



To: House Energy and Commerce Committee (CleanFuture@mail.house.gov)
From: E4TheFuture and the Building Performance Association
Re: Energy and Commerce Committee Request for Input – Decarbonization, Net Zero by 2050
Date: September 13, 2019

As leaders in the residential energy efficiency industry, E4TheFuture and the Building Performance Association appreciate the opportunity to provide responses to the questions put forth by the House Energy and Commerce Committee on August 27, 2019. We support the Committee’s goal to achieve a 100 percent clean energy economy by 2050 and look forward to working with the committee to advance legislation to meet that goal. Please find our responses to select questions, below.

1. What are the key policy, regulatory, and market considerations that should inform the development of comprehensive climate legislation? Please provide specifics.

The residential sector remains a largely untapped resource for carbon reduction goals. Residential buildings consume more electricity than any other sector¹ and are the largest contributor to peak demand,² which makes this sector particularly important from a carbon emissions reduction standpoint. Legislation aimed at reducing carbon emissions must include residential considerations and should be developed in a way that helps the U.S. economy grow by: (1) creating jobs, (2) promoting innovation, and (3) providing a return on investment to the American public in a fair and equitable manner. Policies and legislation aimed at advancing energy efficiency, particularly residential energy efficiency, achieve all three of those goals.

Jobs: While renewable energy resources will be needed, we cannot overlook the largest employer in the energy sector: energy efficiency. Put simply, energy efficiency equals jobs. The 2018 “Energy Efficiency Jobs in America”³ report from E4TheFuture found that the energy efficiency industry employs approximately 2.25 million Americans and is adding more jobs than any other energy sector.⁴ A significant portion of the energy efficiency jobs in the U.S. are in the residential sector, and approximately 57 percent of energy efficiency jobs involve construction and repairs. These are the contractors – the “boots on the ground” – installing energy efficiency products and technologies and working to reduce energy waste in homes and buildings across the country. These jobs are, by their very nature, inherently local and cannot be exported. In fact, the E4TheFuture report found that 99.7% of U.S. counties have energy efficiency jobs and that energy efficiency now employs workers in more than 3,000 of America’s 3,007 counties. The 2019 “Energy Efficiency Jobs in America” report will be released on September 15, 2019. We will provide a copy to House Energy and Commerce Committee staff.

¹ https://www.eia.gov/electricity/annual/html/epa_01_02.html

² https://www.energy.gov/sites/prod/files/2019/04/f61/bto-geb_overview-4.15.19.pdf

³ <https://e4thefuture.org/wp-content/uploads/2018/09/EE-Jobs-in-America-2018.pdf>

⁴ An updated version of the Energy Efficiency Jobs Report will be published in September 2019, and we anticipate growth in energy efficiency jobs across the country.

Innovation: Within the energy efficiency industry, the building efficiency sector is undergoing rapid change and is increasingly a source of innovation and new technology. Thanks to advances in technology, our nation’s buildings—and the residential sector in particular—can be enabled to play an important role in managing energy demand to support efficiency and resiliency for the grid and achieve significant carbon reductions. The U.S. Department of Energy (DOE) Building Technologies Office (BTO) has been doing a lot of work in this area of “Grid-interactive Efficient Buildings” (GEBs).⁵ GEB technologies (e.g. smart thermostats, efficient connected appliances, and home energy management systems) make homes smart, connected, efficient and flexible, allowing them to reduce or shift energy use to take advantage of variable renewable energy and support a cleaner grid, while helping American families lower their utility bills and increase comfort and convenience. Importantly, GEBs can provide energy efficiency and demand flexibility as a cost-effective clean energy solution that reduces carbon emissions. A recent study by Rocky Mountain Institute⁶ found that Clean Energy Portfolios of wind, solar, storage, energy efficiency, and demand flexibility are now cost-competitive with new natural gas plants, while providing the same reliability services currently serviced by natural gas.⁷

In order to take advantage of these cost-effective clean energy resources, policy approaches must be welcoming to innovation and provide a level playing field for all combinations of technologies and distributed energy resources, like residential GEBs, to compete.⁸ Policy and regulatory measures that advance grid-interactive efficient homes can support grid modernization and resiliency, while working hand in hand with carbon reduction and energy policy goals, such as Energy Efficiency Resource Standards, Renewable Portfolio Standards, Clean Peak Standards, and strategic electrification that aim to reduce emissions and create a new need for demand-side load management. The policy and regulatory environment can encourage or dissuade investment in residential grid-interactive efficiency. In some cases, the technology is already there to be utilized, but policies are not in place to capture its value and incentivize its use. For market solutions to provide the most powerful impact, participation should be based on outcomes rather than specific technology configurations. New policy frameworks should welcome and enable innovative solutions that will lead to the energy economy transformation that we are all striving for. See #3 for specific policy suggestions.

Fair and equitable benefits: policies aimed at retrofitting the over 115 million homes across the country will not only help reduce carbon emissions from the nation’s residential building stock, but will also help homeowners save money on their monthly utility bills and improve the comfort,

⁵ A series of NASEO-NARUC GEB briefing papers is currently being published. Publication of a draft briefing paper on residential GEBs, entitled “Residential Grid-Interactive Efficient Building Technology and Policy: Harnessing the Power of Homes for a Clean, Affordable, Resilient Grid of the Future” is expected by October 2019 and a copy of the report will be provided to the Committee.

⁶ <https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants>

⁷ The study also found that energy efficiency and demand flexibility—resources that GEBs can provide—are the least-cost route to meeting energy, capacity, and flexibility needs.

⁸ ISO New England has allowed energy efficiency to compete with traditional and renewable generation in its Forward Capacity Market for over a decade. Recent findings show the dramatic impact of energy efficiency investments on reducing the energy intensity of the regional economy. https://iso-ne.com/static-assets/documents/2019/09/a2_supplemental_information_on_changes_in_the_celt_2019_summer_demand_forecast_presentation.pptx

health, safety, and resiliency of their homes. Reducing monthly energy costs of homes is something that will benefit every American, as energy costs represent the second or third largest cost of homeownership, depending on location (behind mortgage and in some markets property tax). The Committee should advance policies aimed at helping middle income Americans make efficiency upgrades to their own homes (e.g. HOMES Act) as well as programs designed to make efficiency upgrades to low income homes (e.g. Weatherization Assistance Program). See list of recommended legislation in #3.

In addition to the cost-savings benefits to homeowners, efficiency upgrades also have health and safety benefits. A U.S. Department of Energy report on the Weatherization Assistance Program⁹ found that home improvements focused on energy efficiency can improve indoor air quality, which reduces respiratory illness and sick days, and boosts mental alertness and productivity for both children and adults. A report from E4TheFuture, entitled “Occupant Health Benefits of Residential Energy Efficiency,”¹⁰ which reviews existing research on the link between resident health benefits and energy efficiency upgrades, also found that residential energy efficiency upgrades can produce significant improvements in asthma symptoms and help improve overall physical and mental health.

2. Please describe any innovative concepts for climate policy design, including both sector-specific and economywide measures, that you believe the Committee should consider.

Pay for performance (P4P) is a measured savings model through which incentives are given based on realized energy savings, rather than upfront payments for deemed savings attributed to a particular technology or measure. P4P can take a range of different forms—including different design features, administrators, and payment structures—but it generally entails shifting risk to a third-party service provider or aggregator whose payment depends on actual performance (i.e., measured and verifiable energy savings). This shift brings market forces to bear to discover the best solutions that deliver persistent savings. Vendors that can deliver the most energy savings with their technology, reward system, or other approach for the least cost will provide the least expensive kWh of savings.

This model offers important flexibility to target different homes with unique approaches while ensuring accountability. To date, there are few active residential P4P programs, so the models are evolving. While P4P is still being tested, new software abilities and data access mean the potential is enormous. The model offers an opportunity for incentivizing solutions delivered where and when they are needed most to support the grid of the future. Because P4P is technology-agnostic and based on outcomes rather than prescriptive measures, the paradigm could encourage the use of multi-measure approaches (different technologies and solutions) that work together to make homes more energy efficient and achieve carbon reductions.

The Committee should support policies and legislation that help advance a pay-for-performance model for residential energy efficiency, like the pilot program included in the 116th version of the HOMES Act and the REEVA discussion draft (described in more detail in #3, below).

⁹ <https://energy.gov/eere/wipo/downloads/weatherization-assistance-program-national-evaluation>

¹⁰ <https://e4thefuture.org/occupant-health-benefits-of-residential-energy-efficiency/>

3. If you work in, advise, or are familiar with sectors that are particularly challenging to decarbonize, have you identified any effective (and scalable) solutions that should be included in comprehensive climate legislation?

The residential building sector is particularly difficult to decarbonize, as many homes are decades old and incredibly inefficient. Retrofitting these homes could achieve significant energy and carbon savings, however each house is unique and the barriers that exist in terms of financing, homeowner education and engagement, and proper valuation of efficiency characteristics of residential buildings all make it a difficult sector to tackle from a policy perspective. The following pieces of legislation and policy proposals represent a multi-pronged policy approach to reducing carbon emissions in the residential building stock:

Home Owner Managing Energy Savings (HOMES) Act of 2019 (116th – HR 2043, Rep. Welch). Would establish a grant program for rebates to make residential energy efficiency upgrades with a network of rebate aggregators, quality assurance, and pilot on pay for performance. Earlier iterations of the HOMES Act from previous Congresses have been bipartisan with Rep. McKinley (R-WV). The 116th version is with legislative counsel for updates.

Access to Consumer Energy Information Act or the E-Access Act (116th – discussion draft, Rep. Welch) (114th – HR 1980/S 1044, Rep. Welch (D-VT), Rep. Cartwright (D-PA) / Sen. Markey): Would allow DOE to facilitate customers' access to their own electricity data, adds consumer access to energy use and price data to State energy conservation plans, and provides for establishment of voluntary guidelines with access to third parties according to a protocol established by the Secretary.

Residential Energy Efficiency Valuation Act of 2015 "REEVA" (114th draft language): A short term grant program to states to provide incentives based on measured energy savings from energy efficiency upgrades of residential buildings. Payments are to contractors/aggregators based on performance. The contractor/aggregator is to utilize financing to provide market-based incentives for their customers. *Language available from the Building Performance Association.*

Sensible Accounting to Value Energy (SAVE) Act (114th – HR 614/ 113th – S 1106, Rep. Murphy, Rep. Jolly / Sen. Bennet, Sen. Isakson): HUD to develop and issue guidelines to all federal mortgage agencies to implement enhanced loan eligibility based on energy cost savings due to efficiency upgrades. Supported by the NAHB and many others. Included in the Energy Savings and Industrial Competitiveness Act (HR 3962, S2137).

Blue Collar to Green Collar Jobs Development Act of 2019 (116th – HR 1315, Rep. Rush): Would establish an energy workforce grant program, which would provide assistance to businesses in the energy efficiency and renewable energy industries that are seeking to educate and train new hires and existing employees. Similar to S 2393, Clean Energy Jobs Act (Sen. Heinrich).

Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act (HR 2041, Rep. Tonko, Rep. Rush, Rep. Kaptur): Would reauthorize and make updates to the Weatherization Assistance Program. Passed out of Committee during 116th Congress, awaits a floor vote.

Additional Policy Proposals

Energy Efficiency Resource Standard (EERS). Direct electric and natural gas utilities to achieve increasing levels of energy savings through cost-effective customer energy efficiency programs. States could administer the program, and limited credit trading would be allowed.

Smart Homes Act - This proposed language could be added to the “Smart Building Acceleration Act,” H.R. 5069 introduced by Rep. Welch or introduced separately. It would add residential buildings and facilitate the transition to smart buildings, supporting research, and documenting the costs and benefits of emerging technologies in the residential market. *Language available from the Building Performance Association.*

Efficiency Requirements for New Homes with Assisted Loans - Update HUD/USDA/VA efficiency requirements for new homes with assisted loans and public housing. Federal agencies have efficiency requirements for new homes with federal loan guarantees and federal loans, as well as public housing with federal assistance. However, FHA loans are still using the 2009 IECC, and some others the 1992 MEC. Should update EPA/DOE/EISA legislative authorities to refer to most recent code and clarify administrative update requirements.

7. How can the Federal Government assist you in reducing carbon pollution?

Authorizing Legislation – see list of legislation and policy proposals in #3.

Federal Appropriations - Dollar for dollar, federal investments in energy efficiency create more jobs than investment in the utility sector or fossil-fuels,¹¹ and federal investments in DOE programs that support energy efficiency – like the Building Technologies Office, Weatherization Assistance Program, and State Energy Program – lead to job creation and economic growth. For example, investment in weatherization creates direct jobs in sales and installation and indirect jobs in equipment manufacturing and distribution.

The following programs at the Department of Energy deserve the support of the American taxpayer as these programs are proven to provide a significant return on investment. When funded they will continue to provide energy cost relief to households, support American-based industry and American jobs, ameliorate issues with the aging electrical grid, and support national security goals.

- **Building Technologies Office (BTO)**, which develops critical technologies, tools, and solutions that help U.S. consumers and businesses achieve peak efficiency performance in new and existing homes and buildings across all sectors of our economy. Programs like Home Performance with Energy Star, which advances contractor engagement in high efficiency equipment installations, and Home Energy Score, which helps ensure that energy efficiency is valued in real estate transactions – are just two examples of crucial residential programs within BTO. The **Residential Building Integration program** within BTO has the capacity to fundamentally transform the performance of homes and greatly improve the

¹¹ ACEEE. N.d. Energy Efficiency and Economic Opportunity. Retrieved from <http://aceee.org/files/pdf/fact-sheet/ee-economic-opportunity.pdf>

energy efficiency in the 115 million existing residential buildings throughout this country. We recommend funding be focused on facilitating later-stage research, demonstration, and widespread deployment of technology solutions in new and existing homes, with an emphasis on whole-house energy efficiency retrofits (including outreach, engagement and training to private sector contractors) and continuing efforts to advance smart home technology. BTO's programs can significantly improve the energy efficiency in the residential sector through its partnerships with the thousands of small businesses in this sector, the construction trades, equipment, smart grid technology and systems suppliers, integrators and state and local governments. We encourage the direct engagement with residential contractors and businesses, which are crucial to the success of buildings programs.

- **State Energy Program (SEP)**, which provides funding and technical assistance to states, territories, and the District of Columbia to enhance energy security, advance state-led energy initiatives, and maximize the benefits of decreasing energy waste. Over the past 30 years, SEP has proven to be the critical link in helping states improve efficiency in hospitals and schools, establish business incubators and job training programs, and establish relationships with energy service companies and small businesses to implement cost-effective energy efficiency programs across their state. The Oak Ridge National Laboratory found that every dollar invested in SEP by the federal government yields over \$10 leveraged for energy-related economic development and realizes \$7.22 in energy cost savings for U.S. citizens and businesses – a tremendous economic value. SEP provides extraordinary value and flexibility, which is why governors across the country strongly support continued funding. It is important to note that SEP defers to the governors all decisions on allocating resources provided by DOE to meet their states' priorities such as energy emergency planning and response and energy related economic development.
- **Weatherization Assistance Program (WAP)**, which helps low-income and rural families, seniors, and individuals with disabilities make lasting energy efficiency improvements to their homes. WAP has a proven track record of creating new jobs and contributing to the economy through the program's large supply chain of vendors, suppliers, and manufacturers. Since 1976, WAP has helped make more than 7 million homes more efficient, saving the average recipient about \$4,200 over the lifetime of their home. A peer-reviewed study from the Oak Ridge National Laboratory found that the program is cost-effective at even conservative levels of evaluation. Each dollar that goes toward weatherization assistance yields at least \$2.30 in benefits, and by some estimates as much as \$4.10 to the home and society. The President's FY20 budget request, which zeroes out funding for the WAP program, would be a devastating blow to America's low- and moderate-income citizens: making those who are already vulnerable, more vulnerable, and those who are already poor, poorer.

Aside from the very important programs noted above, we recommend the Committee do everything in its power to support the later-stage research and development, field validation, deployment, demonstration, consumer education, and technical assistance activities performed within the Office of Energy Efficiency and Renewable Energy (EERE). While the Administration continues to place an emphasis on early-stage research activities within EERE, if the results of that early-stage research are not then integrated and pushed out into the market through demonstration and deployment activities, these innovative energy technologies, practices, and information cannot be fully utilized

by American consumers and companies to reduce carbon emissions. This is particularly the case with complex systems and structures such as America's homes and buildings. We urge the Committee to support – and hold the Administration accountable to advancing – a comprehensive and real-world strategy that includes medium- and later-stage research, deployment, and demonstration activities that are designed to utilize the most effective means to increase buildings' energy efficiency in order to reduce carbon emissions.

Tax – we recommend support for tax incentives for homeowners that invest in sound residential energy efficiency home upgrades; tax incentives like a forward-looking, expanded 25C tax credit. The 25C tax credit is the only energy efficiency tax credit provided to consumers, everyday homeowners who struggle to pay their utility bills. Residential tax incentives are critical to reducing the upfront cost of energy efficiency improvements, thereby allowing more Americans access to the efficiency market, reducing monthly utility bills, increasing the health and safety of homes, and reducing carbon emissions. We support a forward-looking extension of a tax credit for residential energy efficiency upgrades and recommend improving the 25C credit by updating goals and transitioning the credit into permanent performance-based instead of prescriptive incentive.

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