One Page Summary of David M. Turk Testimony

Housing cutting-edge Artificial Intelligence (AI) data centers in the United States is both an economic and national security imperative. AI is the most transformational technology of our time, with the potential to revolutionize health care, manufacturing, energy systems, emergency response, and national defense.

Data center electricity consumption is rising rapidly. In 2023, data centers used 4.4% of total U.S. electricity. By 2028, that share is projected to reach as high as 12%. This surge is occurring alongside broader load growth driven by industrial reshoring, transportation and building electrification, and increased manufacturing capacity.

To maintain global AI leadership, the U.S. should adopt a three-part strategy:

1. **We need to utilize the full range of tax incentives, grants, and loans in our toolbelt to quickly and affordably bring new electrons online**. Rolling back tax credits like the tech-neutral tax credits (45Y and 48E) would delay AI development and raise consumer costs. (U.S. household would pay $140-220 more annually.) Grants and loans, including from the Bipartisan Infrastructure Law and DOE's Loan Program, are also critical to expedite AI build out, lower costs, and improve overall grid resilience.
2. **Accelerate permitting for power and transmission projects** without sacrificing environmental protections. Recent bipartisan efforts – such as the Barrasso-Manchin Energy Permitting Reform Act – provide a promising foundation for streamlining electricity infrastructure development.
3. **Leverage public-private partnerships**, including with strategic use of federal land for cutting-edge AI, something advanced by both the Biden and Trump Administrations.

For a variety of market dynamics, the quickest way to power new AI data centers over the near term will be by using solar, wind, and storage. We also need to continue to push chip and data center efficiency, fully utilize smart demand response, more widely deploy various grid-enhancing technologies, and build new transmission. While the U.S. possesses abundant natural gas resources, there are real and immediate constraints. Chief among these is the supply chain for natural gas turbines. Longer-term, clean firm power sources such as geothermal and nuclear (fission and fusion**)** can be powerful and complementary tools.

Maintaining domestic control over advanced AI models is critical to our national security. Federal expertise – including within DOE's national labs – must be fully leveraged to prevent misuse of AI for developing weapons of mass destruction or enabling other forms of harm. Voluntary and mandatory frameworks for public-private collaboration are necessary to ensure safe, ethical, and secure AI deployment. Private sector companies simply do not have all the requisite expertise by themselves, nor do they have a perspective that takes into account all relevant considerations. Safeguards against misinformation, deepfakes, and model hallucinations must also be a priority to protect public trust and democratic institutions.

We are in a global AI race. The stakes are too high for us to lose. We cannot take any tools off the table that could help us quickly bring on new electrons to power cutting-edge AI data centers here in the United States. We must also confront AI risks and challenges head-on, with important – and complementary – responsibilities in the private sector and in the government.

TESTIMONY OF DAVID M. TURK

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BEFORE THE COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

HEARING ON "CONVERTING ENERGY INTO INTELLIGENCE: THE FUTURE OF AI TECHNOLOGY, HUMAN DISCOVERY, AND AMERICAN GLOBAL COMPETITIVENESS"

APRIL 9, 2025

Introduction

Chairman Guthrie, Ranking Member Pallone, and distinguished Members, thank you for the opportunity to testify before this Committee on a topic of immense importance – Artificial Intelligence (AI). I want to particularly thank all of you, as I know this is not a one-off hearing, but rather this Committee has demonstrated a concerted, sustained focus on both the opportunities and risks surrounding this powerful technology.

As someone who has spent a lot of time in windowless rooms on the issue of AI given my past role as Deputy Secretary of the U.S. Department of Energy (DOE), let me start by stating my bottom-line-up-front as clearly as possible: <u>housing as many AI data centers as possible – especially cutting-edge AI training models – within the United States is both an economic and national security imperative</u>.

AI is Transformational, including for Energy Systems

I have had the honor to work with top AI experts within the DOE over the past four years and have continued engaging with top experts during my time as a Distinguished Visiting Fellow at

Columbia University's Center on Global Energy Policy. I can say without any hesitation that there is no more powerful and transformational technology facing our world today than AI. And I have also found that the experts who understand the technology the best, are the ones who most forcefully stress the need for thoughtful, effective guardrails and protections.

As the Chairman, Ranking Member, our fellow witnesses, and many others have elaborated, AI's ability to improve the lives of Americans and other people around the world is immense. Advances in AI are enabling enormous progress and breakthroughs that can help address key challenges of our time – from more effective cancer screening and targeted treatments to world-changing advanced manufacturing, from improving the reliability of our electricity grid to responding to natural disasters, and from discovering important new materials for clean energy technologies to enhancing state-of-the-art production capabilities for our nuclear stockpile.[1]

Let me give two specific examples of where AI is already helping our electricity grid:

The deployment of wind, solar, energy storage, electric vehicles, controllable building loads, and other smart grid devices increases the complexity of energy system planning and operations by orders of magnitude, and utilities and regulators across our country are struggling to keep up. Machine learning algorithms are recommending the optimal size and location of solar and wind power projects, performing complex calculations on topics such as weather patterns and grid

[1] David Sandalow et al., *ICEF Artificial Intelligence for Climate Change Mitigation Roadmap (Second Edition)* (Tokyo: Innovation for Cool Earth Forum, November 2024), https://www.icef.go.jp/wp-content/themes/icef_new/pdf/roadmap/icef2024_roadmap_AI-Climate-Second-Edition.pdf; David Turk, "Testimony of Deputy Secretary David Turk, U.S. Department of Energy, Before the Committee on Energy and Natural Resources, United States Senate, Regarding Artificial Intelligence," September 7, 2023, https://www.energy.senate.gov/services/files/A04CFF0E-0EA4-46AE-8F84-AB881BE9C74A.

constraints.[2] AI can help transmission expansion planning, determining the best location and capacity of new transmission lines, especially for optimal power flow and dynamic line rating.[3] In these ways, AI-enabled modernization of our nation's integrated electricity delivery system can help speed up deployment to reliably provide energy to every last community and simultaneously help achieve affordability, carbon neutrality, reliability, and resilience to extreme (both natural and intentional) events.

Large language models can also accelerate permitting, something that was a top effort during my time in the DOE as well as a priority for the current Administration and bipartisan Members of this Committee. Working across an array of our national labs, our DOE team is extracting text from past permit applications and using AI to more quickly help applicants and permitting authorities to consider new applications.[4]

Three-Part Strategy to Quickly, Affordably and Effectively Convert "Energy into Intelligence"

To fulfill the full promise of AI – and to reap its rewards – we need to, as the title of this hearing suggests, "Convert Energy into Intelligence." Specifically, to ensure the United States is able to

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[2] E. Engel & N. Engel. A Review on Machine Learning Applications for Solar Plants. Sensors-Basel 22 (2022). https://doi.org/10.1016/j.nexus.2021.10001110.3390/s22239060.; R. Ahmed et al. A review and evaluation of the state-of-the-art in PV solar power forecasting: Techniques and optimization. Renew Sust Energ Rev 124 (2020). https://doi.org/10.1016/j.rser.2020.109792; L. Ekonomou et al. Estimation of wind turbines optimal number and produced power in a wind farm using an artificial neural network model. Simul Model Pract Th 21, 21-25 (2012). https://doi.org/10.1016/j.simpat.2011.09.009; S. A. Renganathan et al. Data-driven wind turbine wake modeling via probabilistic machine learning. Neural Comput Appl 34, 6171-6186 (2022). https://doi.org/10.1007/s00521-021-06799-6.

[3] M. Mahdavi *et al.* Transmission Expansion Planning: Literature Review and Classification. *Ieee Syst J* 13, 3129-3140 (2019). https://doi.org/10.1109/Jsyst.2018.2871793.

[4] Keith J. Benes, Joshua E. Porterfield & Charles Yang. AI for Energy: Opportunities for a Modern Grid and Clean Energy Economy; US Department of Energy (DOE), Washington, D.C., https://www.energy.gov/sites/default/files/2024-04/AI%20EO%20Report%20Section%205.2g%28i%29_043024.pdf (2024); Symbium. Symbium Solar Permits: Join Symbium's solar permitting pilot; San Francisco, California, https://symbium.com/instantpermitting/solar/california/sb379 (Accessed August 2024); US Department of Energy (DOE). DOE Announces New Actions to Enhance America's Global Leadership in Artificial Intelligence; Washington, D.C., https://www.energy.gov/articles/doe-announces-new-actions-enhance-americas-global-leadership-artificial-intelligence#:~:text=DOE%20is%20investing%20%2413%20million,used%20to%20develop%20software%20to (2024).

stay ahead in the global AI race, we must adopt a focused, real-world strategy that uses all tools in our toolbelt to quickly build, upgrade, and power the data centers of the future.

It is useful to start by appreciating the scale of the challenge in front of us. The most rigorous, bottom-up estimate of how many new electrons we are going to need over the next few years to power AI and other data centers comes from Lawrence Berkley National Lab. Their latest analysis came out publicly late last year, and estimated that in 2023, data centers used 4.4% of the overall electricity in the United States. Not all of this is for AI – consider crypto mining and Netflix streaming – but a growing percentage going forward will be. By 2028, Lawrence Berkley estimates that data centers' total usage will increase to between 6.7% to 12%.[5]

While headlines about AI-driven load growth often grab the most attention, it is essential to place the adequacy of our electricity infrastructure to meet this demand in the broader context of overall load growth. After nearly two decades of flat electricity demand in our country, grid planners are now facing a surge of electricity demand.[6] In the last two years, the projected load growth over a five-year period has risen significantly, increasing from 23 gigawatts to 128 gigawatts.[7] And, the latest estimate from the U.S. Energy Information Administration (EIA) expects sales of electricity to increase 3% just in 2025.[8] This demand is coming from many quarters, including the reshoring of manufacturing, semiconductor fabrication, and the further electrification of transportation and building.

[5] Arman Shehabi et al., *2024 United States Data Center Energy Usage Report* (Berkeley, CA: Lawrence Berkeley National Laboratory, December 2024), https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report.pdf.
[6] North American Electric Reliability Corporation, *2024 Long-Term Reliability Assessment* (December 2024), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.
[7] John D. Wilson, Zach Zimmerman, and Rob Gramlich, *Strategic Industries Surging: Driving US Power Demand* (Washington, D.C.: Grid Strategies LLC, December 2024), https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf.
[8] U.S. Energy Information Administration (EIA), *Short-Term Energy Outlook: March 2025* (Washington, DC: U.S. Department of Energy, 2025), PDF file, https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf.

In order to satisfy this increasing electricity demand – and to keep cutting-edge AI training models here in the United States – we need to use all the tools in our toolbelt to affordably, securely, and resiliently increase our electricity supply. Let me share three ideas for how to best do that:

1) We need to maintain – and even increase – the full range of tax incentives, grants, loans, and other tools in our toolbelt to quickly and affordably help bring these new electrons online. Now is exactly the wrong time to make it more expensive to bring online any new electrons onto our grids, especially those that can be brought on quickly. Uncertainty itself, whether caused by deliberations in the U.S. Congress or over President Trump's tariff policy, also chills near-term investment.

   Let me be even more specific: getting rid of just the technology-neutral production and investment tax credits, 45Y and 48E, respectively, will raise the costs – and delay – the ability to power new AI data centers. And getting rid of these tax incentives will also put upward price pressures on everyone else, including consumers. A repeal of just the tech-neutral production and investment tax credits would increase prices to an average U.S. household between $140-220 annually. Some residents would be hit particularly hard, with household energy costs rising more than $400 per year in Missouri, Arkansas, Texas, New York, Iowa, and Kansas.[9]

[9] https://energyinnovation.org/report/federal-clean-energy-tax-credits-make-energy-more-affordable-a-meta-analysis/. For additional analysis by others please refer to analysis by the Rhodium Group, finding that repealing energy tax credits and weakening key greenhouse gas pollution standards—such as vehicle emissions regulations—would result in an additional burden of $111 to $184 per household annually by 2030, rising to $277 to $371 per household by 2035. Ben King et al., "The Stakes for Energy Costs in Budget Reconciliation," Rhodium Group, March 20, 2025, https://rhg.com/research/the-stakes-for-energy-costs-in-budget-reconciliation/.

One of the witnesses from a recent hearing – CEO and General Manager of Basin Electric Power Cooperative Todd Brickhouse – put it this way, "The immediate removal of [the production tax credit] will not allow utilities to plan for and avoid increased costs, and this will also immediately harm ratepayers." (emphasis added)[10]

There are also a wide variety of grants and loans, including from the Bipartisan Infrastructure Law (BIL) – that are also vital in adding electrons quickly (including for AI), strengthening our grid, and keeping costs down. For example, the BIL allocates over $10.5 billion in grants specifically for grid upgrades.[11]

Here is how a few rural electric cooperatives characterized the importance of grants:

- Concordia Electric Cooperative in Louisiana: "100% of grant money received from USDA to Concordia Electric will flow directly to its members...the New ERA grant funds will directly reduce Concordia Electric's member rates by approximately 2.5% and will result in annual savings of approximately 4% of total power costs for the next 20 years."[12]
- Great River Energy: "These domestic power supply projects...provide certainty and clarity of downward rate pressure, representing a 4% annual wholesale rate

[10] Ethan Howland, "Basin Electric Says Clean Energy Tax Credits Could Save Co-Op Members $8.6B," *Utility Dive*, March 26, 2024, https://www.utilitydive.com/news/basin-electric-clean-energy-tax-credits-ptc-southern-congress/741734/.
[11] Jeff St. John, "Biden Admin Awards $2B in New Grid-Resilience Grants," *Canary Media*, October 18, 2023, https://www.canarymedia.com/articles/transmission/biden-admin-awards-2b-in-new-grid-resilience-grants.
[12] Clay Koplin, "Letter to Secretary Rollins," March 20, 2025, Cordova Electric Cooperative, Inc., https://www.electric.coop/wp-content/uploads/2025/03/Secretary-Rollins-USDA-Letters-03_20_25.pdf.

savings over the next 20 years."[13]

- Inland Power & Light: "The absence of New ERA [grant] funding would result in a nearly 20% increase in Inland's cost of energy over 20 years."[14]

I would also point you to the importance of maintaining – and even approving new – loans in the DOE's Loan Program, which help utilities to more broadly benefit from the full range of applicable technologies available. For example, in January 2025, the DOE announced nearly $23 billion in conditional loan commitments to utilities across 12 states through the Energy Infrastructure Reinvestment (EIR) Program. Notable allocations include up to $8.8 billion to DTE Energy Company for pipeline replacements and up to $5.23 billion to Consumers Energy Company for renewable energy investments and gas pipeline replacements.[15] These strategic investments are pivotal in modernizing our nation's energy infrastructure and enhancing grid reliability. Utilities can leverage the EIR Program to access cost-competitive financing for capital investments that greatly improve operational efficiency.[16] By utilizing these loan's, utilities are better positioned to undertake significant infrastructure projects that might otherwise be financially prohibitive, ensuring that the benefits of advanced energy technologies are broadly realized across the sector.

[13] David Saggau, "Letter to Secretary Rollins," March 20, 2025, Great River Energy, https://www.electric.coop/wp-content/uploads/2025/03/Secretary-Rollins-USDA-Letters-03_20_25.pdf.
[14] Jasen Bronec, "Letter to Secretary Rollins," March 20, 2025, Inland Power and Light Cooperative, https://www.electric.coop/wp-content/uploads/2025/03/Secretary-Rollins-USDA-Letters-03_20_25.pdf.
[15] Timothy Gardner, "US Announces Nearly $23 Billion in Loans to Energy Utilities across 12 States," *Reuters*, January 16, 2025, https://www.reuters.com/business/energy/us-announces-nearly-23-billion-loans-energy-utilities-across-12-states-2025-01-16/.
[16] U.S. Department of Energy, "Understanding Energy Infrastructure Reinvestment Loan Program Eligibility for Regulated Utilities," *Loan Programs Office*, last modified January 2024, https://www.energy.gov/lpo/articles/understanding-energy-infrastructure-reinvestment-loan-program-eligibility-regulated.

For a variety of market dynamics, the quickest way to power new AI data centers over the near term is by using solar, wind, and storage. (We, of course, also all need to be hyper-focused on continuing to push the bounds of efficiency of cutting-edge chips and data centers as a whole.) Solar and storage have, in particular, been the most recent superstar technologies in terms of bringing new electrons onto our grid. The independent Energy Information Administration (EIA) predicted that 93 percent of additional capacity to our grids in 2025 will be with renewables and storage.[17] Looking further ahead, the March 2025 EIA Short Term Energy Outlook (STEO) put it this way:

> *Increased generation from renewable energy is the main contributor to growth in U.S. electricity generation over the STEO forecast. The latest data received from power plant developers indicates that the electric power sector is planning to add 32 gigawatts (GW) of solar generating capacity in 2025 compared with an increase of 30 GW of solar in 2024. We expect this new capacity will lead to a 73 billion kWh increase (33%) in U.S. solar generation in 2025 followed by a 54 billion kWh increase (19%) in 2026. An expected 35 GW increase in battery storage capacity over the next two years allows solar generators to supply electricity for more hours of the day.*
>
> *Increased overall electricity demand along with higher natural gas prices leads to a forecast 39 billion kWh increase (6%) in U.S. coal generation in 2025. U.S.*

[17] EIA, In-Brief Analysis, February 24, 2025, "Solar, batter storage to lead new U.S. generating capacity additions in 2025," https://www.eia.gov/todayinenergy/detail.php?id=64586.

natural gas generation declines in the forecast by 44 billion kWh (3%) as a result of higher fuel costs. In 2026, we expect coal generation will fall 55 billion kWh (8%), while natural gas generation stays relatively flat.[18]

John Ketchum, CEO of NextEra put it this way: renewables and batteries are the "cheapest, fastest, and easiest way to meet surging power demand – you can build a wind project in 12 months, a storage facility in 15, and a solar project in 18." In a recent earnings call, Ketchum added, "if you take renewables and storage off the table, you're going to force electricity prices to the moon."[19]

As this Committee knows full well, we need to have a coherent, reality-based, cost-efficient strategy to deal with the increase of intermittent sources of power like solar and wind. We need additional storage and to get the most out of smart demand response and virtual power plants. We need to be laser-focused on incenting the wider utilization of various grid-enhancing technologies to get the most out of our existing transmission system. And we all need to work with a sense of urgency and ambition to build out new transmission, something which I know many Members of this Committee are rightfully focused.

Another reason it is critical that we do not cut or curtail the clean energy tools already in our tool belt is that, while the United States possesses abundant natural gas resources,

[18] EIA, *Short-Term Energy Outlook*, March 2025.
[19] *Forbes*, "Solar-Plus-Storage: Fastest, Cheapest Way To Meet Surging Power Demand," last modified March 18, 2025, https://www.forbes.com/sites/energyinnovation/2025/03/18/solar-plus-storage-the-fastest-cheapest-way-to-meet-surging-power-demand/?utm_source=chatgpt.com.

there are real and immediate constraints on natural gas to power the growing demands of AI, especially by itself and especially over the near term. Chief among these constraints is the supply chain for natural gas turbines. Manufacturers are facing overwhelming demand, with order backlogs now stretching beyond 2029. These delays have already resulted in project cancellations and cast doubt on the feasibility of rapidly scaling natural gas infrastructure to meet near-term power needs.[20]

As NextEra Energy CEO John Ketchum – whose company operates 26 GW of natural gas generation – recently noted, the landscape for building new gas plants has changed dramatically. The company's last commercial gas-fired facility, completed in 2022, cost approximately $785 per kilowatt. Today, he estimates that building the same combined-cycle gas unit would cost around $2,400 per kilowatt, citing inflation, supply constraints, and a shortage of qualified labor. Ketchum concluded, "When you look at gas as a solution…you're really looking at 2030 or later."[21]

Looking ahead, having additional complementary, affordable, clean, baseload power options in our tool best will be critical. In addition to much greater utilization of Carbon, Capture, Utilization and Storage, I would recommend this Committee focus attention and resources on:

[20] Jason Plautz, "Gas Turbine Gridlock," *CTVC*, February 6, 2024, https://www.ctvc.co/gas-turbine-gridlock-236/.
[21] Paul Gerke, "NextEra CEO Warns Against Scorning Renewable Generation Amidst Long Lead Times for Gas and Nuclear Development," *Renewable Energy World*, March 10, 2025, https://www.renewableenergyworld.com/energy-business/policy-and-regulation/nextera-ceo-warns-against-scorning-renewable-generation-amidst-long-lead-times-for-gas-and-nuclear-development/.

- **Geothermal Power**: Geothermal energy offers a promising solution for powering data centers in the medium-to-long term. Google has already partnered with Fervo Energy to develop a geothermal power system in Nevada, utilizing advanced drilling techniques to provide carbon-free energy for its data centers.[22] Similarly, Meta is collaborating with Sage Geosystems to harness geothermal power for its data centers, using innovative technology to extract energy from previously untapped sources.[23] These partnerships highlight geothermal's potential to deliver reliable, sustainable energy, utilizing the phenomenal drilling expertise of U.S. companies and workers.

- **Nuclear Power (Fission and Fusion)**: One of the nearest-term options for nuclear fission and data centers is Constellation Energy's plan to restart the Three Mile Island Unit 1 reactor by 2028 in partnership with Microsoft. Similarly, Holtec International's plan to deploy small modular reactors at the Palisades Nuclear Plant offers an additional 600 megawatts of reliable, clean energy, demonstrating the role of nuclear power in sustaining AI-driven infrastructure.[24] Tangible, real-world progress – thanks to the leadership of this Committee and others – is also being made in the United States on fusion energy, supported, in part, by the application of cutting-edge AI technologies.

[22] Tim Latimer, "Tim Latimer on How He's Helping to Solve the Climate Crisis," *Time*, last modified December 12, 2024, https://time.com/7172602/tim-latimer-climate/?utm_source.
[23] Cindy Taff, "How Cindy Taff Is Making Sure Her Career Helps Shape the Future of Clean Energy," *Time*, last modified December 12, 2024, https://time.com/7172576/cindy-taff/?utm_source.
[24] Holtec International, "HH-40-05," *Holtec International*, February 25, 2025, Holtec Launches "Mission 2030" to Deploy America's First SMR-300s at the Palisades Site in Michigan - Holtec International.

We need to make investments in these promising clean firm power sources now to continue expanding the size of our toolbelt going forward.

2) We need to redouble all our efforts to more quickly permit new power generation and new transmission in our country. Having studied this issue in some depth, I am firmly convinced we can do a better job of permitting more quickly and, at the same time, not sacrificing important environmental and other values. Together, we have made some progress on this front over recent years, but we need to do more. I want to particularly thank those Members working in Congress – on a bipartisan basis – for your legislative efforts. I would like to specifically lend my support to the constructive provisions on electricity permitting that were included in the Barrasso-Manchin Energy Permitting Reform Act of 2024.[25] While the Act did not pass in the last Congress, I sincerely hope that its power sector elements are able to move forward in this Congress.

3) And we should continue leaning in on powerful public/private collaborations to troubleshoot specific problems to help bring new power on quickly for cutting-edge AI data centers. I want to specifically highlight an effort that has now spanned both the Biden and Trump Administrations. President Biden issued an Executive Order on "Advancing U.S. Leadership in Artificial Intelligence (AI) Infrastructure" late in his term to explore the use of federal land – including Department of Defense and Department of Energy land – to quickly bring online cutting-edge data centers. I was very pleased to recently see the current Secretary of Energy Chris Wright release a follow-up Request for

[25] S. 4753, 118th Congress, "A Bill to Address Energy Efficiency in the U.S.," introduced in the Senate on March 20, 2024, https://www.congress.gov/bill/118th-congress/senate-bill/4753.

Information to Inform Public Bids to Construct AI Infrastructure requesting input on opportunities to leverage federal land for the development of AI Infrastructure that built on the Biden Administration's EO. This demonstrates a bipartisan commitment to finding innovative solutions to quickly build out AI infrastructure in the United States that will be critical to securing our competitiveness.

Ensuring AI Is Built in the United States Is also a <u>National Security</u> Imperative

Having cutting-edge AI data centers here in the United States is also vital for our national security. Having the most advanced training models here in the United States gives us the ability to ensure that we both maximize the benefits we can get from AI but to also provide effective and efficient guardrails and to minimize potential harms. Mr. Chairman, I want to specifically associate myself with your comments about needing to achieve the "right balance."

We simply must ensure that cutting-edge AI models do not inadvertently allow bad actors to more easily do us harm, including to develop weapons of mass destruction. We need to fully engage our biological, chemical, and nuclear experts (including in our DOE national labs) to help companies red-team new models to ensure that these models don't inadvertently empower terrorists and rogue states. I know this is a public hearing, so I will speak more generally, but I am convinced that we need to fully leverage this government expertise to help ensure the safety of AI going forward. Private sector companies simply do not have all the requisite expertise by themselves, nor do they have a perspective that takes into account all relevant considerations. We have made some progress on this vital private/public partnership – including voluntary cooperation with companies – but we must do more and make this a requirement.

I also know that many – I would hope all – Committee Members want to ensure that AI models don't unduly suck up and misuse the personal information of our fellow Americans. As with any new technology – and especially so with one as powerful as AI – we need to have the right incentives and guardrails to protect Americans and our personal information.

Fortunately, there has been a bipartisan commitment to establishing such safeguards. In the Senate in 2023, Senators Richard Blumenthal (D-CT) and Josh Hawley (R-MO) announced a legislative framework aimed at creating guardrails for AI, including the establishment of an independent oversight body to allow both enforcers and victims to seek legal accountability for harms, promote transparency, and protect personal data. Building on this, in 2024, Senators Gary Peters (D-MI) and Thom Tillis (R-NC) introduced the PREPARED for AI Act (S. 4495), which further seeks to ensure that the federal government can harness AI's potential while safeguarding against its risks and harms.[26]

As we advance the development of AI technologies, we must also address the potential harms associated with deepfakes, misinformation, and model hallucinations. These AI-generated challenges can undermine public trust, disrupt societal stability, and even pose risks to our national security. It is crucial that, alongside fostering innovation in AI, we implement safeguards to prevent the malicious use of AI models in spreading false information or creating deceptive content. Establishing ethical guidelines and technological solutions to mitigate these risks will be

[26] Senate Homeland Security and Governmental Affairs Committee, "Peters and Tillis Introduce Bipartisan Bill to Ensure Federal Government Safely and Responsibly Purchases and Uses Artificial Intelligence," News Release, June 11, 2024, https://www.hsgac.senate.gov/media/dems/peters-and-tillis-introduce-bipartisan-bill-to-ensure-the-federal-government-safely-and-responsibly-purchases-and-uses-artificial-intelligence/.

essential to ensuring AI remains a force for good while proactively and continually protecting society from its unintended consequences.

Conclusion

Let me conclude by reiterating what I have heard from many Members on this Committee: We are in a global AI race. The stakes are too high for us to lose. To win, we must all work together. We cannot take any tools off the table that could help us quickly bring on new electrons to power cutting-edge AI data centers here in the United States. We must also confront AI risks and challenges head-on, with important – and complementary – responsibilities in the private sector and in the government.

Mr. Chairman, Mr. Ranking Member, and other Committee Members, thank you again for giving me the opportunity to testify today and, even more importantly, for your continued diligent, bipartisan, and urgent focus on these issues. I look forward to your questions.