NATIONAL ASSOCIATION OF Manufacturers

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The Honorable Alan Davidson
Administrator and Assistant Secretary of Commerce
for Communications and Information
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Ave. NW
Washington, DC 20230

> **RE:** **NTIA Request for Comments on Bolstering Data Center Growth, Resilience and Security (Docket ID: 240823-0225)**

Dear Assistant Secretary Davidson,

The National Association of Manufacturers appreciates the opportunity to submit this letter in response to the request for information from the National Telecommunications and Information Administration on bolstering data center growth, resilience and security. The NTIA's request covers a number of policy issues and this letter will respond to the key pieces that are most salient for manufacturers.

The NAM is the largest manufacturing association in the United States, representing manufacturers of all sizes across all 50 states and in every industrial sector. Manufacturing employs nearly 13 million people in the United States, contributes $2.91 trillion to the economy annually and accounts for 53% of private-sector research and development. The NAM advocates for a policy agenda that helps manufacturers compete in the global economy and create jobs across the United States.

Manufacturers' interest in the growth of data centers is threefold. First, manufacturers build all of the physical inputs of data centers, from construction materials to electrical equipment to servers. Second, with the digitalization of manufacturing (i.e., the integration of advanced digital technologies into all aspects of the manufacturing process to improve efficiency, quality and flexibility), manufacturers are themselves increasingly dependent on a robust network of cutting-edge data centers for the smooth execution of their core business operations. Artificial intelligence, in particular, has become integral to modern manufacturing as it increasingly transforms and supports a multitude of aspects of manufacturing, from product design to shop floor operations to

supply chain management.[1] Third, manufacturers are reliant on the same energy sources as data centers to power their operations. As demand grows and supply remains relatively static, there is a pressing need to use all policy levers available to ensure sufficient, reliable and affordable energy for all users.

In answering the NTIA's request for information, we believe it is important to highlight the challenges manufacturers face across a range of policy areas, including grid reliability, energy demand growth, energy costs and the permitting difficulties associated with growing sources of stable and affordable firm power,[2] data and cybersecurity, supply chains and workforce development.

Grid Reliability and Demand Growth

Manufacturers use one-third of America's energy, and as such, the growth of our nation's energy supply is critical to manufacturers' ability to create jobs, expand operations and grow the economy. In addition to growth in energy generation, manufacturers depend on a stable electric grid to ensure the continuous operation of their facilities.

There are concerns over rising risks of service disruptions due to the strain put on the grid from retirements in traditional power-generating units and the expansion of data centers, which are highly energy intensive. A resilient, modern grid is required to enable the historic growth in data centers—which in turn can contribute to growth in the manufacturing sector.

<u>Permitting Reform</u>

Wood Mackenzie has predicted that U.S. demand for power could increase by 15% by the end of this decade.[3] According to an August 2024 study circulated by the DOE, current levels of electricity generation would need to <u>double</u> to keep up with demand.[4] Data centers alone are expected to consume up to 9% of all U.S. electricity generation

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[1] National Association of Manufacturers, "Working Smarter: How Manufacturers Are Using Artificial Intelligence." *Available here:* www.nam.org/ai.

[2] Firm power here uses the U.S. Energy Information Administration's definition: "Power or power-producing capacity, intended to be available at all times during the period covered by a guaranteed commitment to deliver, even under adverse conditions." *Available here:* https://www.eia.gov/tools/glossary/?id=electricity#:~:text=Firm%20power%3A%20Power%20or%20power,deliver%2C%20even%20under%20adverse%20conditions.

[3] Chris Seiple, "Gridlock: The Demand Dilemma Facing the US Power Industry," Wood Mackenzie (October 2024). *Available here:* https://www.woodmac.com/horizons/gridlock-demand-dilemma-facing-us-power-industry/.

[4] U.S. Department of Energy Office of Policy, "Clean Energy Resources to Meet Data Center Electricity Demand" (Aug. 12, 2024). *Available here:* https://www.energy.gov/policy/articles/clean-energy-resources-meet-data-center-electricity-demand.

per year by 2030.[5] Without meaningful permitting reform to add new sources of baseload and renewable energy generation to the grid, the demand from all industries will outpace the available supply.

The NAM strongly supports an all-of-the-above approach to the nation's energy portfolio—one that utilizes our abundant, clean and affordable natural gas resources; taps into the nation's significant mineral wealth to drive a responsible energy transition; supports existing renewable resources like solar, wind and nuclear power; and provides pathways to commercialization for nascent technologies like hydrogen and advanced nuclear reactors. All these energy sources will be critical to ensuring the successful build-out of data centers in America while powering the other energy-intensive sectors of the economy.

There are challenges with permitting the energy generation projects that will harness these energy sources, along with building out the transmission and distribution infrastructure to get the power to customers. As such, the NAM strongly encourages the NTIA and all federal agencies with equities in meeting growing energy demand to align with our permitting principles, and we welcome further engagement to discuss these principles in greater detail:

- Expediting judicial review
- Accelerating the permit process for needed energy infrastructure, including more transmission lines, pipelines and permanent carbon sequestration sites
- Providing regulatory certainty
- Creating enforceable deadlines
- Increasing the use of categorical exclusions to the National Environmental Policy Act process
- Unlocking access to domestic critical materials, including on federal lands
- Streamlining the Clean Water Act

Energy Affordability

Manufacturers in the U.S. are both producers and users of electricity, so it is critical that access to affordable, reliable energy supplies is maintained.

Existing Energy Generation

Ensuring the continued affordability of the nation's current energy generation mix and the existing technologies that make it up is important and closely related to the need for comprehensive permitting reform discussed above.

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[5] Ibid.

Data centers and many manufacturing operations require uninterrupted energy sources to ensure economic viability and safety. Traditional nuclear-generating stations (in the form of large-scale light water reactors) are one source of this baseload energy. Though the economics and permitting of such new nuclear generation have been difficult, the NAM encourages the NTIA to work with stakeholders to identify ways that the projected increase in demand growth can be leveraged to lower the cost curve of traditional reactors.

In addition, the United States continues to add significant amounts of new renewable energy generation to the grid in the form of wind, solar and battery storage, which the NAM welcomes. However, these energy sources do not yet economically provide baseload capacity. As such, the NAM strongly encourages the NTIA to work with its sister agencies and all stakeholders to examine the key role natural gas has and must play in meeting growing energy demand in a cost-effective way. Specifically, the NAM calls on the NTIA to examine natural gas's role as a source of baseload power to the data center industry as well as a complement and backup to intermittent renewable generation sources.

New Generation Technology

Additionally, newer energy sources to meet growing demand remain prohibitively costly—these are primarily clean hydrogen and small, modular and advanced nuclear reactors. To utilize hydrogen as an affordable energy source, significant work remains on the production side of the equation; equally important is the need to have workable guidance for hydrogen production incentives and to address the nation's pipeline and storage systems.

Regarding small, modular and advanced nuclear reactors, it is imperative that new designs be licensed expeditiously and safely by the Nuclear Regulatory Commission to allow the best of these new energy generation sources and technologies to come to market and be commercialized to bring down their cost curve. The NAM encourages the NTIA to work with the Nuclear Regulatory Commission as it continues its licensing and permitting work, specifically as it relates to implementing the ADVANCE Act—legislation supported by the NAM that would accelerate the development and commercialization of advanced nuclear reactor technologies.[6]

Transmission Policy

Cost allocation and transmission siting policies prove that the NTIA needs to solicit feedback from all relevant stakeholders, including state and local governments, utilities, consumers, generators and others within the manufacturing industry. This will allow the NTIA to develop a robust understanding of the needs of data centers for additional

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[6] U.S. Department of Energy Office of Nuclear Energy, "Newly Signed Bill Will Boost Nuclear Reactor Deployment in the United States" (July 10, 2024). *Available here:* https://www.energy.gov/ne/articles/newly-signed-bill-will-boost-nuclear-reactor-deployment-united-states.

transmission capacity, while ensuring appropriate fairness in allocating the associated project and operational costs.

Data and Cybersecurity

Frameworks and Regulations

Operators of data centers that provide public cloud services leverage a number of industry-developed frameworks, standards and best practices that enable them to effectively and flexibly assess and mitigate threats and risks to the continuity of their operations and the security of their customers' data and assets, including:

- The Cloud Controls Matrix of the Cloud Security Alliance, which is specific to public cloud services;
- The Service Organization Control 2 (SOC 2) of the American Institute of Certified Public Accountants, which is not specific to public cloud services to how service providers manage customer data, and is thus used by many cloud service providers;
- ISO/IEC 27001 and the NIST Cybersecurity Framework, which are not specific to public cloud services but represent widely recognized frameworks for enterprise cybersecurity and are thus used by many cloud providers.

Given the effectiveness of these frameworks and the fact that cloud service providers use them widely, the NAM does not believe there is a normative gap that needs to be filled by regulation.

Additionally, it is important to understand that providers offer their public cloud services to a variety of customers, across different sectors and geographies. As such, they should not be subject to cloud-specific regulations. These services are regulated more appropriately via "horizontal" laws to which they are directly subject (e.g., the EU's General Data Protection Regulation), or via "vertical" ones that flow down to them through their contracts and service-level agreements with regulated entities (e.g., the Health Insurance Portability and Accountability Act).

The Demand for Secure Cloud Services

The NAM does not believe that the provision of secure services by cloud operators is inhibited by a lack of security demand on the part of their customers. To the contrary, cloud service providers have ramped up their security offerings continuously in response to customer demand—including from customers in the manufacturing sector—fueled by a rise in cyberthreats, the digital transformation of manufacturing and regulatory obligations.

Incident Reporting

Finally, the NAM notes that the Cyber Incident Reporting for Critical Infrastructure Act of 2022 provides an appropriate statutory framework for owners and operators of critical infrastructure systems and assets to report significant cyber incidents and ransomware payments to the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency. Unfortunately, the NAM believes that CISA's proposed rule implementing CIRCIA[7] is both overreaching and unworkable; specifically, the proposed rule would require too many entities to report too many incidents in too much detail. The NAM recommends that cloud services, managed services or other third-party data-hosting services be required to report to CISA cyber incidents that reach the same, elevated level of consequence, rather than a lower impact threshold, which would lead to inconsistent reporting of the same incidents between cloud customers and providers and unnecessarily increase the number of incident reports.[8] The NAM recommends that the NTIA communicate to CISA the need to enact a CIRCIA rule that fosters collaboration, rather than confusion, between cloud providers and customers and enables each to respond to cyber incidents effectively.

Supply Chain Risks

Robust growth in data center construction is heightening demand for related essential inputs, stretching existing supply chains.[9] Constrained capacity extends to components integral to information technology systems and facility operations. Recent estimates forecast 30% output growth or higher for key suppliers in the semiconductor supply chain is needed to satisfy demand over the next two years.[10]

Technology Components

Market concentration in the production of AI chips increases exposure to disruptive risks, and reports note supply imbalances; however, increased capital investment expenditures as made available by the CHIPS and Science Act will bolster supplier

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[7] Federal Register Vol. 89, No. 66 (April 4, 2024). *Available here:* https://www.govinfo.gov/content/pkg/FR-2024-04-04/pdf/2024-06526.pdf.
[8] The NAM's submission to CISA in response to its proposed rule is available at https://documents.nam.org/tech/CIRCIA%20-%20NAM%20submission%20FINAL.pdf.
[9] Tom Dotan and Asa Fitch, "Why the AI Industry's Thirst for New Data Centers Can't Be Satisfied," The Wall Street Journal (April 24, 2024). *Available here:* https://www.wsj.com/tech/ai/why-the-ai-industrys-thirst-for-new-data-centers-cant-be-satisfied-93c7eff5.
[10] Peter Hanbury, Anne Hoecker and Michael Schallehn, "Prepare for the Coming AI Chip Shortage," Bain & Company (Sept. 25, 2024). *Available here:* https://www.bain.com/insights/prepare-for-the-coming-ai-chip-shortage-tech-report-2024/.

diversity.[11, 12] Other shortages include components related to cooling, power generation and supply, optical fibers, transceivers and cables, in addition to the workforce necessary for center construction.[13] The complex nature of supply chains for data centers means such impediments may persist, but the strong market for such facilities presages continued investment.[14] The NAM encourages the NTIA to meet with manufacturers and the firms constructing and operating data centers to discuss any regional disparities or supply chain issues with particularly trade-sensitive components.

Grid Components

Many electrical components critical to upgrading the grid and ensuring secure, reliable and resilient power availability for data centers are facing supply and demand imbalances and record lead times. These include transformers, switchgears and electrical steel.

To ensure that manufacturers have access to the energy supply necessary for the industry to continue powering the economy, we encourage the NTIA to explore and support federal policies to increase domestic capacity of critical equipment to meet the needs of a modern grid.

Workforce Development

The rapid ongoing digital transformation of the manufacturing industry means there is more reliance on data centers as critical infrastructure. Data centers are facing many of the same immense workforce challenges as the broader manufacturing industry, from the construction of industrial facilities and data centers to the operation of them. The modern manufacturing workforce needs access to the skills necessary for careers in an increasingly advanced, 21st-century industry. With these industries growing at such a fast pace in the U.S., there is a lack of career awareness leading to large applicant gaps for available jobs, recruitment struggles and retention issues.[15]

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[11] Miles Kruppa and Asa Fitch, "Google Expands In-House Chip Efforts in Costly AI Battle," The Wall Street Journal (April 9, 2024). *Available here:* https://www.wsj.com/tech/google-expands-in-house-chip-efforts-in-costly-ai-battle-3121c852?mod=article_inline.

[12] Kif Leswing, "Apple is Spending More on AI, but Remains Far Behind Its Silicon Valley Peers," CNBC (Aug. 1, 2024). *Available here:* https://www.cnbc.com/2024/08/01/apple-spending-more-on-ai-but-remains-behind-its-silicon-valley-peers.html.

[13] Sebastian Obando, "Oracle, Google and Meta Lead Data Center Construction Surge," Construction Dive (March 26, 2024). *Available here:* https://www.constructiondive.com/news/oracle-google-meta-data-center-construction/711408/.

[14] CBRE Group, "2024 Global Data Center Investor Intentions Survey" (June 3, 2024). *Available here:* https://www.cbre.com/insights/reports/2024-global-data-center-investor-intentions-survey.

[15] Paul Carton, "Data Center Staffing—An Ongoing Struggle," Uptime Institute (March 1, 2023). *Available here*: https://journal.uptimeinstitute.com/data-center-staffing-an-ongoing-struggle/.

The breadth of skills needed within the data center industry is vast, and not enough training programs exist to help develop the talent needed.[16] There is a tremendous opportunity for this industry to work with K-12 schools, community colleges and universities to share what skills are needed to develop relevant programs. For this industry to get the skilled workforce they need, more alignment is necessary on education policies, workforce policies and workforce funding flexibility for a more comprehensive approach to workforce development.

Congress should complete reauthorization of the Workforce Innovation and Opportunity Act and expansion of Pell grant eligibility to short-term training programs; support industry sector partnerships and multiemployer workforce solutions that incentivize companies to work together to reduce the skills gap; and support better career information and career guidance so all Americans understand the opportunities that exist in this sector and educational pathways available to begin those careers.

Conclusion

The NAM appreciates the opportunity to work with the NTIA to address issues arising from the growth of data centers in the United States and stands ready to partner with the administration to ensure manufacturers can compete in the global economy.

Sincerely,

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Vice President, Domestic Policy
National Association of Manufacturers

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[16] Forbes Technology Council, "The Data Center Talent Shortage Is Everyone's Problem: Here's How to Move the Industry Forward" (June 28, 2024). *Available here:* https://www.forbes.com/councils/forbestechcouncil/2024/06/28/the-data-center-talent-shortage-is-everyones-problem-heres-how-to-move-the-industry-forward/.