says, "Energy Star products saved American families and businesses $30 billion in 2017." Do you agree with that? Do you agree that the Energy Star Program saved American families some $30 billion in 2017?

Mr. Menezes. I don't dispute that figure, although I don't know what the exact figure is.

Ms. Barragan. Okay. And according to your Department, nearly 600,000 Americans are employed in manufacturing or installing Energy-Star-certified appliances. Do you believe that is accurate?

Mr. Menezes. Again, I don't know the specific numbers. I am not disputing it. I just don't know if the numbers --

Ms. Barragan. Well, it is by your own Department. So, we will just say yes.

Mr. Menezes. Well, I -- okay.

Ms. Barragan. So, does the Trump administration's proposed budget -- have you seen the proposed budget? Let's start there.

Mr. Menezes. I have.

Ms. Barragan. Okay. Do you stand by the Trump budget?

Mr. Menezes. Of course.

Ms. Barragan. Okay. I am just checking.

Mr. Menezes. I am a Trump official.

Ms. Barragan. Well, you know, we have had people come in here that don't exactly, you know, aren't on point and they may vary a little bit different. So, I just wanted to make sure.

When you looked at the budget, does the Trump budget eliminate money for the Energy Star Program?

Mr. Menezes. It might. I am not sure I know all the specifics.

Ms. Barragan. Okay. Well, let me tell you that it does.

Mr. Menezes. Why don't you tell me what you have read?

Ms. Barragan. It does cut money for the Energy Star Program. And I just don't understand why. Because if the Energy Star Program is saving Americans billions of dollars, if it is creating and employing hundreds of thousands of people, it doesn't make sense to me why we would be cutting opportunities to save Americans dollars when it comes to energy efficiency and jobs and energy efficiency.

And so, maybe what I will do --

Mr. Menezes. Well, I will tell you why. I will tell you why.

Ms. Barragan. Maybe what I will do is I will just follow up with you --

Mr. Menezes. Yes, please do.

Ms. Barragan. -- about that.

I want to --

Mr. Menezes. Can I just say something positive about this, right? So, you hit the nail on the head. In EERE, in particular, they have been very good about establishing

milestones. When you see the congressional justification for it, across all the offices, whether it is levelized cost of energy, whether it is performance, cost per kilowatt hour, they have been measuring their success going back years. And we have continued that today.

And what you see is we have driven down these prices. We have driven down these efficiencies such that it is fair to ask the question, do we need to continue to spend money to drive it down even more? We have historic low natural gas prices. Our prices for renewable are really driven down. I mean, it is hard to complain about it. With limited resources, were you to spend additional monies for breakthrough technologies, to maybe get off of photovoltaics, for example -- photovoltaics in a lot of ways is horse and buggy. Okay. We have liquid crystalline perovskite that is the solar device of the future. And yet, we still seem to be overly focused on driving down the cost of photovoltaics, which really is not the way of the future. The government should be doing that, not so much the private sector, but it is fair to say that the government should be spending money to look at that.

Mr. Rush. The gentlelady yields. The chair now recognizes Mr. McKinley for 5 minutes.

Mr. McKinley. Thank you, Mr. Chairman, and thank you for having this important meeting.

Mr. Secretary, I want to focus back on the issue of the Energy Savings and Industrial Competitiveness Act, the sensitive building code sections. Now I spent most of my career, probably I hate admitting it, but like 55 years in the construction business dealing with building codes. But one thing we have learned in our practice with the firm I used to have was how to work with the code and how to work in energy efficiency. My former firm was probably, well, it was the first firm in West Virginia to get LEED certification for a school building, and we are very proud of the fact that we understand energy efficiency. We understand how we can make those changes with it.

So, when I came to Washington, one of the first things we did was to try to be an extension of what we have already learned, put in practice the things we learned in the private sector to help out other people with that. So, we have worked with numbers of Democrats in a bipartisan way and more recently with Peter Welch. Peter is, unfortunately, not able to be here today, but we are talking about the McKinley-Welch and the Shaheen-Portman legislation that has passed the Senate now twice. So, we want to deal with this. We want to

get this. But I am sorry that Peter can't be here on this.

But the concern I am hearing is involving DOE. I want some assurance from you, if you could, on that, knowing how the codes work and how the modifications would be; that we don't have that DOE steps in here and doesn't use a heavy hand. I understand in our legislation it is not mandatory for states and municipalities to adopt the new code or the changes that are made, but I want to make sure -- I want them to adopt it. So, the concern is, how heavy? I think you answered part of it a little bit with the gentleman from Michigan, something about being cooperative with it, how things have worked out. So, tell me a little bit about how you are not going to use a heavy hand when it comes to recommending or implementing changes to the National Building Code or the International Building Code. Can you share some of that with me?

Mr. Menezes. Well, thank you for the question.

And I don't want to give the impression of using a heavy hand. I do look forward to working with experts like you to fully understand the provisions of the Act. And just really my only observations were, in reading the Act, the part with the building codes, my understanding -- that is Chapter 1, right?

So, it is similar to the Portman bill in that it comes out and it says that it is voluntary.

Mr. McKinley. It is voluntary.

Mr. Menezes. And then, when you go through it, then you see a series of "shalls," which we know are mandatory. And I am not arguing or complaining one way or the other. I am just saying that the voluntary program, it may be a voluntary program overall, but DOE will have obligations in a voluntary program that seem to say that we will need to develop new standards -- again, I am just making observations, making sure that is the intent -- and that we will have to grade how these states, tribes, and others are either implementing or not. And we kind of have to do a grading of them. We also have to make sure that we provide technical assistance. And as long as monies are appropriated for that, that is fine, but --

Mr. McKinley. But the premise of it, Mr. Secretary, is --

Mr. Menezes. I want to make sure we are not talking past one another.

Mr. McKinley. Yes, Mr. Secretary, I want to make sure that the standards that are set, I want municipalities to accept the code. I just want to hear some assurance that DOE

will not be using a heavy hand on this; that they are going to be cooperative; they are going to work together. Because what we don't want to have in our housing stock is causing standards to be so that it raises the cost of housing. Therefore, when we have an issue of affordability, we are not exacerbating that problem. So, as long as I can get some comfort from the DOE that they are going to be more cooperative --

Mr. Menezes. Well, let me give you that assurance. And please do not misinterpret my comments on a legal reading of it in any way --

Mr. McKinley. Okay.

Mr. Menezes. -- to speak for the experts in our Department that have been working with industry to try to make standards that are affordable to everyone. We do not accomplish anything if, as you say, we are too heavy-handed and we set standards either no one can meet and they are never implemented or they are too costly and they never are used. So, you have my complete assurance.

Mr. McKinley. Thank you.

Mr. Menezes. And please do not misinterpret my remarks.

Mr. McKinley. Thank you, Mr. Secretary.

I yield back my time.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Tonko for 5 minutes.

Mr. Tonko. Thank you, Mr. Chair.

Secretary, welcome.

The Department of Energy deserves a lot of credit for the past decade in supporting the technology developments and cost reductions we have witnessed in energy storage, but there are still big challenges. And I know that Mr. Doyle covered this area a bit when he talked about long-term seasonal storage. But can you give us a sense of what the Department is doing in terms of long-duration and seasonal storage, and how those technologies will likely be needed to realize very high levels of renewable resources on the grid?

Mr. Menezes. Right. And, you know, we talked, we have touched on that, right? To start, for example, you can make a distinction between efficient batteries used in transportation. We think it is ubiquitous now in electrical vehicles and lithium ion, for example. But when you go to grid scale, you have to look not only at size, but, as we talked about, it is seasonal. It may make a difference on technologies on location, right?

So, not every battery grid storage that you might make can withstand the harsh environments of New England, the

Pacific Northwest, or the arid Southwest. So, these are technical basic research and development you need in chemistry and materials and in modeling that is going to help us do that. And that is what we are bringing all together.

So, when we talk about storage, it is just not one-size-fits-all and it is not that you can just go take a bunch of lithium-ion batteries and throw them up and expect to have a resilient and a safe storage system that can make our grid modern in an economy --

Mr. Tonko. Or storing energy in soil or what --

Mr. Menezes. Well, we are looking at all aspects. We are not limited to batteries. We are having a conversation about batteries, but, as we talked about earlier -- and you might have come in a little bit after that -- but, I mean, it is pump hydro where we can do it, right? It may be compressed air. It can be all media, is what we look at.

Mr. Tonko. Okay. Turning to lithium-ion batteries, we know we are going to see a lot more deployed in EVs and on the grid.

Mr. Menezes. Right.

Mr. Tonko. DOE launched the Lithium-Ion Battery Recycling Prize to identify innovative solutions for collecting, sorting, storing, and transporting spent and

discarded lithium-ion batteries for eventual recycling and materials recovery. These batteries rely upon critical minerals like lithium, cobalt, and nickel. Can developing a domestic industry for recycling and reuse of these materials help reduce our reliance on foreign sources?

Mr. Menezes. Yes, sir. And, indeed, that is one of the aims that we had of announcing that challenge. As I had mentioned before, we might recycle maybe 5 to 10 lithium-ion batteries now and we are overly dependent on other countries to provide us these necessary elements. So, we are looking for material changes. So, if you go to our labs today, and if you go through our offices today, you will see us really trying to develop new materials to take the place of the lithium and the cobalt.

Mr. Tonko. Well, it is my understanding that Europe is currently recovery about 60 percent of its lithium in the economy. So, it can be done.

Mr. Menezes. Yes.

Mr. Tonko. And the U.S. is dreadfully behind that at around 5 percent.

Mr. Menezes. Yes.

Mr. Tonko. Do you believe additional DOE support can help bolster domestic recycling and recovery of critical

minerals?

Mr. Menezes. I do. I mean, it is part of the educational process, right? And just look at the educational process on lead-acid batteries, right? We are almost 100 percent right now today on the acid batteries. It can be the same thing with lithium. We just need to make the public aware. They will start treating all the devices that they have probably more as a recyclable item. And it is important that those that, frankly, make the product and sell these products have the obligation.

One thing at the Department that you should be aware of, we are now calling on all the developers of new materials, whether they are in our labs or in the private sector, that if you make a new material, you should not leave any environmental legacy to our children or grandchildren. Those days should be over. So, when we make new materials, it has to be a complete circular economy, if you will. If you make a product, it needs to be recycled and reused.

Mr. Tonko. Okay. And some of these batteries could have a second life.

Mr. Menezes. Correct.

Mr. Tonko. Has DOE looked at how to help encourage reuse of EV batteries for grid applications?

Mr. Menezes. Yes. I mean, that is part of the grid storage challenge that we have. So, we take existing materials, and if we can make improvements on them, we can find out we can make greater use; we can recycle them and upcycle them, if you will, to increase their efficacy.

Mr. Tonko. And it is also a priority to ensure that we are avoiding environmental and safety risks --

Mr. Menezes. Yes, sir.

Mr. Tonko. -- from disposal. Can the recycling of used batteries also help facilitate safer disposal?

Mr. Menezes. Yes, sir. Yes, sir. That is part of our recycling Grand Challenge.

Mr. Tonko. Well, I appreciate your responses.

And with that, Mr. Chair, I yield back.

Mr. Menezes. Thank you, sir.

Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Griffith for 5 minutes.

Mr. Griffith. Thank you very much, Mr. Chairman. I appreciate it.

It is nice to see you, Mr. Secretary.

Mr. Menezes. It is nice to see you.

Mr. Griffith. It is my understanding that the Office of Energy Efficiency and Renewable Energy's Water Power

Technologies Office is investing in closed-loop pumped hydro storage technologies and designs. Last Congress, my legislation that streamlined the FERC process for these projects with a two-year permitting goal was enacted into law. What role do you see for pump storage in meeting our grid-scale energy storage needs?

Mr. Menezes. As we mentioned today, it plays a significant role. Right now, it is playing a key role in the Pacific Northwest and in your district as well, Smith Mountain Lake, I believe, and it has been a great asset to have. Indeed, others --

Mr. Griffith. Just so my constituents don't think I am lost, Smith Mountain is just outside of my district.

Mr. Menezes. Oh, just outside?

Mr. Griffith. Yes.

Mr. Menezes. Okay. All right.

Mr. Griffith. But that is okay. A lot of my constituents go there and we get power from there.

Mr. Menezes. Well, I think it is on my way to your district.

Mr. Griffith. It is, absolutely.

Mr. Menezes. Smith Mountain Lake. Sorry about that.

Mr. Griffith. That is all right.

Mr. Menezes. But, again, it is an example --

Mr. Griffith. Yes, sir.

Mr. Menezes. -- of what you are talking about. And I think that we have other opportunities across America. We have a lot of hydro out there. To the extent that we can begin to integrate some of the hydro power, that is a clean, renewable, available resource. The technology is tried and true.

Mr. Griffith. Now in the closed-loop pump storage that we got some language changed on, because the water comes -- it is not native water; it comes from outside. What we were hoping to do is stimulate some use in the mines of central Appalachia. We have got the permitting process under control. Are there other challenges that you know of to advancing this pump storage closed-loop technology?

Mr. Menezes. Right. I mean, permitting is always going to be a challenge. It is a hallmark of this administration that we try to streamline, not eliminate --

Mr. Griffith. Right.

Mr. Menezes. -- but we streamline the process. And so, to the extent that we can help with other agencies, we are happy to do so. We provide technical assistance to help in the permitting process and to try to get it done timely.

Mr. Griffith. Now I am going to switch gears just a little bit, and I know I am a little off-topic from the discussion that is on the marquee today.

Mr. Menezes. It won't be the first question that has been raised today.

Mr. Griffith. That has been done? Yes. But you and I and a number of other Members in a bipartisan group went to Puerto Rico a couple ago. One of the things I was struck by, we were in a town up in the mountains, and there was an abandoned hydro project, a smaller project. It struck me that, even if we had that operational, even if it was just going to supply the local hospital or the high school as a shelter with electricity, it was worth having those types of facilities out there. I think we should use Puerto Rico as a testing ground for some microgrids because I think it could be helpful in other areas like my district in central Appalachia in times of disaster. But you can't just suddenly say we are going to do it overnight. So, what is the Department of Energy doing on microgrids that might be helpful in times of disaster to have something already there and small hydro?

Mr. Menezes. You might be aware that the Department has been working with groups in Puerto Rico to help identify

areas where you can establish the microgrids, right? And so, it is a combination of locations. I am not sure if one of them actually involves that, but it could very well be. But the concept is a good one, right? It is you have got available natural resources. You have infrastructure in place. It might need to be modernized. But, at the end of the day, you can have an integrated microgrid that can go both ways. So, it can help provide necessary power in Puerto Rico to help stabilize the grid or, if the system shuts down, it can continue to provide its electricity to those that are connected to the microgrid.

Mr. Griffith. Right. And certainly, with the various disasters we have seen in Puerto Rico, they could use something like that.

Now I don't know if I am the last questioner or not, but we are getting near the end of your questions. Is there anything that you wanted to talk about today that you have not had an opportunity to address?

Mr. Menezes. Well, thank you very much.

No, I do think that there is an opportunity here to have the committee work with your full committee and pass some bills, right? Again, the administration doesn't take a position, but the Department stands by ready to work with the

House and your colleagues in the other body, that if they see fit to begin to pass energy legislation, it will be an opportunity for us to bring our technical expertise, and we look forward to working with you throughout the process.

Some of us in this room have been through this before. We know it can be done. It is timely. Things need to be modernized. We would look forward to doing that.

Mr. Griffith. Well, you are always good to work with, and even when we might disagree occasionally, you are always glad to get us the facts. And we appreciate that.

And I yield back, Mr. Chairman.

Mr. Menezes. Well, thank you.

Mr. Rush. The gentleman yields back. And I am not going to make a commentary.

That concludes our first panel. I want to thank you, Mr. Under Secretary, for joining us today to testify on these hearings.

And the chair now asks the staff to prepare the witness table, so we can begin our second panel.

Again, thank you, Mr. Under Secretary, for your testimony.

Mr. Menezes. Thank you very much.

And I will say that your members continue to ask as hard of questions as they asked when I was Chief Counsel. So, thank you very much --

Mr. Rush. Thank you.

Mr. Menezes. -- for the opportunity to be here.

Mr. Rush. All right.

Will the second panel please join us at the witness table?

We will now hear from our second panel of witnesses. And I want to welcome this panel of witnesses and I want to thank you for your patience as we concluded the first panel.