



COMMITTEE ON  
**SCIENCE, SPACE, & TECHNOLOGY**  
Lamar Smith, Chairman

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## **Statement by Chairman Randy Weber (R-Texas)**

*The Electric Grid of the Future*

**Chairman Weber:** Today, we will hear from the Department of Energy (DOE), Los Alamos National Laboratory, the private sector and Texas Tech University on research for creating the electric grid of the future.

The goal of this research is to ensure energy delivery systems are reliable, resilient and secure. A reliable grid delivers energy to consumers and businesses on demand regardless of the energy sources. A resilient grid keeps the energy flowing during an adverse event, such as a hurricane, and ensures a restoration of energy once an outage has occurred.

A secure grid protects our energy infrastructure from hostile disruptions due to physical or cyberattacks, which are a growing risk as more industrial control systems are connected online.

The DOE Office of Electricity Delivery and Energy Reliability (OE) is leading the early-stage research and development programs that promise to deliver advancements in grid technology. Small but mighty, OE has the least amount of funding for applied energy programs at DOE, but carries out a vital mission through partnerships with industry and research conducted by the national labs.

Los Alamos applies science expertise in physics, network science, algorithms and applied mathematics to develop computational modeling and data analytics to help optimize modern electrical grids.

Los Alamos developed these capabilities through its nuclear weapons mission. This kind of basic science expertise—with multi-disciplinary applications—is part of what makes the national lab system an incubator for new technologies, and continues to advance research beyond its originally intended goals.

Academia and industry are also partners on grid modernization research. Texas Tech University hosts the Global Laboratory for Energy Asset Management and Manufacturing (GLEAMM) facility that works to develop innovative power technologies and advance next-generation energy delivery technology. GLEAMM focuses on wind, solar, battery storage, cybersecurity and microgrid technologies that will all encompass the electrical grid of the future.

Advanced grid technologies can have a significant impact when the grid is faced with weather related events that can threaten reliability. This month brings the official start of the

2018 hurricane season, and last year, communities in my home state of Texas, as well as Florida and Puerto Rico lost power. Modern grid technology in Texas, such as the use of smart meters, were able to identify power outages and quickly restore power after Hurricane Harvey.

Unfortunately, while they have made significant progress rebuilding capabilities, there are still communities in Puerto Rico without power. That's why DOE, OE and five national labs led by Argonne National Laboratory are working daily to provide grid modeling tools to Puerto Rico.

The national labs are combining their current skills and capabilities in order to help Puerto Rico to plan, operate and rebuild a more resilient grid. These models help grid operators better predict where the highest risk of power disruption could be, and determine the potential impacts on critical power loads that support Puerto Rico's public health and safety infrastructure.

The national labs hope by improving existing grid models, the island will be able to make key investments in resilient energy infrastructure before the current hurricane season.

Additional analysis will inform Puerto Rico on long term investment priorities for electrical transmission, distribution, renewable energy, battery storage, microgrids and strategic power reserves.

The partnership between the federal government, the national labs, academia and industry has the potential to transform energy delivery systems. As we continue supporting advanced grid research, I would like to learn more about how DOE can improve the development of new technology and our understanding of electrical systems.

I want to thank our panel of witnesses for their testimony today, and I look forward to a positive discussion about grid modernization research.

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