ENERGY & COMMERCE
CHAIR RODGERS

MEMORANDUM September 8, 2023

TO: Members of the Subcommittee on Energy, Climate, and Grid Security

FROM: Committee Majority Staff

RE: Hearing entitled "Keeping the Lights On: Enhancing Reliability and Efficiency to Power American Homes"

I. INTRODUCTION

On Wednesday, September 13, 2023, at 10:00 a.m. in 2123 Rayburn House Office Building, the Subcommittee on Energy, Climate, and Grid Security will hold a legislative hearing entitled "Keeping the Lights On: Enhancing Reliability and Efficiency to Power American Homes." Witnesses are by invitation only. The hearing will review the following legislation:

- H.R.4167, the "Protecting America's Distribution Transformer Supply Chain Act"
- H.R. ___, the "DOE Appliance and Equipment Standards Reform and Consumer Protection Act"
- H.R. ___, the "GRID Act"

II. WITNESSES

Panel One:

- **Gene Rodrigues,** Assistant Secretary for Electricity, Office of Electricity, U.S. Department of Energy;
- **David Ortiz,** Director, Office of Electric Reliability, Federal Energy Regulatory Commission.

Panel Two:

- **Kevin Messner,** Executive Vice President and Chief Policy Officer, Association of Home Appliance Manufacturers;
- **B. Robert "Bob" Paulling**, President and CEO, Mid-Carolina Electric Cooperative, on behalf of the National Rural Electric Cooperatives Association
- **Ben Lieberman,** Senior Fellow, Competitive Enterprise Institute
- **Andrew deLaski,** Executive Director, Appliance Standards Awareness Project

III. BACKGROUND

U.S. Electricity Profile

Electricity in the U.S. is a critical commodity on which the residential, commercial, and industrial sectors rely. In 2022, about 4,243 billion kilowatt-hours (kWh) of electricity were generated at utility-scale electricity generation facilities in the United States. Utility-scale electricity generation is generation from power plants with at least one megawatt of total electricity. About 60 percent of this electricity generation was from fossil fuel sources.

Specifically, natural gas accounted for 39.8 percent of total electricity generation, coal accounted for 19.5 percent, petroleum for 0.6 percent, and other gasses accounted for 0.3 percent. In 2022, nuclear made-up 18.2 percent of total electricity generation. Renewables made up 21.5 percent of total electricity generation. Specifically, wind accounted for 10.2 percent of total capacity, hydropower at 6.2 percent, solar at 3.4 percent, biomass at 1.2 percent, and geothermal at 0.4 percent of total capacity.[1]

According to the U.S. Energy Information Administration (EIA), developers plan to add 54.5 gigawatts (GW) of new utility scale electric-generating capacity to the U.S. power grid in 2023. More than half of new U.S. electric-generating capacity in 2023 will be solar, about 54 percent. U.S. battery capacity is expected to double in 2023, as developers reportedly plan to add 94 GW of battery storage to the existing 8.8 GW of battery storage. Developers plan to build 7.5 GW of new natural-gas fired capacity in 2023 and 6.0 GW of utility-scale wind capacity. Additionally, the two new reactors at the Vogtle nuclear power plant in Georgia will add 2.2 GW of capacity, by early 2024.[2]

The EIA projects that global energy consumption will increase nearly 50 percent by 2050, largely as a result of population and economic growth. In 2022, electricity consumption in the United States was about 4 trillion kWh, the highest amount ever annually recorded. Total electricity end-use consumption includes retail sales of electricity to consumers and direct use electricity. The industrial sector accounts for most direct use electricity. In 2022, the percentage share of total electricity retail sales was as follows: 28.9 percent residential; 35.1 percent commercial, 25.8 percent industrial; and 0.2 percent transportation—mostly to public transit systems. Heating and cooling (air conditioning) account for the largest annual use of electricity in the residential sector.

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[1] ENERGY INFO. ADMIN., *US Electricity Generation by Energy Source*, (Feb. 2023), https://www.eia.gov/tools/faqs/faq.php?id=427&t=3#:~:text=In%202022%2C%20about%204%2C243%20billion,facilities%20in%20the%20United%20States.&text=About%2060%25%20of%20this%20electricity,%2C%20petroleum%2C%20and%20other%20gases.

[2] ENERGY INFO. ADMIN., *More than Half of New US Electric-Generating Capacity in 2023 will be Solar*, (Feb. 6, 2023), https://www.eia.gov/todayinenergy/detail.php?id=55419#.

Pricing

According to the EIA as of June 2023, the average residential price of electricity has increased by 27.65 percent since January 2021.[3] Part of this increase is due to the cost of petroleum, natural gas, and coal delivered to power plants increasing 34 percent in 2022. Supply chain disruptions, particularly affecting the wind and solar sectors, have also contributed to price increases for residential customers. Monthly costs for the first three months of 2023 reflect a five percent increase from the same time last year.[4]

According to data published by DOE, on an energy equivalent basis, electricity is projected to cost 3.3 times more than natural gas in 2023.[5] The cost of electricity produced by renewable sources, in particular solar and wind, is rising. According to the International Energy Agency (IEA), global average levelized costs of energy for onshore wind and solar are expected to remain 10-15% above 2020 levels in 2024.[6]

The markets for renewables, and the prices for the materials to create wind turbines and solar panels, have experienced significant volatility in recent years due to the COVID-19 lockdowns, cost inflation, disruptions due to the Ukraine crisis, and disruptions in China's supply chain, which controls the global market for critical minerals needed for manufacturing. For example, between 2020 and June 2022, the price of polysilicon rose by 350 percent.[7]

Regulation

The electricity system is made up of three interrelated systems: the generation system which consists of power plants that generate electricity; the transmission system which consists of high voltage transmission lines and associated equipment which move power across long systems; and the distribution system which makes the final delivery of electricity to most homes and businesses.

The electricity system in the United States originally was made up of vertically integrated utilities responsible for all aspects of these three systems: generation, transmission, and distribution. In 1935, Congress passed the Federal Power Act (FPA), which limited federal

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[3] ENERGY INFO. ADMIN., *Electricity Data Browser*, (Feb. 2023), Electricity data browser - Average retail price of electricity (eia.gov).

[4] ENERGY INFO. ADMIN., US Residential Electricity Bills Increased 5% in 2022, (May 31, 2023), U.S. Energy Information Administration - EIA - Independent Statistics and Analysis.

[5] Residential electricity prices are projected to cost $46.19 per million Btu compared to $14.97 per million Btu for natural gas. See https://www.energy.gov/sites/default/files/2023-08/rep-ave-cost.pdf?utm_medium=email&utm_source=govdelivery

[6] Information Energy Agency, *Renewable Energy Market Update,* (June 2023), https://www.iea.org/reports/renewable-energy-market-update-june-2023/will-solar-pv-and-wind-costs-finally-begin-to-fall-again-in-2023-and-2024.

[7] McKinsey & Company, *Renewable-Energy Development in a Net-Zero World: Disrupted Supply Chains*, (Feb.17, 2023), https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/renewable-energy-development-in-a-net-zero-world-disrupted-supply-chains.

jurisdiction to "only those matters which are not subject to regulation by the States."[8] The FPA established the areas of federal jurisdiction as the "transmission of electric energy in the interstate commerce" and "the sale of electric energy at wholesale in interstate commerce." Electricity markets have retail and wholesale components. The Federal Energy Regulatory Commission (FERC) is responsible for regulating the wholesale markets and transmission of electricity in interstate commerce pursuant to the FPA. Wholesale involves the sale of electricity among utilities and electricity traders before it is sold to consumers. Retail involves sales of electricity to consumers and is regulated by the states and public utility commissions.

Following the passage of the Energy Policy Act of 1992 and subsequent FERC Orders, the electricity industry, which had operated as vertically integrated companies that owned and controlled access to transmission, opened access to transmission systems to other wholesale power producers and in many regions of the country created competitive markets for wholesale power. This is generally called restructuring or deregulation. In deregulated regions, competitive markets largely set the wholesale price of power. The price is based upon auctions in regional transmissions organizations (RTOs) or independent system operator (ISOs) systems, where generators competitively bid to provide energy. RTOs and ISOs are under the jurisdiction of FERC except for the Electric Reliability Council of Texas (ERCOT), which manages wholesale transactions solely within the state of Texas.

In addition to FERC, other government bodies play critical roles in regulating other facets of the electricity sector. The Department of Energy (DOE) is primarily responsible for establishing and implementing federal energy policy, whereas FERC is responsible for regulating more technical aspects of the electricity industry. In addition to the DOE, the Environmental Protection Agency (EPA) regulates emissions, including greenhouse gases, from power plants.

FERC Role in Addressing Electric Grid Reliability

FERC has broad authority and responsibilities to ensure the nation's bulk power system remains reliable, and that rates for electricity remain just and reasonable for Americans. Section 215 of the FPA, which was added through the enactment of the Energy Policy Act of 2005, requires a FERC-certified Electricity Reliability Organization (ERO) to develop and enforce mandatory and enforceable reliability standards, which are subject to FERC review and approval. Once approved, the reliability standards may be enforced by the ERO, subject to FERC oversight.

Electric reliability experts, such as the North American Electricity Reliability Corporation (NERC) and RTOs and ISOs, have made public statements and filed comments in regulatory dockets, noting concerns that certain Federal regulatory actions do not adequately consider electric reliability or minimize disruptions to reliability when agencies promulgate regulations affecting the production or generation of energy and electricity.

[8] 16 U.S.C. §824(a)

Federal Efficiency Regulations for Appliances and Equipment

Pursuant to the Energy Policy and Conservation Act of 1975 (EPCA), DOE is authorized to establish minimum energy efficiency standards for consumer appliances and equipment. Since the passage of EPCA, DOE has issued regulations for more than 60 products, representing about 90 percent of home energy use.[9] Some of those products include dishwashers, dryers, washing machines, cooktop stoves, refrigerators, ceiling fans, furnaces, air conditioners, and light bulbs. The procedures DOE utilizes to issue efficiency standards were first formalized by the 1996 Process Rule.

In 2020, DOE finalized a rule to modernize the Process Rule in an effort to increase transparency, accountability, and regulatory certainty for the American people. In its justification for updating the Process Rule, DOE conducted an analysis which found that "over the last three decades, 60 percent of standards were projected to save 0.3 quads or more over 30 years, and those 60 percent of standards accounted for 96 percent of total energy savings. The other 40 percent of standards, projected to save less than 0.3 quads, accounted for just 4 percent of total energy savings."[10]

In December 2021, DOE issued another final rule relating to the Process Rule, removing the recently-added requirement to conduct a comparative economic analysis of economic justification, and removing the threshold for determining when the significant energy savings criterion is met.[11]

IV. LEGISLATION

A. H.R.4167, the "Protecting America's Distribution Transformer Supply Chain Act"

H.R. 4167, the "Protecting America's Distribution Transformer Supply Chain Act," prohibits DOE from imposing new efficiency standards for distribution transformers until 5 years after the date of enactment. Under the legislation, the current standards for distribution transformers that were published in 2013 would remain in effect in the intervening period of time.

B. H.R. ___, the "DOE Appliance and Equipment Standards Reform and Consumer Protection Act"

H.R. __, the "DOE Appliance and Equipment Standards Reform and Consumer Protection Act," expected to be introduced by Rep. Lesko, amends EPCA to reform DOE's procedures for issuing energy efficiency standards. The legislation prohibits DOE from prescribing any new or amended energy efficiency standards for a product that is not technologically feasible and

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[9] U.S. Department of Energy, *Saving Energy & Money with Appliance and Equipment Standards in the U.S.,* (2017), https://www.energy.gov/eere/buildings/articles/appliance-and-equipment-standards-fact-sheet.
[10] https://www.energy.gov/articles/department-energy-issues-final-process-rule-modernizing-procedures-consideration-energy
[11] 10 C.F.R. Part 40 (2021), https://www.regulations.gov/document/EERE-2021-BT-STD-0003-0075.

economically justified. The legislation defines a minimum threshold for energy or water savings that must be achieved to justify a new regulation, and establishes several new factors that DOE must consider, including the cost to low-income households, and the full lifecycle costs associated with requiring consumers to purchase a new qualifying appliance.

C. H.R. ___, the "GRID Act"

H.R. __, the "Guaranteeing Reliable Infrastructure Development (GRID Act) Act", expected to be introduced by Rep. Duncan, amends the FPA to require coordination between the FERC and any Federal agency that promulgates a regulation that could threaten the reliable operation of the bulk power system. The GRID Act ensures that electric reliability authorities are given adequate input in the regulatory process when such regulations pose a threat to grid reliability or resource adequacy.

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Brandon Mooney, Elise Krekorian, or Mary Martin of the Committee staff at (202) 225-3641.