Testimony of Patrick Schweiger
Oklo, Inc.
Chief Technology Officer
U.S. House Science, Space, and Technology Committee
Energy Subcommittee

"*Powering Demand: Nuclear Solutions for AI Infrastructure*"
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Good morning, Chairman Weber, Ranking Member Ross, and members of the committee. Thank you for the opportunity to testify and for holding this important hearing. My name is Pat Schweiger and I am the Chief Technology Officer at Oklo, an advanced nuclear technology and fuel recycling company that is developing fast fission power plants, known as Aurora powerhouses, to provide clean, reliable, and affordable energy at scale.

I want to start out by telling you a bit about Oklo and how we are unique. Oklo is at the forefront of transforming the technological basis and business model associated with nuclear power in America. Building upon a half century of proven technology, Oklo aims to unleash advanced nuclear power to deliver American energy dominance, to drive the AI revolution forward, and to guarantee that our post-AI future remains a thriving industrial powerhouse.

In our build, own, and operate business model, we plan to sell energy in the forms of electricity and heat directly to customers, which we believe can allow for fast-tracked customer adoption. Because what the customers truly want is to purchase the reliable, baseload, clean power that they need – not to own and operate nuclear power plants. This model also increases the efficiency of our deployments by improving access to financing and fostering a culture of operational excellence across the design, licensing, construction, and operation of our powerhouses.

Most importantly, we are commercializing fast reactor technology pioneered by the U.S. Department of Energy (DOE) over 60 years ago. We are building our first powerhouse at Idaho National Laboratory (INL) through a site use permit from DOE and have been awarded fuel material for this reactor from DOE.[1] Additionally, we are in collaboration with DOE and the U.S. National Laboratories as we develop advanced fuel recycling technologies to convert nuclear waste into usable fuel for our reactors.[2]

First, I will share why we believe nuclear power and artificial intelligence are deeply intertwined. Then, I will highlight how American research led the globe in advanced nuclear technology and

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[1] Oklo Inc. Announces U.S. Department of Energy Site Use Permit for Idaho National Laboratory Site, Press Release, December 10, 2019. https://oklo.com/newsroom/news-details/2019/Oklo-Inc.-Announces-U.S.-Department-of-Energy-Site-Use-Permit-for-Idaho-National-Laboratory-Site/default.aspx
[2] Oklo Completes Successful End-to-End Demonstration of Advanced Fuel Recycling Process, Press Release, July 17, 2024. https://oklo.com/newsroom/news-details/2024/Oklo-Completes-Successful-End-to-End-Demonstration-of-Advanced-Fuel-Recycling-Process/default.aspx

why we must retake our leadership in commercializing the technology. Lastly, I will leave you with a few recommendations to ensure American energy dominance.

AI's Energy Needs

AI has triggered a Sputnik moment, accelerating the demand for dependable domestic power. According to Goldman Sachs, AI data centers are a significant contribution to power demand growth, driving a 160% increase in power demand through 2030.[3] Our partnership with Equinix was the first commercial advanced nuclear energy deal in the data center industry that included an investment from a data center company to a nuclear company.[4] Due to both the rapid growth in data center power needs and the massive anticipated increase in power required by AI, tech giants like Meta, Microsoft, Google, and Amazon are turning to nuclear energy.

In December 2023, the North American Electric Reliability Corporation more than doubled its 9-year electricity demand forecast from the prior year, from approximately 220 to approximately 560 gigawatt hours of growth.[5] This is due in large part to high-performance computing and artificial intelligence applications at data centers, manufacturing and industrial growth, and electrification. Although data centers currently account for just 1% of electricity usage globally, this percentage is expected to drastically increase to meet demand.[6]

AI leadership is a civilization-level challenge, and we face a geopolitical imperative to achieve AI supremacy. Energy is the foundation upon which America's AI future depends. AI supremacy requires and will create an unprecedented strain on our Nation's capacity to deliver new energy generation. We will need an "all-of-the-above" approach just to manage our base case for AI needs, yet, at the same time, we have the opportunity to fundamentally reshape the global balance of power in energy dominance, the necessary condition for AI dominance.

Oklo represents a new approach to leveraging the benefits of mature nuclear power generation to meet the growing energy demands associated with emerging AI applications. The market has rewarded this approach with a pipeline of over 14 GW of commitments from prospective customers, most recently through a 12 GW Master Power Agreement with AI and data center provider Switch, one of the largest corporate clean power agreements in history.[7]

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[3] Goldman Sachs Investment Research, Generative AI Part X: Examining the Landscape in the Face of Open-Sourced Model Performance (27-Jan-2025).

[4] Equinix signs deal to procure up to 500MW of nuclear power from Oklo reactors – makes $25m pre-payment, (April 5, 2024). https://www.datacenterdynamics.com/en/news/equinix-signs-deal-to-procure-up-to-500mw-of-nuclear-power-from-oklo-smrs-makes-25m-pre-payment/

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

[6] Between 2024 and 2030, electricity demand for data centers in the United States is expected to increase by about 400 terawatt-hours at a CAGR of about 23 percent. McKinsey & Company, How data centers and the energy sector can sate AI's hunger for power (September 17, 2024). https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-sate-ais-hunger-for-power.

[7] Oklo and Switch Form Landmark Strategic Relationship to Deploy 12 Gigawatts of Advanced Nuclear Power, One of the Largest Corporate Clean Power Agreements Ever Signed, Press Release, (December

Advanced nuclear technology, like Oklo's, is well positioned to provide the 24/7 reliable, affordable, and zero-emission energy required to meet the vast electricity needs to power AI.

Fast Reactor Legacy

To elaborate on this technology, it's important to note that what Oklo is doing builds upon America's investment in cutting-edge nuclear technology in the first Atomic Age. The fast reactor technology that operates today was innovated and pioneered in America almost 80 years ago. Right now, there is no fast reactor operating in the U.S. Oklo plans to change that by bringing the legacy of the fast reactor into the modern world, a legacy that blossomed with research and test reactors such as Fast Flux Test Facility and Experimental Breeder Reactor II (EBR-II) reactor. EBR-II was a fast reactor that ran at INL for thirty years with a capacity of 20 MW of electric power.[8] During its history, EBR-II ran on recycled fuel, demonstrated inherent safety, achieved superior operating and maintenance characteristics to commercial light water reactors, and sold power to the grid. I personally worked 21 years at the Fast Flux Test Facility (FFTF), an internationally recognized premier sodium fast reactor, where we tested advanced fuels and materials for fusion and fission advancement. We set performance records that no other nation has been able to achieve even to this day.

Oklo's reactors are based on this proven liquid metal-cooled sodium fast reactor technology. With over 400 years of operational experience worldwide, fast reactors have been demonstrated at scale. Our reactors are inherently safe, requiring no operators, pumps, or mechanical systems to remain cool. The reactor is self-stabilizing, self-controlling, and cooled by natural forces. This means the plant is walk-away safe and can be sited in closer proximity to populated areas—crucial locations for data centers and other AI infrastructure.

Additionally, fast reactors can derive energy from spent nuclear fuel. Thanks to U.S. innovation, spent nuclear fuel can be recycled, and the recycled material can be used to power advanced reactors while reducing the cost of fuel and the burden on the fuel supply chain. It is being done at our national labs today; Idaho National Laboratory is processing spent fuel from EBR-II into HALEU, fuel which Oklo was awarded and will use in our INL deployment. Argonne National Laboratory is advancing the technology further with support through the ARPA-E program. Over the next 10 years, industrialization of recycling could reduce fuel costs by as much as 80% for advanced reactors that can leverage this recycled fuel.[9] Recycling will not fully replace the need for a domestic supply chain of HALEU, but it will enable accelerated deployment of advanced

18, 2024). https://oklo.com/newsroom/news-details/2024/Oklo-and-Switch-Form-Landmark-Strategic-Relationship-to-Deploy-12-Gigawatts-of-Advanced-Nuclear-Power-One-of-the-Largest-Corporate-Clean-Power-Agreements-Ever-Signed/default.aspx

[8] C. Westfall, "Vision and reality: The EBR-II story", *Nuclear News*, Feb. 2004. Available: https://www.ne.anl.gov/About/reactors/EBR2-NN-2004-2-2.pdf

[9] Oklo Completes Successful End-to-End Demonstration of Advanced Fuel Recycling, Press Release, (July 17, 2024). https://oklo.com/newsroom/news-details/2024/Oklo-Completes-Successful-End-to-End-Demonstration-of-Advanced-Fuel-Recycling-Process/default.aspx

reactors to support a rapid buildout of AI capability. Fast reactors are ready to be commercialized and poised to meet this moment for AI.

Recommendations for Congress

To meet the needs of this critical moment in our country, I want to offer the Committee a few policy changes to accelerate advanced nuclear deployment.

1. **Unlock an abundance of nuclear fuel:** Congress should continue to push DOE to accelerate its support for the domestic fuel supply chain and HALEU production, and to think creatively about new ways to enhance a domestic fuel supply, including the accelerated processing of DOE spent fuel to produce HALEU.
2. **Continue investment in next-generation research**: U.S. government research is driving American nuclear innovation. Research programs in the fuel cycle, commercial fuel recycling, and next-generation core technologies are necessary to compete globally. In line with Congressional intent, DOE should continue to embrace milestone-based contracting for these programs to drive technology commercialization further.
3. **Modernize regulations around technologies with decades of proven safety.** Congress should rethink how we regulate inherently safe, proven nuclear technologies—from advanced reactors to commercial fuel recycling to waste management—so that American nuclear plants can serve energy needs for AI, civilian communities, DOE labs, and military installations.

Conclusion

In conclusion, it is inevitable that advanced nuclear reactors will be part of the energy solution to ensure U.S. leadership in AI. The technology offers an affordable, consistent, reliable, and zero-emission energy source, which are characteristics critical to the compute sector and to U.S. competitiveness. Our groundbreaking approach is redefining nuclear energy—making it safer, faster to deploy, and more cost effective than ever before—at a time when access to clean baseload energy is a civilizational priority.

Oklo is ready to work with the Committee and members of the House on ways to ensure the success of both the nuclear and AI industries. I look forward to today's discussion.