

**STATEMENT BY**

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**BEFORE THE HOUSE ENERGY AND COMMERCE COMMITTEE,  
SUBCOMMITTEE ON ENERGY, CLIMATE, AND GRID SECURITY**

**ON THE ROLE OF ARTIFICIAL INTELLIGENCE IN POWERING  
AMERICA'S ENERGY FUTURE**

**OCTOBER 19, 2023**

Chair McMorris Rodgers, Ranking Member Pallone, Subcommittee Chair Duncan, Ranking member Degette, and Members of the Subcommittee, I am honored to again be before this Committee, this time to discuss the rapidly developing area of Artificial Intelligence, and the impact it will make on the energy sector.

Under the leadership of Secretaries Perry and Brouillette, the U.S. built the first high performance computer built specifically for what has become the AI revolution. That computer, named Summit, was built under the authorization of this committee at Oak Ridge National Lab. DOE developed a computer to integrate GPU and CPU chips, to build a first of a kind supercomputer designed for AI. That commissioning also allowed the U.S. to regain our #1 global supercomputer position from Communist China. Thank you to this committee for that leadership.

Subsequent to that first AI supercomputer, the AI revolution accelerated. And AI applications for the Energy Sector grew rapidly. Let me summarize some areas where AI is having significant impact:

- AI is accelerating energy technology discovery. AI can process data to guide researchers to higher likelihood options before taking efforts to the lab stage, significantly reducing the cost and time to discovery of new energy technologies.
- Generative AI is beginning to remake energy operations. By analyzing operating data, and allowing AI to manage operations, significant efficiency improvements are occurring. Here are a few examples:
  - AI is allowing significant improvement in wind operations. GenAI is able to monitor every gear, every turbine blade, hour by hour weather, and each turbine's profitability. As a result, the GenAI is able to predict maintenance needs, and automatically create daily work orders and order supply parts for maintenance, significantly improving performance;
  - Storm recovery can be significantly improved. AI driven drones are able fly down streets, and using image capture with their video cameras, GenAI is able to automatically identify pole by pole recovery efforts needed, automatically ordering the needed replacement equipment, and create work orders for line personnel to go fix the damage;
  - Oil & gas and geothermal companies are able to use AI to better evaluate 3D seismic data, and optimize drilling and operations. Increasing development prospects, driving down costs, and increasing energy production;
  - AI can identify when to dispatch power plants, driving energy availability, resiliency, and reducing emissions;
  - GenAI can better predict weather, design infrastructure projects effected by weather, and direct the exact day to plant crops, improving crop yields.

- Generative AI also has the opportunity to accelerate legal and regulatory efforts, including accelerating permits. Parties looking to submit a siting or regulatory filing to build energy infrastructure can feed the GenAI the last approved filings, and it will write a filing based on what was previously approved, accelerating projects. The regulators at EPA, FERC and NRC should be able to use GenAI to much more quickly review and approve requests. It could even help write new legislation.

I would recommend this committee direct efforts for your departments of jurisdiction to implement these in government, like the private sector is beginning to do.

There are also two challenges that will come from this AI revolution:

- Manufacturing of semiconductors, and the operating of AI enabled data centers, will take a massive amount of additional power. In Loudoun County, about 3000 MW of new power will be needed each year for many years just for new data centers. That's the equivalent of needing three new large nuclear plants every year. And in New York, just the new Micron semiconductor plants will require almost 2000 MW, the equivalent of the total power demand of Vermont and New Hampshire combined.
- National security can be placed at risk with the new hardware and software deployment. Communist China can place physical back doors on their chips, and holes in AI algorithms, to allow sabotage. The security challenges of this new AI and digital infrastructure are acute. I would recommend that we ban all chips, software, electric vehicle components, and power grid controls from China today. And we should look at deploying enhanced and resilient networking systems like quantum networks, to prevent foreign malign actions.

America has the world's greatest set of strengths to grow our Energy Superpower status. And that includes our leadership in AI. As we confront the challenges in energy markets today, we'd do well to implement this American innovation.