AI Assessment: Power and Permitting

THE WHITE HOUSE
WASHINGTON

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Summary

This document looks at the state of U.S. leadership in AI, as well as previously taken and needed steps to retain preeminence related to power and permitting. Over the coming decades, we will face obstacles in retaining preeminence in frontier AI models without solutions to power and permitting challenges. Today, President Biden signed an Executive Order to Advance U.S. Leadership in AI Infrastructure which confronts these challenges and supports building the next generation of AI in the United States.

Power

- Estimates on power needs vary widely due to uncertainty about the pace of AI demand and effectiveness of measures to boost energy efficiency, but show that data centers are forecasted to grow to ~7-12% of U.S. energy consumption by 2028.
- Eighty percent of U.S. data centers are located in 15 states, and the development of new data centers could put additional strain on their energy infrastructure.
- Local grids are already strained, and interconnection took a median of five years for projects in 2023. The buildout will require interconnection reform, while also not crowding out other electricity or raising costs for customers.

Permitting

- Lengthy permit approval processes can create challenges for AI companies and models looking to house data centers in the United States, with potential steps such as NEPA review and usage state and local permitting taking years to complete.
- To maintain its competitive lead, the U.S. should look to accelerate permitting processes for data centers while protecting our other interests.

The Biden-Harris administration has already made significant progress on AI infrastructure. In October 2023, the Biden administration issued an Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence. Following a convening of hyperscalers in September 2024, the White House created the Task Force on AI Datacenter Infrastructure, which worked with multiple AI infrastructure leaders to offer tailored guidance on critical projects. The Administration has also taken steps to expand transmission and expedite permitting processes through appropriations and reforms.

This report's recommendations seek to build on these actions and bolster the U.S. competitive lead. These measures include scaling up federal support, continued assessments of clean energy and electricity needs, accelerating interconnection, and using transmission categorical exclusions.

Introduction

Last month, President Biden signed the first ever National Security Memorandum (NSM) on Artificial Intelligence (AI) with the understanding that AI will have significant impacts on our economy and national security in the future. The NSM seeks to ensure that the United States leads the world in safe, secure, and trustworthy AI, harnesses AI to advance national-security missions, and advance international consensus and governance around AI. These goals require maintaining U.S. economic competitiveness in AI, and as such, the NSM directs the National Economic Council to coordinate an assessment of domestic private sector competitiveness across several areas. This assessment focuses on power and permitting.

Consistent with many of the findings and recommendations in this report, today President Biden is issuing an Executive Order to Advance U.S. Leadership in AI Infrastructure. This landmark executive order establishes a mechanism to build frontier AI infrastructure on a carefully selected set of federally-owned sites, while directing the federal government to speed up the permitting process for construction on these sites. It sets out clear guardrails to ensure the new AI infrastructure is powered by clean energy, safeguards our environment, provides for our national defense and security, and protects workers and consumers. To enable companies to source and use clean energy to power the frontier AI infrastructure developed on federal sites, the federal government is accelerating the buildout of transmission infrastructure and the interconnection of clean power.

## The U.S. Leadership in Artificial Intelligence and its Economic Potential

The United States leads in the development of the most advanced frontier AI models and has a clear advantage in key elements of the AI ecosystem.[1] However, maintaining this lead will require additional investment in clean energy infrastructure. Data center power needs will substantially increase over the coming decade, especially in regions with large concentrations of data centers or facing rapid data center growth. To maintain its preeminence in frontier AI, the United States will need to meet the power needs with clean energy and accelerate the deployment and transmission of clean energy. The build out of AI infrastructure must occur quickly and at scale without raising costs for consumers.

Spending on data center construction has already skyrocketed in the United States. Based on data from the U.S. Census Bureau, real private spending on data center construction has doubled over the last two years, and is up 112% since the Chat GPT release in November 2022. Data center construction is a growing share of total office construction rising to 30% from just 14% two years ago.

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[1] Global Competitiveness Analysis Team, "Global Competitiveness Analysis Pilot: Artificial Intelligence," Office of Science and Technology Policy, November 7, 2024.

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Spending on data center construction has skyrocketed

Millions of 2022 $ *Percent*
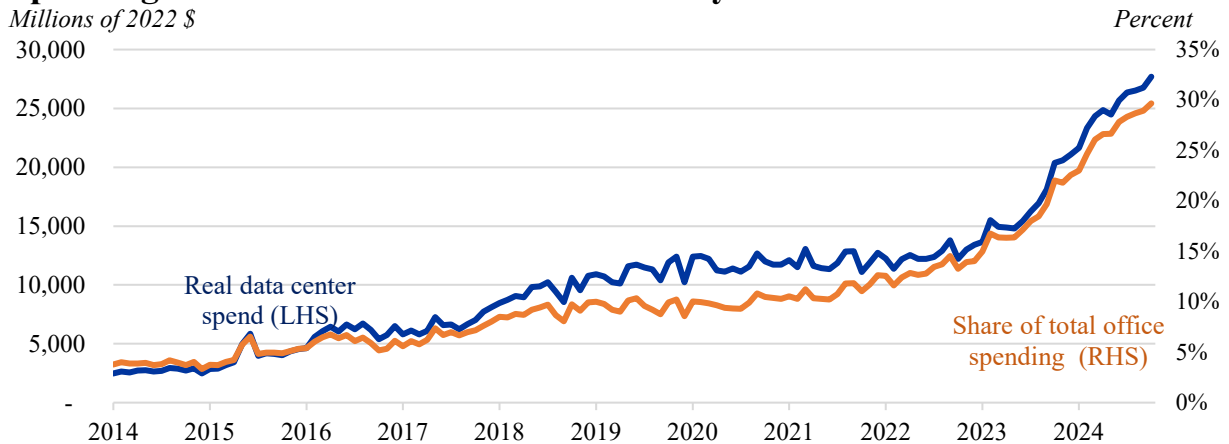
Source: US Census Bureau deflated by PPI:Final Demand Construction for Private Capital Investment.

The Stanford Institute for Human-Center AI Index puts the U.S. at the top spot for global AI leadership, with an index score of 70, almost 30 points above the next economy.[2] The U.S. preeminence largely comes from its strengths in research and development, investment, and infrastructure. On research and development, the U.S. leads on foundation models, datasets, and applications, where the U.S. holds the top score. Similarly, the U.S. leads in total private AI investment, M&A investment, and newly funded AI companies, due to deep and liquid capital markets. On infrastructure, the U.S. leads in supercomputers and compute capacity, but lags in internet speed.

China holds the second spot on the Stanford HCAI Index with a score of 40.3, deriving its strengths from research and development, infrastructure, and its national AI strategy presence. China has also made substantial investments in AI infrastructure over the last few years and plans to more than double its data center rack by 2030.[3] China brought a substantial amount of new clean energy generation online in 2023, underscoring how it can bring infrastructure and power generation online quickly, even as the majority of China's data centers run on coal. Around 65% of China's data centers are concentrated in the eastern provinces to reduce transmission distances to industries that require data centers. China's regional power grids are younger on average than regional grids in other economies, which reduces the amount of investment required for transmission and distribution.[4]

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[2] Nestor Maslej et al. "The AI Index 2024 Annual Report," *AI Index Steering Committee, Institute for Human-Centered AI, Stanford University,* accessed April 2024. https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_AI-Index-Report-2024.pdf
[3] Global Competitiveness Analysis Team, "Global Competitiveness Analysis Pilot: Artificial Intelligence," Office of Science and Technology Policy, November 7, 2024.
[4] Goldman Sachs, "AI Poised to Drive 160% Increase in Power Demand," Goldman Sachs Insights, accessed May 14, 2024, https://www.goldmansachs.com/insights/articles/AI-poised-to-drive-160-increase-in-power-demand

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U.S. tops global AI index

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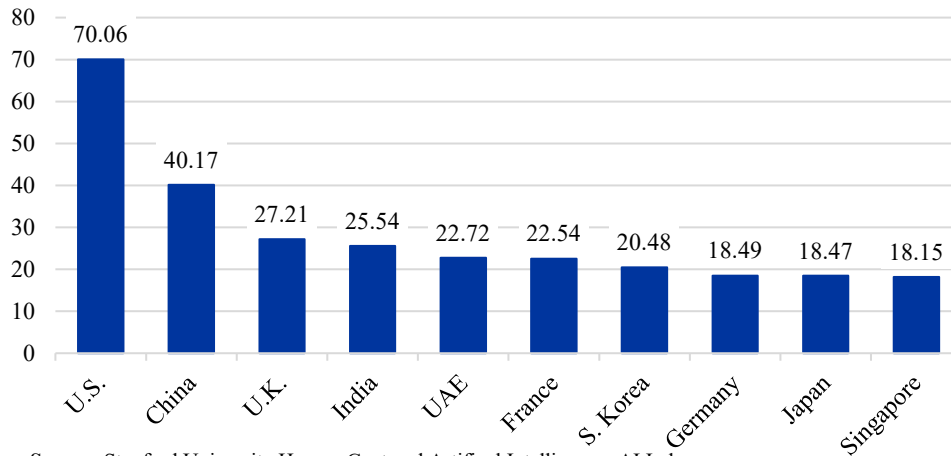
Other countries have offered substantial incentives ranging from power subsidies to permitting exclusions to financial incentives to have companies locate their data centers onshore. Forecasters expect the Saudi Arabian and UAE data center markets to grow 15-25% per year until 2030. European economies host around 15% of the world's data centers, though they will face challenges in updating their electric grids, which are the oldest in the world on average. Private sector analysts estimate that Europe will require nearly $1 trillion in spending on transmission and distribution over the coming decade.[5]

AI has significant implications for economic policy over the coming decades. Most academic and industry economists estimate that AI will raise productivity over the coming decades. However, the size of productivity growth estimates range from 0.07% to 1.5% annually over the next decade based on AI capability and adoption timelines.[6][7] When combined with other technologies, some researchers estimate that overall technological change inclusive of AI could add up to 3.3 percentage points to productivity growth.[8]

AI Energy Infrastructure: Power Needs Over the Coming Decades

AI demand and data center infrastructural build-out will significantly increase power consumption and electrical load. Current estimates on AI power usage over the next decade vary in scope, due to factors such as the pace of growth in demand for AI, the rate of growth in computational resources needed for AI tasks, and the effectiveness of ongoing measures to boost

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[5] Goldman Sachs, "AI Poised to Drive 160% Increase in Power Demand," Goldman Sachs Insights, accessed May 14, 2024, https://www.goldmansachs.com/insights/articles/AI-poised-to-drive-160-increase-in-power-demand

[6] MIT Economics, The Simple Macroeconomics of AI, accessed April 5, 2024, https://economics.mit.edu/sites/default/files/2024-04/The%20Simple%20Macroeconomics%20of%20AI.pdf

[7] Goldman Sachs, "Generative AI Could Raise Global GDP by 7 Percent," Goldman Sachs Insights, accessed April 5, 2023 https://www.goldmansachs.com/insights/articles/generative-ai-could-raise-global-gdp-by-7-percent

[8] McKinsey & Company, "AI Could Increase Corporate Profits by $4 Trillion a Year, According to New Research," McKinsey Insights, accessed July 7, 2023 https://www.mckinsey.com/mgi/overview/in-the-news/ai-could-increase-corporate-profits-by-4-trillion-a-year-according-to-new-research

energy efficiency. For electricity demand broadly, recent projections from the North American Electricity Reliability Corporation (NERC) have estimated that total annual electricity demand will grow by 15-18% over the next ten years.[9] This national load growth is roughly evenly split between growth from data centers, new industrial manufacturing activities, and increasing adoption of electric vehicles.

The Department of Energy (DOE) estimates that data centers are forecasted to grow to ~7-12% of U.S. energy consumption by as early as 2028 from ~4.4% in 2023, according to their congressionally mandated report, released in 2024.[10]

Forecaster	U.S. Data Center Power Usage in 2030 (TWh)	U.S. Data Center Power Usage in 2030 as % of Total Electricity Consumption
Goldman Sachs	400 TWh*	N/A
Wells Fargo	652 TWh*	N/A
Electric Power Research Institute (EPRI)	N/A	9%
Department of Energy (DOE)	N/A	~7-12%

*Note: The Goldman Sachs Research estimates overall data center power consumption from AI in particular, not all data center consumption. The Wells Fargo estimate refers to overall AI power demand.

Outside forecasters' estimates for AI power needs vary, but all show substantial increases in power over the coming decade. A Goldman Sachs analysis predicts that data centers' electricity needs will increase by 160% from 2023 to 2030. AI represents about one-fifth of this growth, or roughly 200 terawatt-hours each year. Their report forecasts that data centers will consume 3-4% of worldwide power by the end of the decade.[11] Wells Fargo forecasts greater data center consumption – a surge of 550% by 2026 from 8 TWh in 2024 to 52 TWh, followed by an increase of 1,150% to 652 TWh by 2030.[12] This amounts to 8,050% growth in power consumption from 2024-2030. The Electric Power Research Institute (EPRI) forecasts that data centers may see their electricity consumption more than double by 2030, reaching 9% of total electricity demand in the US.[13] Internal forecasts by leading AI developers suggest even greater power usage.

[9] "2023 Long-Term Reliability Assessment," *North American Electric Reliability Corporation*, December, 2023. https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2023.pdf

[10] Arman Shehabi, et al, "2024 United States Data Center Energy Usage Report" *Berkeley Lab Energy & Environmental Impact Division, Department of Energy,* December 2024. https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report.pdf

[11] Goldman Sachs. "AI Is Poised to Drive 160% Increase in Data Center Power Demand." Goldman Sachs. Accessed May 14, 2024. AI is poised to drive 160% increase in data center power demand | Goldman Sachs https://www.goldmansachs.com/insights/goldman-sachs-research/gs-sustain-generational-growth-ai-data-centers-global-power

[12] Wells Fargo Securities, "Summary of GenAI demand forecast" MarketWatch. Accessed May 21, 2024. https://www.marketwatch.com/story/ai-could-demand-a-shocking-amount-of-electricity-check-out-this-chart-e91e306d https://www.forbes.com/sites/bethkindig/2024/06/20/ai-power-consumption-rapidly-becoming-mission-critical/

[13] EPRI. "Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption," May 28, 2024 https://www.epri.com/research/products/3002028905

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As these forecasts demonstrate, there is considerable variation in predictions for future energy demand. This is partly due to a lack of visibility into proprietary private sector planning for new model training, as well as other areas of uncertainty discussed above. Notably, researchers in the that private sector, academia, and government are exploring ways to reduce AI energy consumption, and private sector investments have thus far outpaced public investments.

Regional Power Needs

Eighty percent of U.S. data centers are located in 15 states, and the development of new data centers could put additional strain on the energy infrastructure of these states.[14] However, it is possible the future distribution of data centers across the U.S. will look different than it does today. Therefore, power demand needs to take into account both current areas of concentration and areas facing rapid data center growth. Based on utility estimates, data centers boosted Virginia power consumption by 2.2 GW in 2023, and utility companies are already starting to see a slowdown in Virginia data centers' processing driven by transmission bottlenecks. While many language models are trained at a single-data centers, some large models are now being trained at geographically dispersed data centers. Regional variation in datacenters could reduce concentrated pressure on certain geographies, if appropriately planned.

AI Permitting Challenges

Generally speaking, AI data centers are not expressly regulated by the federal government, though approvals may be needed to comply with certain laws such as the Clean Air Act and Clean Water Act. However, transmission projects needed to support data centers may be subject to Federal environmental review and authorization, including the National Environmental Policy Act (NEPA). NEPA requires agencies to consider the reasonably foreseeable environmental effects of major federal actions, which can be done through an environmental impact statement (EIS), an environmental assessment (EA), or by applying categorical exclusion. Permitting requirements also apply to new power generation sources and new transmission infrastructure.

Depending on the specific permits and approvals required for a given site, bringing new AI data centers online can take years. Below are rough timeframes required for key aspects of the process (although, notably, companies can generally seek the highlighted approvals below in parallel):

- For sites with inadequate transmission, constructing new transmission lines can take on average 4 years

- The average time required for NEPA environmental impact statements—applicable to certain federally funded power procurement projects—is about 4 years.

- For sites near federal wetlands, USACE Clean Water Act permits can take ~1.5-2 years

- State and local zoning, environmental, and other land-use permits vary widely by region and can also take years to complete.

Given the current high rate of AI technology development and the amount of time it takes to complete complex AI training runs, lengthy permit approval processes can create challenges for

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[14] Ibid.

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AI companies looking to house data centers in the United States. Nonetheless, these permit processes are designed to protect vital national interests such as clean and safe water and air and reliable electricity for communities. To maintain the economic competitiveness of AI, the U.S. should look to accelerate permitting processes for data centers and associated AI infrastructure while ensuring strong environmental protections.

Principles Guiding the AI Infrastructure Build Out

The buildout of AI infrastructure of the next decade will need to rely on clean power, keeping electricity costs low, and allow for competition and new entrants. AI infrastructure refers to AI data center, power and storage facilities procured specifically to power data centers, and transmission and storage infrastructure developed or upgraded to meet power demands.

Reliant on Clean Energy

The United States will need to meet the power needs for AI with clean energy in order to meet President Biden's climate goals of creating a pollution free power sector by 2035 and a net-zero emissions economy by no later than 2050. Current energy infrastructure is already straining to meet data center needs. According to a DOE report, connection requests for hyperscaler facilities of 300-1000MW or larger with lead times of 1-3 years are stretching the capacity of local grids to deliver and supply power at that pace.[15]

Interconnection refers to the process of connecting high-capacity users like data centers and energy sources to the electric grid. It is a lengthy process involving numerous assessments. The typical duration of time between connection request to commercial operation increased from less than two years for projects built in 2000-2007 to over four years for those built in 2018-2023 (with a median of 5 years for projects built in 2023).[16] According to the DOE, over 2,500 GW of electricity generation and energy storage capacity is currently in interconnection queues. Information asymmetry can impede the efficiency of large load interconnection. Utility and grid operator information on operational constraints of their power system is sensitive information and cannot be easily shared. This limits the data center developer's ability to effectively identify locations that could more readily accommodate large load interconnection.

Accelerating interconnection has been shown to increase generation capacity in the short-term. PJM's interconnection reform and modernization in 2022 contributed to their announcing over 300 proposed projects totaling 26 GW had cleared the new interconnection process in May 2024 and should be ready for construction in 2025.[17]

Keeping Electricity Costs Low

The power needs for AI data centers must not crowd out other sources of demand on the power grid and result in higher electricity costs for consumers. Total electricity demand will grow by 15% over the next ten years, with load growth shared between data centers, new industrial

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[15] DOE, "Recommendations on Powering Artificial Intelligence and Data Center Infrastructure," https://www.energy.gov/sites/default/files/2024-08/Powering%20AI%20and%20Data%20Center%20Infrastructure%20Recommendations%20July%202024.pdf
[16] "Queued Data on Infrastructure Usage," Lawrence Berkeley National Laboratory, accessed June 2024. https://emp.lbl.gov/queues
[17] PJM, "Energy in Balance: PJM 2023 Annual Report," May 2024, https://services.pjm.com/annualreport2023/

manufacturing activities, and increasing adoption of electric vehicles. Over the last decade, electricity prices have closely tracked inflation, and the EIA forecasts prices to remain stable over the next year, growing at an average 1.8% down from 2.3% in 2024. However, the national averages mask regional differences.

Competition and Market Structure

Competition is essential for market-leading AI innovation in the United States and should be prioritized in any decisions regarding power and permitting. New entry, new applications of technology, and open competitive markets allow innovation to be maximally developed and deployed. To date, part of our unique economic advantage over other global rivals has been our commitment to promoting domestic competition rather than relying on national champions. Without competition, markets ossify and companies are disincentivized to make better, less expensive, or disruptively innovative products available to the public. To ensure the United States remains at the forefront of innovation in artificial intelligence markets, power and permitting decisions should seek to maximize vigorous competition at each level of the AI stack.

Concentration in AI and related markets can create ability and incentive to distort the market in ways that harm people, businesses, and, ultimately, the vitality of the market itself. One such harm is the exclusion of competitors from the market. Entry barriers are already high and rising. Training a frontier model cost OpenAI $78 million and Google $191 million in compute for their recent state-of-the-art models, excluding substantial staff costs.[18] These costs are on an upward trend, increasing by 2.4x per year since 2016.[19] Access to data is likewise critical and payments for structured data for AI training already reach as high as $60 million per year.[20]

High costs may dissuade new entry but, importantly, the market power of existing players may create substantial additional obstacles to entry by others. Exclusive contracts and dominance at critical chokepoints for data rights, compute, or usage can limit other competitors' access to those inputs. Likewise, vertically integrated companies that offer services at multiple layers of the AI stack can condition or refuse access to rivals according to their competitive strategy.

When companies depend on the business strategy of a few dominant firms rather than enjoying broad choice, it ultimately harms innovation. While concentrated industries may continue to invest heavily in research and development, they face substantial incentives to deploy that innovation in narrow ways that fit well with existing business lines rather than broadly.[21] Moreover, increasing vertical integration exacerbates this problem because it reduces the modularity of the AI stack. On the other hand, more openness to entry lays the groundwork for increased innovation. Affirmatively prioritizing open competition as part of infrastructure buildout will preserve US economic leadership in the space.

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[18] Nestor Maslej et al. "The AI Index 2024 Annual Report," *AI Index Steering Committee, Institute for Human-Centered AI, Stanford University,* accessed April 2024. https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_AI-Index-Report-2024.pdf

[19] Ben Cottier et. al, "The rising costs of training frontier AI models," *Arxiv*, accessed May 31, 2024. https://doi.org/10.48550/arXiv.2405.21015

[20] Emma Roth, "Google cut a deal with Reddit for AI training data," *The Verge,* accessed Febuary 22, 2024. https://www.theverge.com/2024/2/22/24080165/google-reddit-ai-training-data

[21] Showalter, Reed and Edelson, Laura, *Captured Innovation: Technology Monopoly Response to Transformational Development*, accessed July 31, 2024. https://ssrn.com/abstract=4961714 or http://dx.doi.org/10.2139/ssrn.4961714

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Biden-Harris Administration Progress on AI Infrastructure to Date

The Biden-Harris Administration has already taken a number of actions to support the build out of the AI energy infrastructure and improve the permitting landscape beginning with the President's landmark legislation. The Administration also convened hyperscalers, AI companies, data center operators, and utility companies to discuss strategies for building out AI energy infrastructure and support permitting needs. Following the convening, the White House launched a new Task Force on AI Datacenter Infrastructure to coordinate policy across government. The task force deliverables ranged from providing technical assistance to supporting permitting processes to helping data center owners and operators secure clean energy leveraging the historic legislation in President Biden's Investing in America agenda.

Landmark legislation

The CHIPS and Science Act and clean energy portions of Inflation Reduction Act (IRA) provide vital foundations for US preeminence in AI.

- **CHIPS and Science Act:** The CHIPS Act has been pivotal in advancing U.S. leadership in artificial intelligence by anchoring the fabrication and R&D of leading-edge semiconductors needed for frontier AI models in the US. As a result of its investments, the United States is on track to produce nearly 30% of the global supply of leading-edge chips by 2032, up from zero percent when the President Biden and Vice President Harris took office. Perhaps most significantly, for the first time, all five of the world's leading-edge logic and dynamic random-access memory (DRAM) manufacturers are building and expanding in the United States. By contrast, no other economy in the world has more than two of these companies manufacturing on its shores. To maintain our competitive edge, CHIPS R&D programs have also announced billions in research initiatives focused on innovation in all parts of the supply chain from leading-edge chips to advanced packaging and new materials that will enable key applications, such as AI. These include three flagship facilities focused on design, lithography, and packaging for targeted R&D projects over the next decade. Securing our future also required investing in a skilled and sustainable workforce. Commerce and the National Science Foundation have dedicated hundreds of millions of dollars in various programs to help address critical U.S. job and skill gaps while promoting equitable opportunities.

- **Inflation Reduction Act:** IRA clean energy funding and tax credits provide critical foundations for the AI Infrastructure buildout because they are enabling new technological solutions—nuclear, geothermal, and hydrogen—and investment in clean energy and transmission that is critical for AI preeminence. The IRA included several tax provisions and significant grant and loan programs to support the deployment of commercially available and innovative clean energy technologies. This included extending clean energy production and investment tax credits and modifying these tax credits to be technology neutral.

2023 Executive Order on Artificial Intelligence and Required Actions

In October 2023, the Biden administration issued an Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence. The EO directed sweeping actions to manage AI's safety and security risks, protect Americans' privacy, advance equity and civil rights, stand up for consumers and workers, promote innovation and competition, and advance American leadership around the world. Relating to power, the DOE released an assessment of potential risks to the power grid, as well as ways in which AI could potentially strengthen grid resilience and the ability to respond to threats. Additionally, DOE invested $30 million for AI interconnections and $13 million in the VoltAIc initiative for using AI to streamline permitting and accelerate clean energy deployment, as well as $68 million to fund AI for scientific research. DOE has also launched the Frontiers in AI for Science, Security, and Technology initiative roadmap and request for information to harness AI for scientific discovery, national security, energy and electric grid resilience, and other national challenges, building on AI tools, models, and partnerships. Lastly, DOE issued a first-ever report analyzing AI's near-term potential to support the growth of America's clean energy economy over the next decade.[22]

September 2024: AI Convening

On September 12th 2024, the White House convened leaders from hyperscalers, AI companies, datacenter operators, and utility companies to discuss steps to ensure the United States continues to lead the world in AI. Participants considered strategies to meet clean energy, permitting, and workforce requirements for developing large-scale AI datacenters and power infrastructure needed for advanced AI operations in the United States.

Following the convening, the White House launched a new Task Force on AI Datacenter Infrastructure to coordinate policy across government. The Administration scaled up technical assistance to Federal, state, and local authorities handling datacenter permitting. The Permitting Council worked with AI datacenter developers to set comprehensive timelines for Federal agency action and allocated funds to agencies that accelerate evaluations for FAST-41 covered clean energy projects that support datacenters.[23]

Following the convening, DOE created an AI datacenter engagement team to leverage existing programs to support AI data center development. DOE's team met with numerous data center owners and operators to offer technical assistance and increase awareness of loans, grants, and tax credits – that helped these industry leaders secure clean, reliable energy solutions. DOE also held a series of convenings with datacenter developers, clean energy solutions providers, grid operators, and other stakeholders to drive development of innovative solutions. The DOE shared information on repurposing closed coal sites and leveraging nuclear energy with datacenter developers. The US Army Corps of Engineers (USACE) identified Nationwide Permits that could help expedite the construction of eligible AI datacenters and shared tailored recommendations with multiple hyperscalers to help accelerate critical projects.

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[22] "DOE Announces New Actions to Enhance America's Global Leadership in Artificial Intelligence," *U.S. Department of Energy,* accessed April 29th, 2024. https://www.energy.gov/articles/doe-announces-new-actions-enhance-americas-global-leadership-artificial-intelligence

[23] "Readout of White House Roundtable on U.S. Leadership in AI Infrastructure," *The White House*, accessed September 12th, 2024. https://www.whitehouse.gov/briefing-room/statements-releases/2024/09/12/readout-of-white-house-roundtable-on-u-s-leadership-in-ai-infrastructure/

Task Force on AI Data Center Infrastructure: Deliverables

As previously outlined, the Administration announced the creation of the Task Force on AI Datacenter Infrastructure to advance datacenter operations in line with economic, national security, and environmental goals. The Task Force worked with multiple AI infrastructure leaders to offer tailored guidance on critical projects. The Task Force identified opportunities and coordinated with agencies to ensure adequate resourcing, designate agency single points of contact, and properly prioritize AI datacenter development to reflect the importance of these projects to American national security and economic interests.

The Task Force also identified existing authorities and areas where legislative action is needed to modify or strengthen federal authorities to support AI datacenter development. Lastly, the Task Force organized a convening of grid operators, technology providers, and other stakeholders to discuss AI and advanced software solutions to accelerate grid interconnection of new clean generation to power data centers in the U.S.

Transmission Actions

With electricity demand steadily increasing, there is a critical need to expand transmission capacity in the United States to enhance grid reliability, lower energy costs for families and business, and connect more clean energy resources to the grid.

In support of the Biden-Harris Administration's Investing in America agenda, the DOE Grid Deployment Office (GDO) announced a $30 million AI interconnection initiative, which will develop partnerships between software developers, grid operators, and energy project developers to modernize the interconnection application process and significantly reduce the time required to review, approve, and commission new generation interconnections across the country. DOE also announced $10 million available to states, tribes, and non-profit organizations to accelerate transmission deployment through the Transmission Acceleration Grants (TAG) Program in October 2024. Through the Grid Resilience and Innovation Partnerships (GRIP) program, DOE selected over 100 projects for $7.6 billion in competitive federal funding that will protect the U.S. power grid against growing threats of extreme weather, lower costs for communities, and increase grid capacity to meet load growth stemming from an increase in manufacturing, data centers, and electrification. The projects deploy new, innovative transmission and distribution infrastructure and technology upgrades to enable over 53 gigawatts (GW) of grid capacity, add or upgrade nearly 2,500 miles of transmission, speed up interconnection for new clean energy projects, support over 11,000 good-paying jobs, and catalyze over $22 billion in total public and private investment to bring reliable, affordable, clean energy to Americans. DOE announced investments of nearly $2.5 billion in transmission projects across the country through the Transmission Facilitation Program (TFP) to enable nearly 1,700 miles of new transmission development and ensure that the nation's electricity grid is reliable, resilient, and ready to meet customer demands with low-cost clean electricity.

Permitting Actions

The Biden-Harris Administration has taken several steps to improve the efficiency of the federal permitting process. First, the administration has invested $1 billion through the Inflation Reduction Act to hire experts and invest in new technologies to expedite. Additionally,

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amendments made to NEPA in the Fiscal Responsibility Act of 2023 and implemented by the Council on Environmental Quality's Bipartisan Permitting Reform Implementation Rule now require that an EIS must not exceed 150 pages (or 300 pages for a proposal of extraordinary complexity) and must be completed within two years, while an EA must not exceed 75 pages and must be completed within one year. These reforms will further the progress the Biden-Harris Administration has already made in cutting 6 months off the median time it takes for agencies to complete EISs.

The Bipartisan Permitting Reform Implementation Rule also provides agencies with other new and faster tools to improve the efficiency and effectiveness of environmental reviews. Consistent with the Fiscal Responsibility Act, the rule expands the use of programmatic environmental reviews, which allow agencies to review the environmental impacts of categories of projects to speed up approvals for specific projects. The rule addresses climate change, protects public health, promotes early and meaningful engagement with communities, fosters community buy-in, and encourages better environmental outcomes by clarifying that agencies should consider climate change effects in environmental reviews and encourage identification of reasonable alternatives that will mitigate climate impacts.

The Department of Energy also released a new Federal permitting reform rule that significantly streamlines Federal environmental review and permitting processes for qualifying transmission projects, cutting review timelines while maintaining the integrity of the environmental review process. Consistent with the Fiscal Responsibility Act of 2023, the rule establishes the Coordinated Interagency Transmission Authorizations and Permits (CITAP) Program and authorizes DOE to coordinate a Federal interagency process to consolidate Federal reviews within a standard two-year schedule while ensuring meaningful engagement with Tribes, local communities, and other stakeholders.

Recommendations

While the Biden-Harris Administration has undertaken a number of actions to date to improve its competitive edge on AI, there is more work to be done to bolster that position. Some examples of important work to be done include:

- **Ongoing assessments of the power needs of AI both nationally and regionally, and evaluation of the potential risks and mitigation to rising electricity costs.** The power needs for AI data centers will change substantially over the coming decade as private sector estimates improve. The U.S. will need to continue to update its understanding of the current and future needs of data centers including through benchmarking current use, tracking new data center commissions, and updating methods for future data collection. In addition, the U.S. should assess the impact of AI data center demand to electricity costs for consumers, and potential ways to mitigate the effects through expanded power capacity and tariff measures.

- **Explore opportunities to use former coal-site interconnection.** There are over a hundred sites with retired coal plants that may have the interconnection needed to facilitate load-side power connections. There also may be opportunities to utilize EPA's

brownfields program and DOE's Infrastructure Reinvestment Program to provide liability protection and funding for site redevelopment.

- **Expand the use of categorical exclusions, including for transmission**. DOE created a categorical exclusion for upgrading and rebuilding power lines earlier this year that may be helpful for some data center projects. The new categorical exclusion removed a 20-mile limit on the length of existing power lines that are eligible for the simplest form of environmental review. The proposal would also give developers the option to relocate a line within land already allocated to or developed for their power line. This categorical exclusion will be helpful for data center development but likely not apply to all transmission projects.

- **Utilize FAST-41 Authorities and establish the Permitting Council as a Point-of-Contact for data center developers to engage federal agencies**. This would establish a dedicated point of entry that provides developers a single executive branch point of contact to enable their engagement on permitting issues with various federal agencies (e.g., USACE, DOI, EPA). This mechanism may involve designating one agency as a data center "lead," active EOP management, and/or establishing an interagency committee on data center permitting. This work would ensure that agencies adequately prioritize and allocate staff toward data center permitting—and that the mechanism has institutional longevity and is not contingent on a particular set of individuals. Notably, data centers are already an authorized activity on which the Permitting Council can engage.

- **Explore options related to nationwide permits (NWP) by Army Corps of Engineers (USACE).** USACE has discretion to establish standard project specifications for different types of projects that, if met, can fast-track a project's approval for a federal wetlands permit. As an example of fruitful next steps, USACE has established one existing nationwide permit that may be able to be modified to cover many activities relating to data center construction.

- **Avoiding regulatory incentives that spur industry consolidation.** Federal agencies with permitting, licensing, and regulatory oversight over markets relevant to AI (e.g. FCC, EPA, Commerce) should make affirmative efforts to promote multiple new entrants, to limit policies that encourage vertical integration, and to disfavor advantages such as safe harbors or waivers of requirements for dominant firms in markets for data, compute, and other AI.