



FULL COMMITTEE

HEARING CHARTER

The Genesis Mission: Prioritizing American Science and Technology Leadership

Wednesday, December 10, 2025

10:00 a.m.

2318 Rayburn House Office Building

Purpose

The purpose of this hearing is to examine President Trump’s executive order, “Launching the Genesis Mission.” This hearing will also review the Department of Energy (DOE)’s recent reorganization and evaluate how these changes impact the goals and priorities of its civilian research, development, demonstration, and commercial programs.

Witness

- **The Honorable Dr. Darío Gil**, Under Secretary for Science, U.S. Department of Energy

Overarching Questions

- What can Congress do to help the Department ensure the Genesis Mission’s success?
- How does the reorganization at DOE improve the Department and further U.S. leadership in cutting-edge research?
- In a budget-constrained environment, how is DOE prioritizing research infrastructure investments to ensure global leadership?
- Over the course of the year, the Department has announced numerous public-private partnerships. Have these partnerships helped address areas where there might be budgetary shortfalls?

Background

The Department of Energy’s (DOE) mission is to ensure American security and prosperity by addressing its energy, environmental, and nuclear challenges through transformational science and technology solutions.¹ In service of its mission, DOE operates 17 world-leading National Laboratories that steward cutting-edge research across the scientific disciplines. DOE is a leader

¹ “Mission.” *U.S. Department of Energy*, 3 Aug. 2011, www.energy.gov/mission.

in energy technology innovation, the largest federal sponsor of basic research in the physical sciences, and plays a central role in the U.S. research ecosystem.

The Committee on Science, Space, and Technology has jurisdiction over DOE's civilian research, development, demonstration, and commercial application programs. Within the DOE, the Committee's jurisdiction includes the Office of Science, which houses the Advanced Scientific Computing Research Office (ASCR), the Basic Energy Sciences Office (BES), the Biological and Environmental Research Office (BER), the Fusion Energy Sciences Office (FES), the High Energy Physics Office (HEP), and the Nuclear Physics Office (NP). These offices focus on fundamental (basic) research, a critical area to ensure the U.S. continues to lead the world in research and innovation.

Of the 17 National Labs, 10 fall solely within the Office of Science: Lawrence Berkeley National Laboratory, Argonne National Laboratory, Oak Ridge National Laboratory, Ames National Laboratory, Brookhaven National Laboratory, Princeton Plasma Physics Laboratory, SLAC National Accelerator Laboratory, Pacific Northwest National Laboratory, Fermi National Accelerator Laboratory, and Thomas Jefferson National Accelerator Facility.² Along with the National Lab facilities, the Office of Science also operates a network of 28 world-leading national scientific user facilities.³ The vast majority of public-private partnerships at DOE occur at the DOE's National Laboratories.

The Honorable Dr. Dario Gil was sworn in as Under Secretary for Science at the Department of Energy on September 18, 2025.⁴ This is the first time Under Secretary Gil is testifying before the Committee in his current capacity.

Genesis Mission

On November 24, 2025, President Donald Trump signed Executive Order 14363, "Launching the Genesis Mission." This executive order launches a new national initiative to use artificial intelligence (AI) to transform and accelerate scientific research. The goal of the Genesis Mission is to "develop an integrated platform that connects the world's best supercomputers, experimental facilities, AI systems, and unique datasets across every major scientific domain to double the productivity and impact of American research and innovation within a decade."⁵ To accomplish this mission, the Department of Energy has launched a public-private partnership leveraging DOE's 17 National Laboratories as well as leading American universities and companies.⁶

By creating a unified scientific platform, the Genesis Mission can tackle complex challenges across a broad spectrum of scientific fields. Priority areas include technologies that can significantly strengthen America's national, economic, and health security, such as

² "Office of Science National Laboratories." *U.S. Department of Energy*, 25 Mar. 2011, www.energy.gov/science/office-science-national-laboratories.

³ "Office of Science User Facilities." *U.S. Department of Energy*, 25 Mar. 2011, www.energy.gov/science/office-science-user-facilities.

⁴ "PN12-19 - Nomination of Dario Gil for Department of Energy, 119th Congress (2025-2026)." *Congress.gov*, Library of Congress, 18 September 2025, <https://www.congress.gov/nomination/119th-congress/12/19>.

⁵ "Genesis Mission." *U.S. Department of Energy*, 30 Oct. 2025, genesis.energy.gov/.

⁶ *Id.*

biotechnology, critical materials, advanced nuclear, fusion energy, space exploration, quantum information science (QIS), semiconductors, and microelectronics.⁷ DOE already houses vast amounts of high-quality data and possesses the computational power necessary to run advanced AI algorithms, making it uniquely positioned to bridge these capabilities and fully leverage both.

In the One Big Beautiful Bill, DOE received \$150 million to clean, curate, and structure scientific data so it can be used effectively by AI systems.⁸ In November, the Department issued a request for information (RFI) on its plan to launch a public-private consortium to curate scientific data from its National Laboratories to create advanced “self-improving” AI models.⁹ The bill also provided the National Nuclear Security Administration (NNSA) with \$115 million to accelerate nuclear national security missions through AI.¹⁰

Before unveiling the Genesis Mission, DOE announced four sites where private sector partners will develop cutting-edge AI data centers and next-generation energy projects. These sites include Idaho National Laboratory, the Oak Ridge Reservation, the Paducah Gaseous Diffusion Plant, and the Savannah River Site.¹¹ As part of this national effort, Under Secretary Gil was appointed to serve as Director of the Genesis Mission.

Supercomputing Partnerships

In May, Secretary Wright announced a new contract with Dell Technologies to develop the next flagship supercomputer at the National Energy Research Scientific Computing Center (NERSC) at Lawrence Berkeley National Lab. The system, named “Doudna,” will deliver ten times the performance of the current flagship, Perlmutter, and is expected to come online in 2026.¹² Doudna is designed to support large-scale, high-performance computing workloads in areas such as molecular dynamics, high-energy physics, and AI training and inference.¹³

During the last week of October, the Department announced nine new supercomputers for the National Laboratory Complex. Several of these systems are scheduled to be operational as early

⁷ “Fact Sheet: President Donald J. Trump Unveils the Genesis Mission to Accelerate AI for Scientific Discovery.” *The White House*, 24 Nov. 2025, www.whitehouse.gov/fact-sheets/2025/11/fact-sheet-president-donald-j-trump-unveils-the-genesis-mission-to-accelerate-ai-for-scientific-discovery/.

⁸ “Text - H.R.1 - 119th Congress (2025-2026): One Big Beautiful Bill Act.” *Congress.gov*, Library of Congress, 4 July 2025, <https://www.congress.gov/index.php/bill/119th-congress/house-bill/1/text>.

⁹ “Partnerships for Transformational Artificial Intelligence Models.” *Sam.Gov*, 13 Nov. 2025, sam.gov/opp/18575cee90e74b11bbe963d7750408d8/view.

¹⁰ *Supra* 8.

¹¹ “DOE Announces Site Selection for AI Data Center and Energy Infrastructure Development on Federal Lands.” *U.S. Department of Energy*, 24 July 2025, www.energy.gov/articles/doe-announces-site-selection-ai-data-center-and-energy-infrastructure-development-federal.

¹² Ball, Elizabeth. “DOE Announces New Supercomputer Powered by Dell and NVIDIA to Speed Scientific Discovery.” *Berkley Lab*, 29 May 2025, cs.lbl.gov/news-and-events/news/2025/doe-announces-new-supercomputer-by-dell-nvidia-scientific-discovery/.

¹³ “DOE Announces New Supercomputer Powered by Dell and NVIDIA to Speed Scientific Discovery.” *U.S. Department of Energy*, 29 May 2025, www.energy.gov/articles/doe-announces-new-supercomputer-powered-dell-and-nvidia-speed-scientific-discovery.

as next year. All nine computers will be tailored for advanced AI applications in scientific research.¹⁴

Of the nine new supercomputers, two will be located at Oak Ridge National Laboratory (ORNL). The Lux AI cluster will be deployed in early 2026, and Discovery is expected to arrive in 2028. Lux is intended to rapidly expand DOE's near-term AI capacity and accelerate work in areas such as fusion, fission, materials discovery, QIS, advanced manufacturing, and grid modernization. Discovery is designed to deliver computational performance far beyond that of ORNL's current supercomputer, Frontier. Once operational, its computational ability will drive progress in medicine, energy, cybersecurity, and advanced manufacturing capabilities.¹⁵

Los Alamos National Laboratory was selected for two new systems, Mission and Vision. These computers will support the critical modeling and simulation work that underpins national security science, as well as fundamental science research and AI applications across the NNSA. Mission is expected to be operational in 2027 and will replace the lab's current Crossroads system. Vision, also targeted for 2027, builds on the success of the Venado supercomputer, installed in 2024, and will be available for unclassified work.¹⁶

Argonne National Laboratory was selected for the remaining five new supercomputers. These include Solstice, which will be the largest AI supercomputer in DOE's lab complex and will feature 100,000 NVIDIA Blackwell graphics processing units (GPUs), and Equinox, a 10,000 NVIDIA Blackwell GPU system now under construction and expected to be delivered in 2026. The remaining three systems, Minerva, Janus, and Tara, are designed to accelerate AI inference and support workforce development.¹⁷

Department of Energy Office of Science

Accounting for roughly half of the Science, Space, and Technology Committee's DOE jurisdiction, the Department's Office of Science (SC) is the federal government's lead supporter of scientific research for energy applications and the nation's largest funder of research in the physical sciences. The SC portfolio has two primary components: direct support for scientific research and support for the development, construction, and operation of unique user facilities. It also oversees education programs through the Workforce Development for Teachers and Scientists office, as well as laboratory infrastructure projects for research facilities.

Advanced Scientific Computing Research (ASCR)

¹⁴ Zhang, Clare. "DOE to Build Nine New Supercomputers at National Labs." *AIP*, 31 Oct. 2025, www.aip.org/fyi/doe-to-build-nine-new-supercomputers-at-national-labs.

¹⁵ "Energy Department Announces New Public-Private Partnership Model, Two Supercomputers, to Accelerate American Dominance in Science and Technology." *U.S. Department of Energy*, 27 Oct. 2025, www.energy.gov/articles/energy-department-announces-new-public-private-partnership-model-two-supercomputers.

¹⁶ "Los Alamos National Laboratory Announces 2 New Supercomputers." *Los Alamos National Laboratory*, 28 Oct. 2025, www.lanl.gov/media/news/1028-supercomputers.

¹⁷ "Argonne Expands Nation's AI Infrastructure with Powerful New Supercomputers and Public-Private Partnerships." *Argonne National Laboratory*, 28 Oct. 2025, www.anl.gov/article/argonne-expands-nations-ai-infrastructure-with-powerful-new-supercomputers.

ASCR leads the nation and the world in supercomputing, advanced networking, and state-of-the-art research in computer science, mathematics, and computational science.¹⁸ With the completion of the Exascale Computing Project (ECP) in FY24, DOE now manages the three fastest supercomputers in the world, according to the most recent TOP500 list: El Capitan at Lawrence Livermore National Laboratory, Frontier at Oak Ridge Leadership Computing Facility, and Aurora at Argonne Leadership Computing Facility.¹⁹

Basic Energy Sciences (BES)

The BES program supports basic scientific research to lay the foundation for new energy technologies and advance DOE's mission in energy, environment, and national security. BES research emphasizes the discovery, design, and understanding of new materials, chemicals, biochemicals, and geological processes.²⁰

Biological and Environmental Research (BER)

The BER program works to understand biological, earth, and environmental systems in ways that enhance the nation's energy and infrastructure security.²¹ Projects emerging from this program include contributions to mapping the human genome, early research on atmospheric and ocean circulation, and foundational biology for biofuel production.²²

Fusion Energy Sciences (FES)

The FES program has two primary goals: to deepen our understanding of matter at extremely high temperatures and densities, and to develop the scientific foundation needed to realize fusion energy.²³ FES is the federal government's largest supporter of research aimed at overcoming the remaining obstacles to achieving fusion power.²⁴ To achieve this, FES has four subprograms: two focused on burning plasma science, Burning Plasma Science: Foundations and Burning Plasma Science: Long Pulse and High Power, along with General Plasma Science and High Energy Density Laboratory Plasmas.²⁵

High Energy Physics (HEP)

HEP investigates what the world is made of and how it works at both the smallest and largest scales.²⁶ To execute its mission, HEP organizes research into three interconnected frontiers of

¹⁸ "Advanced Scientific Computing Research." *U.S. Department of Energy*, 10 May 2024, www.energy.gov/science/ascr/advanced-scientific-computing-research.

¹⁹ "November 2025." *TOP500*, 17 November 2025, <http://www.top500.org/lists/top500/list/2025/11/>.

²⁰ "Basic Energy Sciences." *U.S. Department of Energy*, 26 Mar. 2011, www.energy.gov/science/bes/basic-energy-sciences.

²¹ "Biological and Environmental Research." *U.S. Department of Energy*, 25 Mar. 2011, www.energy.gov/science/ber/biological-and-environmental-research.

²² *Id.*

²³ "Fusion Energy Sciences." *U.S. Department of Energy*, 18 May 2019, www.energy.gov/science/fes/fusion-energy-sciences.

²⁴ *Id.*

²⁵ *Id.*

²⁶ "High Energy Physics." *U.S. Department of Energy*, 3 Feb. 2011, www.energy.gov/science/hep/high-energy-physics.

particle physics: the Energy Frontier, the Intensity Frontier, and the Cosmic Frontier. Experimental discoveries in these areas are supported by theoretical research and enabled by fundamental work in particle acceleration and detection techniques.²⁷ HEP also develops new accelerators, detectors, and computational tools to facilitate this critical science and make accelerator technologies more widely available.²⁸ This program also collaborates with the National Science Foundation (NSF) on overlapping research in the fields related to the Cosmic Frontier and astronomy.

Nuclear Physics (NP)

The NP program studies all forms of nuclear matter to solve the mystery of the basic constituents of matter and how they interact to form the elements and properties we observe.²⁹ NP supports the necessary experimental and theoretical research to understand and unlock the atom's nucleus. Stewardship of this field is shared with NSF's Nuclear Physics Program. Together, DOE and NSF fund almost all basic research in nuclear physics.³⁰

Other Undersecretary for Science Offices

Office of Technology Commercialization (OTC)

The Office of Technology Commercialization, formerly known as the Office of Technology Transfer, previously reported directly to the Secretary of Energy. Its mission is to catalyze the commercialization of energy, industrial, and manufacturing technologies. OTC works to move innovation from early concepts to commercially viable solutions.³¹

Office of Strategy & Technology Roadmaps (OSTR)

Previously known as the Office of Critical and Emerging Technologies (OCET), the office leverages capabilities and expertise across DOE and the National Laboratories to bolster U.S. leadership in technologies that support DOE's missions in energy, science, and security.³²

Office of Fusion (OF)

The Office of Fusion is newly established and will realign a portion of the Fusion Energy Sciences program from the Office of Science into this new office.

Office of Artificial Intelligence and Quantum (AIQ)

The Office of Artificial Intelligence and Quantum was announced during the November 2025 DOE reorganization. It will be tasked with marshalling AI and Quantum research done by the Department and at the National Laboratories.

²⁷ "HEP Research." *U.S. Department of Energy*, 7 July 2010, science.osti.gov/hep/Research.

²⁸ "HEP About." *U.S. Department of Energy*, 3 Apr. 2025, science.osti.gov/hep/About.

²⁹ "Nuclear Physics." *U.S. Department of Energy*, 25 Mar. 2011, www.energy.gov/science/np/nuclear-physics.

³⁰ "Nuclear Physics (NP)." *U.S. Department of Energy*, 2 Oct. 2024, science.osti.gov/np/.

³¹ "Office of Technology Commercialization." *U.S. Department of Energy*, 18 Nov. 2025, www.energy.gov/technologycommercialization/office-technology-commercialization.

³² "Office of Critical and Emerging Technologies." *U.S. Department of Energy*, 30 Oct. 2025, www.energy.gov/cet/office-critical-and-emerging-technologies.

Additional DOE Executive Orders

Recognizing the importance of AI to national security and economic leadership, the Trump Administration issued executive orders (EOs), such as EO 14179, “Removing Barriers to American Leadership in Artificial Intelligence,” to accelerate AI development.³³ In line with this directive, on April 7, 2025, DOE issued a request for information (RFI) to gauge industry interest in using 16 DOE sites as potential locations for data centers.³⁴ Several of these sites could host centers powered by nuclear reactors, given the longstanding role many of these communities have played in DOE’s nuclear security missions.

More recently, on May 23, 2025, President Trump signed four executive orders: (1) Deploying Advanced Nuclear Reactor Technologies for National Security, (2) Ordering the Reform of the Nuclear Regulatory Commission, (3) Reforming Nuclear Reactor Testing at the Department of Energy, and (4) Reinvigorating the Nuclear Industrial Base. These actions aim to fast-track advanced nuclear development, streamline licensing, strengthen the domestic supply chain, and revitalize the domestic nuclear industry.^{35,36,37,38} Together with EO 14179 and DOE’s July RFI, these initiatives work to accelerate the deployment of nuclear power and make it more affordable for American consumers.

³³ “Removing Barriers to American Leadership in Artificial Intelligence.” *The White House*, 23 Jan. 2025, www.whitehouse.gov/presidential-actions/2025/01/removing-barriers-to-american-leadership-in-artificial-intelligence/.

³⁴ “Request for Information on Artificial Intelligence Infrastructure on DOE Lands.” *Federal Register*, 7 Apr. 2025, www.federalregister.gov/documents/2025/04/07/2025-05936/request-for-information-on-artificial-intelligence-infrastructure-on-doe-lands.

³⁵ “Deploying Advanced Nuclear Reactor Technologies for National Security.” *The White House*, 23 May 2025, www.whitehouse.gov/presidential-actions/2025/05/deploying-advanced-nuclear-reactor-technologies-for-national-security/.

³⁶ “Ordering the Reform of the Nuclear Regulatory Commission.” *The White House*, 23 May 2025, www.whitehouse.gov/presidential-actions/2025/05/ordering-the-reform-of-the-nuclear-regulatory-commission/.

³⁷ “Reforming Nuclear Reactor Testing at the Department of Energy.” *The White House*, 23 May 2025, www.whitehouse.gov/presidential-actions/2025/05/reforming-nuclear-reactor-testing-at-the-department-of-energy/.

³⁸ “Reinvigorating the Nuclear Industrial Base.” *The White House*, 23 May 2025, www.whitehouse.gov/presidential-actions/2025/05/reinvigorating-the-nuclear-industrial-base/.