



**MEMORANDUM**

**September 17, 2019**

**To: Subcommittee on Energy Members and Staff**

**Fr: Committee on Energy and Commerce Staff**

**Re: Hearing on “Building a 100 Percent Clean Economy: Solutions for the U.S. Building Sector”**

On **Friday, September 20, 2019, at 9 a.m. in the John D. Dingell Room, 2123 of the Rayburn House Office Building**, the Subcommittee on Energy will hold a hearing entitled, “Building a 100 Percent Clean Economy: Solutions for the U.S. Building Sector.”

**I. BACKGROUND**

**A. Energy Use and Greenhouse Gas Emissions in the U.S. Building Sector**

The building sector in the United States consumes a significant amount of energy for a variety of purposes including heating, cooling, and lighting.<sup>1</sup> The sector’s energy use has grown exponentially since the 1950s and is currently responsible for approximately 40 percent of energy consumed and greenhouse gas emissions (GHG) produced.<sup>2</sup> Several factors have contributed to the building sector’s adverse environmental impacts, including the length of time buildings are used relative to the rate of new construction, increases in residential and commercial floor space, the proliferation of increasingly sophisticated electronic devices, and the ubiquity of fossil fuels in the energy sector.<sup>3</sup>

The majority of the sector’s emissions, including emissions from residential and commercial buildings, are largely attributed to electricity produced remotely to meet energy demands.<sup>4</sup> The modern practice of environmentally conscious construction (“green building”)

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<sup>1</sup> Center for Climate and Energy Solutions, *Decarbonizing U.S. Buildings* (Jul. 2018).

<sup>2</sup> Energy Information Administration, Department of Energy, *Annual Energy Outlook 2015* (Apr. 2015).

<sup>3</sup> Energy Information Administration, Department of Energy, *Fossil fuels still dominate U.S. energy consumption despite recent market share decline* (Jul. 2016).

<sup>4</sup> The White House, *United States Mid-Century Strategy for Deep Decarbonization* (Nov. 2016).

emerged in the 1990s with, among other milestones, the founding of the U.S. Green Building Council.<sup>5</sup>

## **B. Energy Efficiency Investment Returns and Benefits**

Energy bills continue to cost consumers more than \$430 billion each year despite adoption by the building sector of some energy-efficient technologies and practices.<sup>6</sup> Approximately half the floor space in the United States is currently heated by systems that burn fossil fuels onsite. Empowering residential and commercial consumers with additional information regarding their energy consumption habits through the use of “smart” metering technologies can also ensure that energy is consumed in the most efficient manner. The electrification of practices that otherwise require the use of fossil fuels, such as burning natural gas for heating, can significantly improve efficiency and reduce carbon pollution.<sup>7</sup>

Various public and private sector efforts have led to cost savings and environmental benefits for building sector entities and consumers. For instance, the Environmental Protection Agency and Department of Energy’s (DOE) ENERGY STAR program and its commercial partners saved American consumers roughly \$30 billion in energy costs, while reducing GHG emissions by 290 million metric tons.<sup>8</sup> Similarly, DOE’s Weatherization Assistance Program has saved low-income households that participate in the program upwards of \$283 per year by improving energy efficiency and structural resiliency.<sup>9</sup>

Another public vehicle for these efforts is DOE’s Building Technologies Office, which conducts research and development into new energy-efficient technologies, sets efficiency standards for residential appliances and commercial equipment, and implements building energy codes.<sup>10</sup> Investments in improving the energy efficiency of building exteriors, window insulation, and lighting fixtures can add significant cost-savings and qualitative benefits for building sector consumers. The ENERGY STAR program, for example, estimates that

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<sup>5</sup> Congressional Research Service, *Infrastructure: Green Building Overview and Issues* (Aug. 2017) ([www.crs.gov/Reports/R40147?source=search&guid=d5923f817e7d4265a4e4fb38029af70f&index=0](http://www.crs.gov/Reports/R40147?source=search&guid=d5923f817e7d4265a4e4fb38029af70f&index=0)).

<sup>6</sup> See note 2.

<sup>7</sup> See note 1.

<sup>8</sup> ENERGY STAR, *By The Numbers – 2018* (Apr. 2019) ([www.energystar.gov/sites/default/files/asset/document/Energy%20Star\\_factsheet\\_ByTheNumbers\\_190805.pdf](http://www.energystar.gov/sites/default/files/asset/document/Energy%20Star_factsheet_ByTheNumbers_190805.pdf)).

<sup>9</sup> Department of Energy, Office of Energy Efficiency and Renewable Energy, Weatherization Assistance Program ([www.energy.gov/eere/wipo/weatherization-assistance-program](http://www.energy.gov/eere/wipo/weatherization-assistance-program)) (accessed Sep. 11, 2019).

<sup>10</sup> Department of Energy, Office of Energy Efficiency and Renewable Energy, Key Activities in Energy Efficiency ([www.energy.gov/eere/buildings/key-activities-energy-efficiency](http://www.energy.gov/eere/buildings/key-activities-energy-efficiency)) (accessed Sep. 13, 2019).

commercial investments, including those made at low- or no-cost, can yield up to five dollars in revenue per dollar spent.<sup>11</sup> Other federal- and state-subsidized energy-efficiency programs have yielded in excess of two dollars in consumer and other benefits per dollar spent.<sup>12</sup>

## II. WITNESSES

The following witnesses have been invited to testify:

**Mr. Carl Elefante, FAIA**  
2018 AIA President  
American Institute of Architects

**Ms. Elizabeth Beardsley**  
Senior Policy Counsel  
U.S. Green Building Council

**Mr. Steven Nadel**  
Executive Director  
American Council for an Energy-Efficient Economy

**Mr. Timothy Keane**  
International Vice President at Large  
International Association of Heat and Frost Insulators and Allied Workers

**Dr. Curtis J. Zimmermann, Ph.D.**  
Manager, Government Liaison  
BASF Corporation

**Mr. Arn McIntyre**  
President  
McIntyre Builders Inc.  
*On behalf of* National Association of Home Builders

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<sup>11</sup> ENERGY STAR, The business case for energy efficiency ([www.energystar.gov/buildings/reference/business-case](http://www.energystar.gov/buildings/reference/business-case)) (accessed Sep. 11, 2019).

<sup>12</sup> See, e.g., *Study says every dollar spent on Maryland energy-efficiency program has saved \$1.81*, Scott Dance, The Baltimore Sun (Jan. 11, 2017); Environmental Protection Agency, *Quantifying the Multiple Benefits of Energy Efficiency and Renewable Energy*, Part Two, Chapter 5 (study of economic benefits accruing to the states of AL, FL, GA, LA, NC, SC, TN, and VA and to energy consumers residing in those states) (2018 edition - accessed Sep.16, 2019).