Statement for the Record
Submitted by
The Digital Energy Council

Committee on Energy and Natural Resources
United States Senate

"Examine the Opportunities, Risks, and Challenges Associated with Growth in Demand for Electric Power in the United States"
May 21, 2024

The Digital Energy Council (DEC) appreciates the opportunity to submit this Statement for the Record to the Senate Energy and Natural Resources Committee hearing to "Examine the Opportunities, Risks, and Challenges Associated with Growth in Demand for Electric Power in the United States."

About the Digital Energy Council
The Digital Energy Council (DEC) is a non-profit advocacy organization with members working at the forefront of the energy, digital asset mining, and high-performance computing data center industries. Our members support energy security and resilience through the adoption of modern grid solutions and new technologies. DEC was founded to shape the future of energy use and inform policymakers about the important cross-section between the energy industry and the digital energy applications driving a new economy. As society becomes increasingly digital, the energy sector must evolve to keep pace. It is essential for the energy ecosystem to embrace new technologies and adapt to meet growing demand.

How the growing demand for electricity will have serious economic and national security consequences for our nation.
The biggest source of new electricity demand is expected to come from data centers that enable cloud computing, bitcoin mining, and artificial intelligence (AI)[1]. As we continue to assess the need for grid upgrades and new generation to meet growing demand for electricity, it is just as important to assess some of the unique characteristics of certain new load. NERC's 2024 Summer Reliability Assessment emphasized the role of "Evolving Demand-Side Management Programs" for resources adequacy and load balancing. These programs leverage the load shedding capabilities of large, flexible load data centers, which act as "short-notice resources" to support wind and solar energy adjustments and during periods of stress[2].

The increasing electricity demand from data centers, including AI and digital asset mining, will drive innovation, improve efficiency, and facilitate the transition to cleaner energy sources. If done right, incorporating new loads for digital applications can bring additional investment to the table in a manner that compliments the needs of our aging energy infrastructure, without

[1] Analysis and Forecast to 2026, IEA.
[2] 2024 Summer Reliability Assessment, NERC.

compromising our goal of ensuring the United States remains the leader in developing new digital technologies, like AI. Here are key points to consider:

Grid Stabilization and Demand Response:
Digital asset mining data centers, which offer flexible load, serve as an important grid stabilizing tool, as they can quickly turn off and revert power back to the grid at a moment's notice. This takes stress off the grid during peak times, also known as demand response or curtailment. Congress has long acknowledged the potential benefits for demand response, including in Section 1252(f) of the Energy Policy Act of 2005 (EPACT) by encouraging "the deployment of such technology and devices that enable electricity customers to participate in such pricing and demand response systems shall be facilitated, and unnecessary barriers to demand response participation in energy, capacity and ancillary service markets shall be eliminated."[3] And in a 2006 Department of Energy (DOE) report required by Section 1252(d) of EPACT, DOE acknowledged the reliability benefits of demand response to "the operational security and adequacy savings that result because demand response lowers the likelihood and consequences of forced outages that impose financial costs and inconvenience on customers."[4]

The unique characteristics of flexible load data centers along with their widespread deployment make them one of the most savvy methods of demand response on the market. While demand response has been a discussion point for nearly 20 years, digital asset mining operations offer demand response capabilities and offer a new, precise, and highly flexible solution that has been deployed with private capital at scale.

Data Centers and Sustainable Energy Practices:
Data centers, as significant consumers of electricity, have a pivotal role in energy grid development. Leading tech companies are increasingly committing to renewable energy sources to power their data centers, driving demand for clean energy projects. By signing power purchase agreements (PPAs) with renewable energy providers, data centers can support the financial viability of new wind, solar, and other renewable energy projects. With advanced energy management systems, data centers can adjust their power consumption in response to grid signals, helping to stabilize the grid during periods of fluctuating supply and demand. Pending thorough assessment by grid operators, this could also provide an opportunity for renewable power sources to play a larger role in capacity markets.

Investment in Energy Infrastructure:
During the rapid expansion of sectors like AI, data storage, cloud computing, and digital asset mining there has been significant investment to upgrade electric infrastructure, like transmission, and procure energy resources. It is critically important that we continue this investment to maintain American leadership and protect these industries, and protect against offshoring to countries that do not share American values and also utilize much higher emitting energy sources. One of the biggest challenges the energy industry currently has is building transmission, particularly interregional transmission. Permitting reform would expedite the development of new and upgraded transmission that is essential for continued advancement of our digital economy.

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[3] Energy Policy Act of 2005.
[4] Benefits of Demand Response in electricity Markers and Recommendations for Achieving Them, DOE.

Promotion of Energy Efficiency and Storage:
The competitive nature of AI, digital asset mining, and cloud computing data centers incentivizes continuous improvement in energy efficiency. Innovations in cooling systems, power management, and hardware efficiency developed in these sectors can spill over into broader industrial and commercial applications, leading to widespread energy savings. The demands of these energy-intensive sectors are driving advancements in energy storage and management technologies. Improved battery storage systems and advanced energy management solutions developed to support data centers and mining operations can be deployed to enhance grid reliability and facilitate the integration of intermittent renewable energy sources.

Support for Decentralized Energy Systems and Economies:
These sectors can also support the growth of decentralized energy systems, such as microgrids and distributed generation. By co-locating data centers with renewable energy sources or deploying digital asset mining operations in areas with abundant renewable resources, we can enhance energy resilience, increase capacity factors, and reduce transmission losses. The expansion of AI, digital asset mining, and data centers contributes to economic growth and job creation in the energy sector. This includes roles in engineering, construction, maintenance, and cybersecurity, fostering a skilled workforce equipped to support a modernized grid.

Conclusion
The United States has an opportunity to lead in the development and deployment of data centers, digital asset mining, and AI as both a technology and energy tool. Policymakers must act now to ensure that digital energy infrastructure can continue to operate in the United States with sensible and certain regulation.

We appreciate the opportunity to submit this Statement for the Record and look forward to serving as a resource for these important and complex issue areas.