

A photograph of a nuclear power plant featuring several large, hyperboloid cooling towers. The towers are constructed from a grid of concrete panels. In the foreground, a large tower on the left is partially visible, while another tower on the right is more prominent, with a plume of white steam rising from its top. In the background, a third tower and a small building are visible against a vibrant sunset sky with orange and yellow hues. The overall scene is industrial and dramatic.

**A Report from the Working Group on
U.S. Nuclear Energy Dominance**

How America Can Achieve Nuclear Energy Dominance

**Recommendations to
Implement President Trump's
Policy Agenda**

**Energy Innovation Reform Project
& Center for the National Interest**

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Recommendations to Implement President Trump's Policy Agenda

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Image: Sunrise at Vogtle. The brightening sky behind cooling towers three and four at the Alvin W. Vogtle Electric Generating Plant in Waynesboro, Georgia. Credit: Georgia Power. Used with permission.

Energy Innovation Reform Project is a non-partisan non-profit organization dedicated to promoting policies that advance innovation in energy technologies and practices to improve the affordability, reliability, safety, and security of American energy supplies and our energy economy. EIRP was founded in Washington, DC in 2013. Its work combines policy reports, scholarly research, and economic modeling with creative efforts to bridge partisan differences over energy policy.

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Affiliations are strictly for identification and do not imply any institutional endorsement.

Working group members endorse the general policy thrust and judgments reflected in this report, but do not necessarily endorse every finding or recommendation.

Acronyms

AI	artificial intelligence
DOE	Department of Energy
GW	gigawatts
HALEU	high-assay low-enriched uranium
MW	megawatts
NGO	nongovernmental organization
NRC	Nuclear Regulatory Commission
OECD	Organisation for Economic Co-operation and Development
SMR	small modular reactor

Further Federal Action Is Necessary to Unleash America's Nuclear Energy Sector

After decades of stagnation, America's nuclear industry is winning bipartisan support in the United States Congress and energetic backing from the Trump administration. Many forces are driving the country's renewed enthusiasm for nuclear energy, including intensifying geopolitical, security, and techno-economic competition; rapidly growing demand for electricity (especially to power new AI data centers); and increasing appreciation for nuclear energy's ability to provide reliable, clean power. The advent of a new generation of advanced reactor designs, large and small, which promise significant advances in cost, safety, flexibility, waste management, and proliferation resistance, creates exciting and important new opportunities for the United States. These reactors can meet the demands of America's growing economy—and the world's—but they can fulfill their potential only if the federal government does its part to get nuclear energy policy right. We need to build and operate nuclear reactors in America and export them to the world.

President Donald Trump was right to declare that “swift and decisive action is required to jumpstart America's nuclear energy industrial base and ensure our national and economic security.”¹ His May 23, 2025, executive orders recognize nuclear energy's strategic contributions and economic impacts;² the US nuclear energy industrial base is essential for both civil and military energy applications and maintenance of deterrence forces. The executive orders represent substantial (and even potentially historic) steps forward in realigning outdated elements of US nuclear energy policy with the country's present-day interests, conditions, and needs.

Nevertheless, further committed and sustained federal action will be necessary to unleash America's nuclear energy sector, both domestically and internationally. The sector faces several challenges:

- Companies in the US nuclear energy sector are competing in the international market primarily against state-owned firms (in both adversarial and allied nations); America's unique private sector approach to nuclear energy is superb for driving innovation, but American companies cannot succeed in high-stakes global competition when federal policies hinder their access to markets or fail to level the playing field against state-sponsored enterprises.
- The energy sector is among the most regulated sectors in most economies, and nuclear power is more regulated than other forms of power generation. While the administration and the Congress are properly seeking to reduce the regulatory burden in America's nuclear sector, there are unavoidable limits to these efforts. Regulatory reforms are both necessary and important, but establishing nuclear energy dominance will require other policy tools as well. And, since these policies must endure over decades to succeed, it will be important to secure bipartisan support for them.
- The structure of America's electricity markets, in which competitive and regulated markets border one another, complicates efforts to deploy nuclear energy. So does the narrow focus on building least-cost electricity generation capacity without paying adequate attention to wider system

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costs, such as transmission and storage, and without sufficiently valuing nuclear energy's 24-hour reliability, contributions to grid resilience, and minimal land use footprint.

A final challenge is time—that is, the need to catch up with and surpass global competitors while it is still possible to do so. Russia currently dominates global nuclear reactor exports as well as the markets for uranium enrichment services, and China is pursuing a massive domestic nuclear reactor construction program and is poised to dominate the global markets if left unchecked. Indeed, China's nuclear sector has high technical capabilities, strong human capital, and well-developed supply chains. It will soon have the largest operating fleet of large water-cooled reactors along with massive manufacturing and construction overcapacity in the sector, permitting it to undersell its competitors.

American companies have some of the most advanced designs in the world today, but they must secure a leading position in global markets before China does. This is especially important as China moves to establish technological leadership; for example, it is already commercially operating a high-temperature gas reactor, whereas the United States has not yet begun to build one and will likely not be operating one until the 2030s. If Beijing is allowed to seize the dominant position in international nuclear energy (as it has in other areas), it will enjoy both cost and financing advantages that will make competing with it quite difficult. Without a substantial, consistent, and enduring national effort, the US nuclear sector could quickly fall irretrievably behind.

The costs of such a failure to compete would be severe, including a deep loss of potential influence in many countries, as well as growing risks of proliferation and nuclear accidents as reactors developed by nations lacking America's safety regime come to dominate global markets.

This report lays out details of policies that will enable America to regain global nuclear energy leadership. It presents a series of key findings and related policy recommendations; these are listed in the Summary section below and discussed in more detail in the body of the report. The report is the product of extensive consultation among experts who are current or former leaders in government agencies and laboratories, NGOs, law firms, financial institutions, and advanced reactor companies. The group is bipartisan and includes individuals with policy, commercial, and technical backgrounds. Accordingly, the report's findings and recommendations constitute a consensus view that benefits from multiple perspectives and long experience; group members support the report's general thrust without necessarily endorsing every statement within it. Affiliations are provided for identification purposes; they do not reflect institutional endorsements.

Executive Summary

Findings

1. A strong domestic nuclear industry supports America's vital national security interests as well as **extremely important strategic, technological, and economic interests**.
2. To establish nuclear energy dominance, the United States should deploy nuclear reactors domestically and export them globally; **domestic success will be a very important foundation for international success**.
3. Building and deploying nuclear reactors, and manufacturing nuclear fuel, are complex and expensive undertakings that America's robust **private sector cannot accomplish without strong government policy support**, especially on the timeline necessary to achieve nuclear energy dominance and to reach President Donald Trump's goal of 400 GW in domestic nuclear energy capacity by 2050.
4. Expediting licensing and permitting is necessary, but **procedural successes will not be sufficient** to secure nuclear energy dominance without investor, customer, and public confidence in projects. While creating new pathways is important, they must be **compatible with existing processes** to ensure that project developers have full access to markets, and that existing licensing work is not disrupted.
5. **A secure, reliable, and affordable supply of nuclear fuel, and better overall management of the nuclear fuel cycle**, will be critical for domestic reactor deployment and foreign sales.
6. The federal government should pursue a **structured, whole-of-government approach** to promoting nuclear energy dominance—one that **avoids or minimizes negative impacts from conflicting aims** and that seeks, as much as possible, to secure **a stable, long-term policy environment for private sector investment**.
7. **Inadequate staffing** at government agencies that regulate and support nuclear energy **will prevent American nuclear energy dominance. Uncoordinated executive branch implementation** of supportive policy and necessary regulatory reforms **could also thwart President Trump's goals**.
8. **Achieving nuclear energy dominance will require a large additional workforce**, including engineers (nuclear, mechanical, electrical, etc.), skilled construction workers, and trained reactor and fuel manufacturing plant operators.

Policy recommendations

Making Nuclear Energy Dominance a National Priority

- Have the White House Office of Management and Budget, White House Office of Congressional and Legislative Affairs, and all relevant departments and agencies place the highest priority on **ensuring adequate financial resources for full implementation of the president's executive orders on nuclear energy**.
- Ensure the National Energy Dominance Council is appropriately staffed with nuclear expertise, and direct the council to convene an annual **Nuclear Energy Dominance Summit**, led by President Trump and chaired by the council, to include appropriate department and agency heads and nuclear energy industry leaders. The summit will provide an opportunity for officials and industry leaders to directly discuss critical issues involving nuclear energy policies and markets with key executive branch policymakers.

Boosting domestic deployment

- Allow regulated utilities to take the **investment tax credit** on new reactors immediately, rather than spreading it out over the years in which the asset is depreciated on their books.
- Develop and release **foreign entity of concern rules** that do not unduly constrain new nuclear energy deployment.
- Provide **risk insurance or other similar policy support** to assist project developers with first-of-a-kind and other early commercial reactors, such as that proposed in the Accelerating Reliable Capacity Act (ARC) Act of 2024.
- Direct the Department of Energy to prepare **a report comparing the full system costs of intermittent power**, including necessary storage, balancing, grid management, and other system-level costs, as well as the **grid-level benefits of advanced reactor deployment**.
- **Fully and consistently fund** the Advanced Reactor Demonstration Program, and the GenIII+ Small Modular Reactor (GenIII+ SMR) Program, and implement the Advanced Nuclear Fuel Availability Program.
- Preserve existing funding for the Department of Energy's **Loan Program Office**, for both credit subsidy costs and program management, and focus the office's efforts on industries that align with the administration's priorities and support already-commercial nuclear technologies and advanced technologies still in development.
- Invite allies to contribute to costs of **testing facilities in US national laboratories** and to share access to those facilities.

Promoting America's nuclear energy exports

- Identify clear priorities for the Department of State to negotiate new **123 Agreements** in accordance with President Trump's executive order "Deploying Advanced Nuclear Reactor Technologies for National Security."³ In parallel, direct the Departments of Energy and Commerce to assess **and classify potential non-OECD markets for US nuclear exports**.

- **Expand NRC coordination with foreign regulators** (especially in Canada, the United Kingdom, Japan, and other US allies) to boost US exports and facilitate foreign investment in the US nuclear sector.
- Direct the National Energy Dominance Council to **coordinate nuclear energy export policies**, as proposed in the International Nuclear Energy Act of 2025.
- Enhance programs like Foundational Infrastructure for Responsible Use of SMR Technology (FIRST), which **help governments in prospective export markets** strengthen their nuclear energy policy and regulatory capacity so they can be part of a strong market for nuclear energy products.
- Instruct the Department of State to **strengthen supply chain cooperation with firms in allied countries**, especially with respect to components that the supply chain review classifies as medium- or long-term prospects for domestic manufacturing.
- Reauthorize and expand the authorities of the Export-Import Bank of the United States and the US International Development Finance Corporation to better **support nuclear energy exports**. Encourage other development banks to follow the lead of the World Bank to allow financing of nuclear projects.
- Propose creating a Nuclear Energy Assistance Trust Fund at the World Bank.

Strengthening America's Nuclear Fuel Cycle

- Begin work on a generic waste repository standard as a first step in resuming a repository siting program under a congressionally authorized program.
- Avoid or mitigate policies, including tariffs, that will predictably increase **fuel costs or component costs for commercially operating domestic nuclear reactors** (especially in competitive electricity markets) and for medical and industrial isotopes. In addition, avoid or mitigate policies that will delay and complicate efforts to transition away from dependence on US adversaries.
- Expedite Department of Energy implementation of programs to increase **US uranium mining, conversion, and enrichment capacity**.
- Support private sector efforts to **recycle used nuclear fuel** by fully and expeditiously implementing the fuel cycle directives in President Trump's executive order "Reinvigorating the Nuclear Industrial Base."⁴
- Prepare a National Energy Dominance Council report outlining legislative and policy changes that would allow US firms to recover used nuclear fuel from reactors in foreign countries for domestic recycling and disposal (spent fuel takeback).
- Require a Department of Energy report assessing the potential **economic value of a US nuclear fuel recycling industry**, accounting for jobs and other domestic economic impacts, as well as exports of fuel and fuel services.

Rebuilding America's nuclear energy manufacturing and supply chain

- Direct the National Energy Dominance Council to conduct a **supply chain review** that assesses critical supply chain components and bottlenecks, examines current tariffs affecting nuclear energy supply chains, and classifies supply chain components according to when United States is likely to be able to manufacture them—in the near term (one to two years), medium term (by 2030), or long term (after 2030).

- Direct the National Energy Dominance Council to develop a **National Nuclear Energy Manufacturing Strategy** informed by the supply chain review. Tariffs should be aligned with the review such that lower tariffs apply to components that can be produced domestically only in the medium or long term.
- Direct the National Energy Dominance Council to develop a strategy, based on the supply chain review, to **encourage foreign investment** in domestic nuclear manufacturing, including fuel, components, and reactors.

Reforming the Nuclear Regulatory Commission

- Instruct the National Energy Dominance Council to **monitor the Nuclear Regulatory Commission's progress** in completing reforms specified by President Trump's executive orders and by Congress, such as fully incorporating industry comments and finalizing the **technology-neutral performance-based licensing system (Part 53)** required under US law; instruct the council to prepare dashboard-style reports every 180 days. The council's monitoring should not create additional bureaucratic steps in the reform process, however.
- Encourage the Nuclear Regulatory Commission to amend the **Part 52 regulatory framework** to ensure that minor design changes do not automatically require license amendments.
- Work with the US Congress to amend the Atomic Energy Act so that the Advisory Commission on Reactor Safeguards, now charged with reviewing every license, is limited to checking **new and novel applications only**. This would incorporate into US law the substance of President Trump's executive order "Ordering the Reform of the Nuclear Regulatory Commission."⁵
- Create a new **general license for nuclear reactors, especially for factory-built, series-manufactured models**.

Creating and Maintaining America's Nuclear Energy Workforce

- **Adequately staff** departmental and agency offices (including in the Department of Energy and its National Laboratories, the Department of Commerce, the Department of State, the Department of Defense, and the Nuclear Regulatory Commission) to ensure that nuclear fuel and reactors can be developed, licensed, sited, funded, and exported.
- Follow through promptly with the executive order on the nuclear workforce to develop programs that encourage **post-secondary training in nuclear engineering** and other engineering and scientific disciplines necessary for a supply of US citizens in the nuclear energy workforce.⁶
- Meet the executive order goal to develop programs that encourage **technical training in nuclear reactor operations and nuclear-qualified trades** so as to establish a nuclear manufacturing and operations workforce made up of US citizens.⁷
- Consider sponsoring cadres of students in the nuclear field from potential partner countries as a proven means of building relationships.

Findings and Discussion

1. A strong domestic nuclear industry supports America's vital national security interests, as well as extremely important strategic, technological, and economic interests.

The US nuclear energy industry, including the nuclear industrial base and its human capital, is essential to sustaining America's nuclear navy and more broadly the nation's strategic nuclear deterrence. Nuclear energy is also a pillar of American leadership, geopolitical influence, and technological capability. The 60- to 80-year operating lives of nuclear reactors can establish or buttress enduring strategic partnerships around the globe and deny US adversaries the opportunity for these relationships. Exporting superior US reactor technologies can also extend America's high standards in safety and in nonproliferation. Nuclear reactor and fuel exports could bolster US trading power as well.

At home, nuclear energy is a considerable energy security asset that provides safe, resilient, and reliable electricity in an era of soaring electricity demand—for artificial intelligence data centers and other purposes. It is also a foundation for prosperity, because the consistent energy from nuclear reactors is a critical ingredient for the US economy. A new era of extensive nuclear construction and operations, including both reactors and the end-to-end fuel cycle, could help to revitalize American manufacturing, create and preserve high-skill, high-paying jobs, and ensure that these powerful technologies invented in America are built and deployed in America and elsewhere.

2. To earn nuclear energy dominance, the United States should deploy nuclear reactors domestically and export them globally; domestic success will contribute substantially to international success.

Innovative designs are necessary but not sufficient to achieve nuclear energy dominance. Demonstrating construction and operation is essential. Indeed, China is already commercially operating a small modular high-temperature gas reactor;⁸ a comparable US advanced reactor is likely at least 18 months away from receiving a construction permit and isn't expected to be operational until the early 2030s. US firms will have to show they can build reactors that customers want—and do this at attractive prices.

The new demand for reliable electricity to power data centers is huge; the Department of Energy says that energy use for data centers has tripled in the last decade and will double or triple again by 2028.⁹ In pursuit of sufficient energy, Microsoft has signed a long-term power purchase agreement that will allow the reopening of Three Mile Island; Amazon has signed a contract with Talen Energy to ensure the long-term operation of the Susquehanna nuclear plant in Pennsylvania; and Meta has signed a deal with Constellation to support the Clinton nuclear plant in Illinois. But the demand for electricity also represents a pathway for advanced reactors: Google has

contracted with Kairos Power for 500 MW of energy from a technology that is still years from commercialization, and Oklo, a micro-reactor company, has signed a nonbinding agreement with a data center developer for 12 GW of capacity by 2044.

These contracts are an opportunity to demonstrate designs, drive down cost, and thus create an attractive export product. These efforts are an element of the US economic competitiveness strategy against nations such as China.

Competitive manufacturing of nuclear reactors and nuclear fuel may require successful first-of-a-kind projects built domestically—often at high costs—as well as a process of learning by doing that increases efficiency over time. These, in turn, require significant and sustained reactor construction and fuel manufacturing that are unlikely to occur solely to support exports.

If implemented effectively, President Trump’s efforts to accelerate the development of nuclear energy projects at Department of Energy sites and at military bases (outlined in his executive order “Deploying Advanced Nuclear Reactor Technologies for National Security”) can increase both the speed and the scale of nuclear reactor deployment in the United States.¹⁰ Other complementary policies will be needed, however, to secure stable domestic markets for nuclear energy.

3. Building and deploying nuclear reactors, and manufacturing nuclear fuel, are complex and expensive undertakings that America’s robust private sector cannot accomplish alone, especially on the timeline necessary to achieve nuclear energy dominance and to reach President Trump’s goal of 400 GW in domestic nuclear energy capacity by 2050.

The nuclear energy sector will always be among America’s more regulated sectors, not only domestically but internationally, as exports require both civil nuclear cooperation agreements with foreign governments and controls to manage the flow of sensitive technologies. Complex and expensive nuclear fuel or power projects are especially vulnerable to macroeconomic factors such as interest rates, exchange rates, and inflation, as well as geopolitically driven supply chain disruptions. They also need complex licenses and permits, with the latter generally incorporating some degree of local public support. Delays increase costs—often disproportionately. Effective and enduring federal policy is invaluable in minimizing risks and reducing costs for first-mover investors, developers, and customers.

4. Expediting licensing and permitting is necessary, but procedural successes will not be sufficient to secure nuclear energy dominance without investor, customer, and public confidence in projects. While creating new pathways is important, these pathways must be compatible with existing processes to ensure that project developers have full access to markets. Any expedited pathway for licensing created by the Energy Department will have to mesh with the NRC process if it is to be useful to developers. Similarly, technologies already in the licensing process shouldn’t have to cope with the loss of the regulatory framework they are using.

America's strict licensing requirements for nuclear power plants, and the confidence they have earned, are a competitive advantage for American firms. Domestically, credible licensing and permitting processes are important to maintaining the long-term support needed to build nuclear energy dominance. Internationally, a US nuclear reactor license is recognized as the gold standard for safety; this reputation has commensurate value in global markets and is an important competitive advantage for American companies.

Moreover, while rapid technological change has at times left slower-paced US licensing and permitting regulations well behind, and while modernized rules and procedures are necessary, changing these systems risks adding new delays to many projects. Efforts to update US nuclear energy regulations should prioritize real-world efficiency rather than idealized simplicity. The Trump administration's proposal to expand the use of categorical exclusions for advanced reactor projects at some federal sites is a promising approach.¹¹ Nevertheless, it is important to ensure that these systems will maintain access to and standing in existing processes so that project developers can enter the much larger markets beyond these sites.

5. More nuclear fuel and better management of the fuel cycle, from front end to back end, will be very important for domestic reactor deployment and foreign sales.

Building new nuclear reactors in large numbers and improving fuel supply security for existing reactors will require more nuclear fuel and more uranium enrichment, especially to produce the high-assay low-enriched uranium (HALEU) that many advanced reactor designs require. Some advanced reactor designs have other fuel requirements and are able to use recycled nuclear fuel or excess plutonium. A key question to resolve is whether the use of recycled fuel or excess plutonium is cost-effective. Either of these approaches could potentially contribute to US efforts to solve difficult storage and disposal problems while also providing new domestically sourced fuel.

Globally, Rosatom's ability to offer end-to-end fuel management services is one of Russia's competitive advantages. This includes providing fuel and removing used fuel for recycling or disposal, an approach that China appears to be working to replicate. Without comparable capabilities to deliver or reliably access such services, US firms could operate at a considerable disadvantage.

While recycling used fuel can reduce the volume of material requiring long-term storage, it cannot eliminate the need for storage altogether. More effective management of used fuel can accelerate domestic deployment of nuclear energy and reduce costs to taxpayers. Recycling does not lessen the importance of moving forward with a new repository program. Interim management is safe, but a long-term repository is still needed.

6. The federal government should pursue a structured, whole-of-government approach to promoting nuclear energy dominance that avoids or minimizes negative impacts from conflicting aims.

The nuclear energy sector is quite different from other manufacturing sectors. Nuclear reactors and nuclear fuel have long and intricate supply chains including many components with specialized technical requirements. Though all operating US nuclear power plants are American designed, several key reactor components and the majority of the materials and services needed to manufacture nuclear fuel are not manufactured domestically.

In this environment, at least in the near term, tariffs will likely increase costs without providing US-made alternative components. These additional costs might delay or even halt some projects and reduce the domestic market for reactor components and fuel, thus undercutting the goal of promoting domestic manufacturing. Worse, because developers need fuel supplies to build reactors, and fuel manufacturers need reactors to build capacity, slowing progress in either of these markets will weaken the other.

7. Inadequate staffing at government agencies that regulate and support nuclear energy will prevent nuclear energy dominance. Uncoordinated executive branch implementation of supportive policy and necessary regulatory reforms could also thwart President Trump’s goals.

Accelerating nuclear reactor and nuclear fuel manufacturing domestically will require licenses, permits, inspections, and reviews that neither deregulation nor improved efficiency can eliminate. At times, it will also require financial reviews for loans, guarantees, or other credit or tax support for congressionally mandated programs. Without sufficient qualified staff, these processes—including some intended to assist the industry¹²—could become bottlenecks that slow progress toward nuclear energy dominance. Absent needed personnel, shifting these tasks to agencies with less experience managing nuclear energy programs could add further delays even with simplified requirements.

Several departments and agencies must work together to facilitate domestic manufacturing of nuclear fuel and nuclear reactors as well as reactor operations. These include (but are not limited to) the Department of Energy, the Nuclear Regulatory Commission, and in some cases the Department of Defense. A number of other entities may be involved where nuclear exports are concerned, such as the Department of State, the Department of Commerce, the Export-Import Bank of the United States, the US International Development Finance Corporation, and the Trade and Development Agency. These institutions need trained personnel to evaluate, support, or oversee proposals and projects. This includes having sufficient commission or board members to make necessary decisions, whether at the NRC, the Tennessee Valley Authority (which is planning to build a new reactor at the site of the former Clinch River Breeder Reactor Project), or elsewhere.

Coordinating and synchronizing or sequencing the implementation of new regulatory or policy measures is similarly important. Building and fueling advanced reactors provides one of the best examples: completing new advanced reactors well before HALEU-based fuel is available would be costly to developers, as would amassing large stocks of new HALEU-based fuels without having completed the advanced reactors that demand them.

8. As noted in the executive orders, achieving nuclear energy dominance will require a large additional workforce,¹³ including nuclear engineers (nuclear, mechanical, electrical, etc.), skilled construction workers, and trained reactor and fuel manufacturing plant operators.

One recent DOE report estimated that approximately 375,000 new workers would be needed for the United States to triple nuclear energy capacity by 2050; this includes about 275,000 for construction and manufacturing and around 100,000 for operating the reactors.¹⁴ Realizing President Trump’s more ambitious goal to quadruple capacity during the same period will require even more engineers and workers.¹⁵ Refining and advancing reactor designs, as well as fuels and

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fuel cycle processes, will also require additional basic scientific research. Today, America relies heavily on foreign scientists and engineers, including in critical areas like nuclear energy research and development. Indeed, according to the National Science Foundation, temporary visa holders earned over one-third of US science and engineering PhDs between 2003 and 2023.¹⁶

From this perspective, constructing Georgia's Vogtle Units 3 and 4 provided a significant boost to America's nuclear energy sector by training some 30,000 new workers.¹⁷ Yet considering the projected growth in electricity demand, America will need even more skilled workers, although not all will require the nuclear sector's specialized training. America might need as many as 130,000 new electricians by 2030 for data centers alone.¹⁸ These growing industries will increasingly compete with one another for personnel.

Conclusion

America's nuclear energy sector is a foundation for US national security and geopolitical and geo-economic influence, as well as an important provider of reliable, secure, firm electric power. With effective federal policy support, the nuclear energy sector can also serve as an engine for economic growth and US export growth and can form a core element of our national strategy to win the AI race. In addition, new reactor designs, and their new fuel requirements, can help the United States manage existing stocks of used nuclear fuel.

Because energy is a strategic sector—at the core of our critical national infrastructure—the sector will always face greater regulation than many other sectors. As a result, deregulation and market-based policies cannot provide all that is necessary to secure the vital US national interests at stake in the nuclear sector. The approaches proposed above rely heavily but not solely on free market principles to advance US nuclear energy innovation and deployment.

In addition to the various concrete steps this group recommends, presidential leadership and clear presidential priority setting are key ingredients in successful policy. With such leadership, America's nuclear renaissance could become not only a driver of future security and prosperity, but a pillar of President Trump's legacy.

Notes

- 1 The White House, “Reinvigorating the Nuclear Industrial Base,” Executive Order 14302, May 23, 2025, <https://www.whitehouse.gov/presidential-actions/2025/05/reinvigorating-the-nuclear-industrial-base/>.
- 2 President Trump issued five executive orders on May 23, 2025: “Deploying Advanced Nuclear Reactor Technologies for National Security”; “Ordering the Reform of the Nuclear Regulatory Commission”; “Reforming Nuclear Reactor Testing at the Department of Energy”; “Reinvigorating the Nuclear Industrial Base”; and “Restoring Gold Standard Science.” See The White House, “Executive Orders,” <https://www.whitehouse.gov/presidential-actions/executive-orders/>.
- 3 The White House, “Deploying Advanced Nuclear Reactor Technologies for National Security,” Executive Order 14299, May 23, 2025, <https://www.whitehouse.gov/presidential-actions/2025/05/deploying-advanced-nuclear-reactor-technologies-for-national-security/>.
- 4 The White House, “Reinvigorating the Nuclear Industrial Base.”
- 5 The White House, “Ordering the Reform of the Nuclear Regulatory Commission,” Executive Order 14300, May 23, 2025, <https://www.whitehouse.gov/presidential-actions/2025/05/ordering-the-reform-of-the-nuclear-regulatory-commission/>.
- 6 The White House, “Reinvigorating the Nuclear Industrial Base.”
- 7 The White House, “Reinvigorating the Nuclear Industrial Base.”
- 8 World Nuclear News, “China’s Demonstration HTR-PM Enters Commercial Operation,” December 6, 2023, <https://www.world-nuclear-news.org/Articles/Chinese-HTR-PM-Demo-begins-commercial-operation>.
- 9 Arman Newkirk Shehabi et al., *2024 United States Data Center Energy Usage Report*, Lawrence Berkeley National Laboratory, 2024, <https://doi.org/10.71468/P1WC7Q>.
- 10 The White House, “Deploying Advanced Nuclear Reactor Technologies for National Security.”
- 11 For the proposal, see The White House, “Deploying Advanced Nuclear Reactor Technologies for National Security.”
- 12 Some of the processes intended to assist the industry are described in Pinar Çebi Wilber, “Implementing President Trump’s Energy Dominance Agenda: Past and Future Role of the Loan Programs Office,” ACCF Center for Policy Research, April 2025, https://accf.org/wp-content/uploads/2025/05/ACCF_LPO_Report_042725.pdf.
- 13 The White House, “Reinvigorating the Nuclear Industrial Base.”

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- 14 Department of Energy, “Pathways to Commercial Liftoff: Advanced Nuclear,” September 2024, https://12cf57a2.delivery.rocketcdn.me/wp-content/uploads/2025/02/LIFTOFF_DOE_AdvNuclear-vX7.pdf.
- 15 For President Trump’s goal, see The White House, “Ordering the Reform of the Nuclear Regulatory Commission.”
- 16 National Center for Science and Engineering Statistics, *Doctorate Recipients from U.S. Universities: 2023*, NSF 25-300, National Science Foundation, 2024, <https://nces.nsf.gov/pubs/nsf25300>.
- 17 Department of Energy, “Pathways to Commercial Liftoff: Advanced Nuclear.”
- 18 Ruth Porat, et al., “Powering a New Era of American Innovation,” Google, May 2025, https://static.googleusercontent.com/media/publicpolicy.google/en/resources/powering_new_era_of_american_innovation.pdf.

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