

Subcommittee on Energy
Hearing on
“Investing in America’s Energy Infrastructure: Improving Energy Efficiency and Creating a Diverse Workforce”

Assistant Secretary Daniel R. Simmons
Office of Energy Efficiency and Renewable Energy

April 10, 2019

The Honorable Cathy McMorris Rodgers (R-WA)

Q1. Mr. Simmons: I support EERE’s mission to create and sustain American leadership in the transition to a global clean energy economy. I believe we are on the right track, but it will take strong leadership and a commitment to the areas of focus that you laid out in your testimony, especially energy affordability.

Q1a. Mr. Simmons, I would like for you to talk about the importance of energy affordability. Why did you make this one of your top priorities?

A1a. As Assistant Secretary, one of my top priorities for EERE is energy affordability.

Affordable, reliable energy is critical to human well-being. The use of energy helps keep us safe, saves us time, amplifies our work efforts, and reduces the effects of distance, among other benefits. When energy is more affordable, it frees up more of our budget and time so we can spend these precious resources on the things we care about most.

While we have made positive progress toward more affordable energy, there is much more work to do. Economic growth has lifted billions of people out of extreme poverty, more than half of the world’s population will be the “middle class” of income by the year 2020.¹ However, nearly half of the world’s population still lives on less than \$5.50 a day.² Energy affordability affects people in the United States. According to the most recent results from the U.S. Energy Information Administration’s Residential Energy Consumption Survey (RECS), “[n]early one-third of U.S. households reported facing a challenge in paying energy bills or sustaining adequate heating and cooling in their homes.”³

When we work towards making energy more affordable, we are helping people who are struggling economically. When we have plentiful and affordable energy in the United

¹ The Washington Post, “Does \$60,000 make you middle-class or wealthy on Planet Earth?” , August 20, 2018
U.S. Energy Information Administration, Department of Energy, “One in three U.S. households faces a challenge in meeting energy needs,” September 19, 2018. <https://www.eia.gov/todayinenergy/detail.php?id=37072>

² The World Bank, “Nearly Half the World Lives on Less than \$5.50 a Day,” Press Release, October 17, 2018.
<http://www.worldbank.org/en/news/press-release/2018/10/17/nearly-half-the-world-lives-on-less-than-550-a-day>

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States, it helps businesses grow by reducing a critical cost and it makes the United States more competitive globally.

This challenge of affordable energy is one of the things that makes the EERE portfolio so important. For example, we have seen large improvements in many EERE technologies over the last ten years. Probably the most cited successes are the dramatic reduction in the price of photovoltaic (PV) solar and onshore wind. But there are other important successes, including the reduction in the cost of electric vehicle (EV) battery packs, significant reductions in the cost of light-emitting diode (LED) lightbulbs, and improvements to the energy productivity of our homes, businesses, and industries.

Q2. Mr. Simmons: There are several bills before us today with the espoused goal of improving efficiency. While I support efficiency and conservation, as we consider these bills I think we need to be mindful of the potential unintended effects.

Q2a. Is it possible that efficiency mandates could actually make consumer products more expensive? If so, can you share some examples?

A2a. Yes, there is a real tradeoff between upfront price increases and long-term energy savings inherent in efficiency mandates. For example, in 2017 DOE projected that its standards would increase the purchase price of central air conditioners by between \$126 and \$192, and in 2012 DOE projected that its standards would increase the purchase price of dishwashers by \$44. To address this tradeoff, the Energy Policy and Conservation Act (EPCA) calls for the Department to consider the total consumer expense of the product including the initial purchase price and the operating expense over the lifetime. EPCA requires that any new or amended energy conservation standard be “technologically feasible and economically justified” while taking these factors into account. EERE projects changes in the upfront price of regulated products in each of its respective regulatory analyses for the public to weigh in on.

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To assess the impacts of its standards, including how past standards have affected the price of consumer products, DOE supports the use of retrospective analyses and, as part of its proposed Process Rule, would commit to conducting these analyses at regular intervals to enhance learning on product prices and other factors relevant to consumers.

- Q2b. Is it possible that a grant or rebate program could actually disincentivize innovation and technological development? If so, can you share some examples?
- A2b. Incentives, such as grants or rebate programs, are a tool that can alter R&D, production, retail stocking, and purchasing decisions toward energy efficient products. Well-intentioned incentive programs could result in disincentives to innovation through market signals that favor incumbent technologies. More research would be needed to determine the effects of incentive programs on innovation.
- Q2c. Mr. Simmons, what factors should Congress consider as we evaluate these bills to set up new programs and encourage efficiency mandates?
- A2c. Congress may wish to consider a few questions when determining if the establishment of new programs are warranted:
- Does the proposed program build upon experience and “lessons learned” (both positive and negative) of the many past energy efficiency activities?
 - Does the proposed program include the necessary data collection and reporting elements to ensure that performance can be regularly assessed?
 - Does the proposed program include consultations with stakeholders so that market barriers can be identified and addressed?

Beyond these questions on program design, several topical areas have the potential for significant impact on our energy economy, including:

- Systems efficiency – solutions that consider the interactions among multiple systems within a given application (e.g., buildings)

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- Energy productivity – programs that enable more economic activity while also reducing the amount of energy consumed
- Technology integration – solutions that integrate multiple technologies across domains or sectors (e.g., programs that include energy efficiency solutions in both stationary and mobile sources)
- Demand flexibility – programs that develop demand side innovations that can help integrate variable renewables (PV and Wind)

Consideration of these topical areas will help Congress authorize programs that help make energy more affordable and enable the Department to focus on integration of new technologies and solutions for the wider energy system.

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The Honorable David McKinley (R-WV)

- Q1. Mr. Simmons, in your testimony, you mentioned some of the existing programs EERE has for promoting residential energy efficiency.
- Q1a. In what ways will the Homes Act complement or enhance the work EERE is already doing to promote residential energy efficiency?
- A1a. DOE administers the Home Performance with ENERGY STAR (HPwES) program in partnership with the U.S. Environmental Protection Agency, local utility companies, and other sponsors that manage utility-funded energy efficiency programs. HPwES Sponsors and 1,400 participating contractors provide energy improvement services to homeowners across the United States that help lower household energy use and bills by 25% or more. Since 2002, HPwES partners have reported completing improvements to more than 700,000 homes.³

In addition to HPwES, the U.S. Department of Energy and its National Laboratories have developed the Home Energy Score to provide homeowners, buyers, and renters directly comparable and credible information about a home’s expected energy use. Like a miles-per-gallon rating for a car, the Home Energy Score is based on a standard assessment of energy-related assets to allow homeowners and homebuyers to easily compare the energy performance of different homes. Utilities, contractors, and software tool providers access the Scoring Tool at no charge to generate reliable energy estimates and the score, which they in turn provide to their customers. Some HPwES sponsors have incorporated the score into their programs and appreciate the fact that the Scoring Tool provides an easy to use framework for analyzing data and tracking their program’s efforts. Approximately 115,000 homes have been scored to date.

³ [2017 Home Performance with ENERGY STAR Annual Report](#)

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EERE also sponsors research, development, and field validation aimed at making home energy retrofits more affordable, effective, and easy to implement. EERE is initiating research to develop better solutions for achieving deep energy savings through advancements in building construction technologies, less intrusive installation methods, and more effective integrated envelope and HVAC technologies.

Energy efficiency programs have been in place in the United States for several decades. Many utilities recognize energy efficiency as an energy resource in the resource plans they develop to guide investment decisions and operational plans. Energy efficiency programs in the United States consist of the planning, implementing, and monitoring activities of electric and gas utilities, which are designed to encourage consumers to modify their level and pattern of energy usage and are typically funded by the state public utility regulators.

Home Performance with ENERGY STAR (HPwES) is one example of a residential energy efficiency program. HPwES sponsors reported program spending that totaled \$208 million in 2017. About \$95 million was for customer incentives, \$6 million for midstream incentives, \$57 million for project subsidies, and \$48 million for program administration. DOE does not provide direct funding for sponsors or for customer rebates.

The HOMES Act proposes appropriations of \$250 million annually through 2025 for the rebate program. The HOMES Act would authorize an additional \$100 million the first year for a Pay for a Performance Pilot Program providing grants to not less than five state energy offices to implement.

- Q1b. Can you explain how you would support this program and the time your office would need to develop the criteria and approvals needed to facilitate the program’s execution?

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- A1b. Should the HOMES Act become law, it would take considerable resources and time to ramp up staff and to award grants and contracts to implement the bill effectively. The bill calls for DOE to develop a network of rebate aggregators or a national rebate aggregator that can facilitate the delivery of rebates to homeowners and contractors. The bill also calls for DOE to establish a Federal Rebate Processing System to serve as a database and information technology system that allows rebate aggregators to submit claims for reimbursement using standard data protocols in 6 months. Federal information systems must meet strict cybersecurity requirements and should be easy for aggregators to use.
- Q1b. Do you have suggestions for how DOE can best support a robust rebate program?
- A1b. DOE is concerned the \$2,500 rebate will likely subsidize current rates of HPwES participation without achieving additional savings. DOE suggests that rather than specifying the rebate structure, the HOMES Act include a provision that would allow DOE to analyze how to best structure rebates so as to incentivize improvements that (1) otherwise would not happen and (2) generate the greatest amount of energy savings per federal dollar invested.

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The Honorable Richard Hudson (R-NC)

Q1. Would you please provide a full audit of all DOE workforce development activities, including a description of the workforce development program or project name, target audience or program focus, funding level, statutory authority, and program status?

A1. Workforce development is a department-wide effort to cultivate a more diverse workforce that is equipped to thrive in the next generation of energy jobs.

Pursuant to Public Law 95-619, the Office of Economic Impact and Diversity (ED) is authorized to implement programs which impact underrepresented minority communities. To this extent, ED’s programs are focused on ensuring that minorities can participate fully in the energy sector. For example, ED recently launched the Equity in Energy Initiative. This initiative seeks to expand the participation of underserved communities such as Native Americans, women, veterans, and formerly incarcerated persons in the energy workforce to ensure America's energy independence. In recent months ED has also organized separate Equity in Energy Discussions all around the country for Asian American and Pacific Islander, African American, and Hispanic stakeholders. ED's workforce development activities include the following:

Florida International University (FIU): ED funds the “Mission to Market for Inclusive Economic Development Program” at FIU at a funding level of \$260,000/year. The target audience is undergraduate and graduate students. Program Status: Active.

STEM Scholastic and Research Support for 21st Century Workforce at Morehouse College. Funding Level: \$250,000/year. Target Audience: Undergraduate and graduate students. Status: Active.

The Cooperative Development Energy Program at Fort Valley State University: ED has been funding the STEM Careers in Energy Program since 1983. The target audience is 9th grade through graduate school. Funding: \$100,000. Program Status: Active.

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The Next Generation of Entrepreneurial Managers’ Project at the University of Houston and Texas Southern University. Funding: \$180,000/year. Target Audience: Undergraduate students. Status: Active.

Building Capacity through Partnerships at Tougaloo College. Funding: \$75,000/year. Target Audience: Undergraduate. Status: Active.

Thurgood Marshall College Fund (career development program). Funding: \$75,000/year. Target Audience: Undergraduate students. Status: Active.

Additionally, DOE has supported paid STEM internships for minority and female students through the Office of Fossil Energy, paid internship opportunities for community college students at DOE labs through the Office of Science, an online career map to illustrate potential career pathways to the bioeconomy through the Bioenergy Technology Office, free online accredited training courses through the Federal Energy Management Program, established pipelines between DOE labs and minority-serving institutions in STEM disciplines through the National Nuclear Security Administration’s Minority Serving Institution Partnership Program (MSIPP), solar energy industry relevant training for active duty military through the Solar Energy Technologies Office’s Solar Ready Vets Program, traineeships in advanced manufacturing and composites through our Office of Energy Efficiency and Renewable Energy, the VETS2TECH summit to help veterans fill critical STEM workforce shortages at national labs, and the Wounded Warrior Career Development Program through Sandia National Lab.

DOE seeks not only to diversify and improve the nation’s workforce, but its own workforce as well. DOE’s Chief Human Capital Officer (CHCO) is responsible for strategically aligning the agency's workforce to its missions by recruiting, developing, training, and managing a highly skilled, productive, and diverse workforce. With a dual focus on strengthening technical competence while developing the critical leadership

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skills needed for career advancement, DOE has a wide-range of programs and resources available to help employees achieve their development goals. The Department’s robust Learning Management System helps ensure the technical competency of DOE's workforce by providing tools to assess training needs and an expansive catalog of courses to strengthen job-related skills and support upskilling and reskilling.

As further evidence of this Department’s commitment to workforce development, an advisor to the Secretary has been hired to work specifically on DOE’s role in workforce development for veterans and transitioning active duty service members. A senior advisor was also hired last year to assess future workforce and skills needs of the DOE enterprise.

Moreover, cybersecurity workforce development is a national priority outlined in the President’s National Cyber Strategy, and further reinforced by Executive Order 13870, “America’s Cybersecurity Workforce.” Through DOE’s State, local, tribal, and territorial workforce development efforts through organizations like the National Association of State Energy Officials (NASEO), DOE is developing a multifaceted approach including online training, playbooks, workshops, and guidance. This builds capacity throughout the sector and guarantees the state energy officials DOE engages with regularly have the necessary and current skills and resources needed to prepare for and respond to energy disruptions of significance, including cyber emergencies.