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The outlook of Nuclear Renaissance in the United States
Uncertainty of long-term energy policy weighs on the progress

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- More than a year has passed since the Trump administration issued four executive orders in May 2025 aimed at promoting nuclear power generation. During this period, tangible progress has been made in several areas, including the achievement of criticality at test reactors, regulatory reform, and procedures for the restart and license extension of existing nuclear power plants.
- On the other hand, longstanding challenges remain, including high project costs, NIMBY (Not In My Backyard) opposition, and the issue of nuclear waste disposal. Moreover, there has still been little concrete movement toward the construction of new nuclear power plants. As a result, it is still too early to assess the prospects for achieving the administration's ambitious target of 400 GW of nuclear generating capacity by 2050.
- A particularly important issue for the U.S. nuclear power sector is long-term policy uncertainty. While the current administration is providing strong support for nuclear power through measures such as regulatory streamlining, nuclear projects involve construction and operational timelines that span several decades. Consequently, bipartisan policy stability, supported through legislative processes and other institutional mechanisms, will be essential for the long-term success of the industry.

1. U.S. commercial nuclear industry

More than a year has passed since the Trump administration issued four executive orders in May 2025 aimed at promoting nuclear power generation. The administration has set an ambitious goal of expanding U.S. nuclear generating capacity from its current level of approximately 100 GW to 400 GW by 2050. The planned increase of 300 GW is equivalent to roughly one-half of the total increase in generating capacity projected by the U.S. Energy Information Administration (EIA) through 2050, which is estimated at approximately 600 GW[1]. In this sense, the "nuclear renaissance" envisioned by the administration constitutes one of the key policy pillars of its broader "Energy Dominance" agenda[2].

The U.S. nuclear power industry achieved world-leading development in the decades following President Eisenhower's "Atoms for Peace" speech, as the commercial application of nuclear technology expanded. However, it subsequently entered a prolonged period of stagnation that has persisted until recently. A major turning point came with the Three Mile Island accident in 1979, which resulted in stricter nuclear safety regulations and heightened public concern over nuclear power. Following the accident, the momentum behind nuclear development in the United States declined sharply. Although nuclear energy

[1] EIA, Annual Energy Outlook (AEO) 2026. The EIA's forecast assumes that U.S. nuclear generating capacity will remain largely unchanged from 2025 onward and therefore does not incorporate the administration's policy target of expanding nuclear capacity.

[2] A policy framework aimed at maximizing the use of abundant domestic energy resources to strengthen U.S. economic growth, manufacturing competitiveness, and national security, while also securing American leadership in global energy markets. https://www.whitehouse.gov/releases/2026/02/american-energy-dominance-is-back-under-president-trump/

regained attention in the 2000s as a low-carbon energy source amid growing concerns about climate change, the sector remained sluggish. In addition to the impact of the Fukushima Daiichi nuclear accident in 2011, the U.S. nuclear industry faced increasing competition from lower-cost natural gas-fired power generation enabled by the shale revolution, as well as the rapid expansion of renewable energy sources such as wind and solar power.

Figure 1: History of U.S. commercial nuclear industry

1940s-1950s: Early Development / "Atoms for Peace"
Nuclear technology developed for military purposes was redirected toward civilian applications. Following President Eisenhower's "Atoms for Peace" speech in 1953, commercial uses of nuclear energy began to expand. In 1957, the Shippingport Nuclear Power Station commenced operations, laying the foundation for the U.S. nuclear power industry.

1960s-1970s: Expansion / Oil Crisis
Driven by growing electricity demand and the oil crises, nuclear power plant construction accelerated as a means of strengthening energy security. Numerous reactors were planned and built, establishing nuclear energy as a major baseload power source alongside coal.

1980s-2000s: Stagnation / Three Mile Island Accident
The 1979 Three Mile Island accident led to stricter safety regulations, significantly increasing construction costs and project timelines. Combined with slower growth in electricity demand, new reactor construction largely came to a halt. As a result, the industry shifted its focus to the continued operation of existing reactors.

2000s-2010s: Uncertainty and Setbacks / Climate Change, Fukushima, and the Shale Revolution
Interest in nuclear power revived as a low-carbon energy source for addressing climate change. However, public support declined significantly after the 2011 Fukushima Daiichi nuclear accident. At the same time, the shale revolution drove down natural gas prices, undermining the economic competitiveness of nuclear power and leading to the cancellation or postponement of many new-build projects.

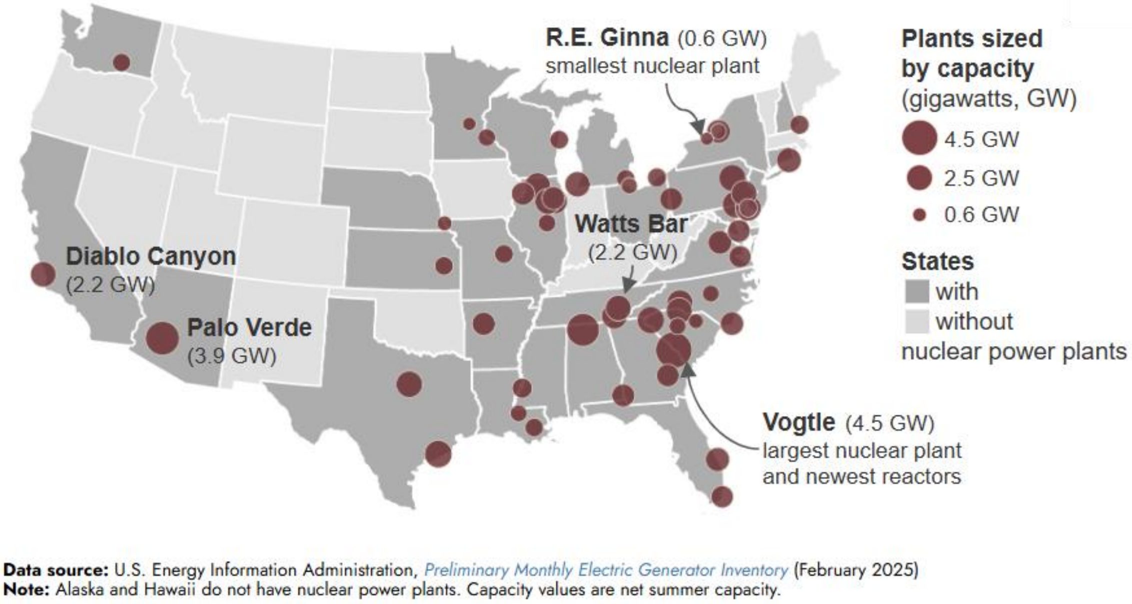
2020s-Present: "Nuclear Renaissance" / Data Center Power Demand and Trump 2.0
The rapid growth of AI and data centers has fueled a surge in electricity demand, renewing interest in nuclear power as a reliable, carbon-free energy source. Alongside efforts to extend the operating periods of existing reactors, development of Small Modular Reactors (SMRs) has gained momentum. Under Trump 2.0, nuclear energy is also being viewed as an important option for expanding power generation capacity and strengthening energy supply security.

Source: Marubeni Washington Office

At present, the United States operates 96 nuclear reactors at 57 sites. Total installed nuclear generating capacity stands at 96.9 GW, accounting for 7.9% of overall generating capacity. Owing to their high capacity factors, however, nuclear plants generated 783.9 billion kWh of electricity, representing 17.4% of total U.S. electricity generation. Among individual power sources, this places nuclear energy second only to natural gas-fired generation, which produced 1,816.2 billion kWh (42.7%). Despite its important role in electricity supply, installed nuclear capacity has remained largely flat since the 1990s due to the prolonged slowdown in reactor development. Unit 3 of the Vogtle Nuclear Power Plant, which entered commercial operation in 2023, was the first new reactor to begin operating in the United States since 2016 and the first commercial reactor to be built from scratch in more than three decades[3]. As such, whether the anticipated "nuclear renaissance" will ultimately materialize remains an open question.

[3] Watts Bar Unit 2, which entered commercial operation in 2016, was originally under construction in the 1970s before the project was suspended for an extended period and later completed.

Figure 2: Nuclear plants in the United States (57 plants, 96 reactors, as of Feb. 2025)



Source: EIA

2. What drives Nuclear Renaissance: data center and policy support

There are two primary factors behind the growing expectations for a "nuclear renaissance" in the United States.

The first is the rapid increase in electricity demand driven by the expansion of data centers associated with the proliferation of artificial intelligence (AI). To the extent observable, April 2024 was the first time that the U.S. Energy Information Administration (EIA) explicitly mentioned "data centers" in its *Short-Term Energy Outlook (STEO)*. Since then, references to data centers as a key driver of rising electricity demand have become increasingly common in EIA publications[4]. In its *Annual Energy Outlook 2026 (AEO)*, the EIA projects that U.S. electricity demand will increase by a factor of 1.7 between 2025 and 2050, equivalent to average annual growth of 2.2%[5]. Within the commercial sector, the share of electricity consumption attributable to computing activities, including data centers, is projected to rise from 8% in 2024 to 20% by 2050. This represents a significant departure from the trend observed between 2000 and 2020, when overall electricity demand grew at an average annual rate of only about 0.3%. While the increase in power demand is also being driven by broader growth in cloud-based services and electrification trends such as the adoption of electric vehicles (EVs), the rapid proliferation of AI-related data centers has further accelerated these developments. Rising electricity demand of this magnitude has renewed interest in nuclear power as a stable, carbon-free source of baseload generation.

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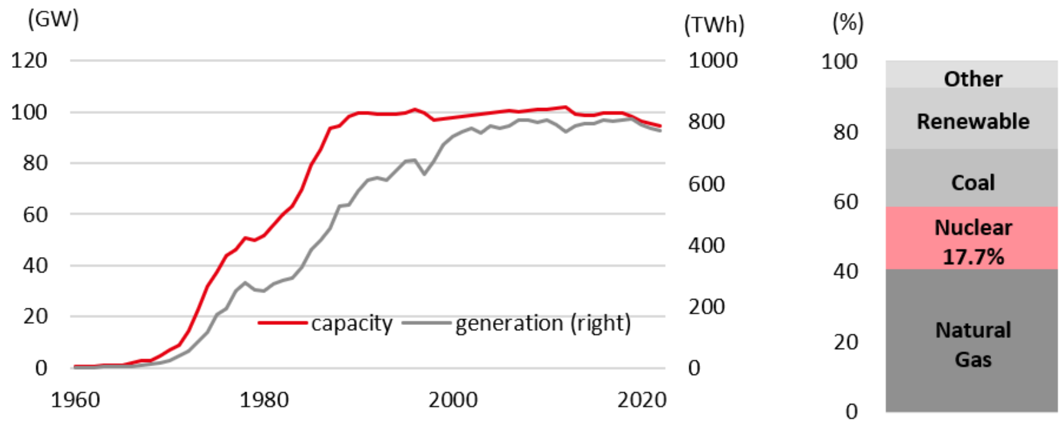
[4] https://www.eia.gov/outlooks/steo/ (STEO archives)

[5] https://www.eia.gov/todayinenergy/detail.php?id=65564

The second factor is continued policy support for nuclear energy. Even under the previous Biden administration, substantial support for the nuclear sector was provided through legislation such as the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). These measures promoted the continued operation of existing nuclear power plants, the development of next-generation reactors including Small Modular Reactors (SMRs), and the reconstruction of nuclear fuel supply chains to reduce dependence on Russia. Although the second Trump administration has shifted the rationale for nuclear support away from decarbonization and toward objectives such as meeting AI-related electricity demand and strengthening U.S. energy dominance, the core direction of nuclear policy has largely been carried over from the previous administration. Under the One Big Beautiful Bill Act (OBBB) enacted in July 2025, tax incentives for renewable energy sources such as wind and solar power that had been established under the IRA were reduced or scheduled for earlier phase-out. In contrast, most support measures for nuclear energy were preserved, thereby enhancing the relative attractiveness of nuclear power within the U.S. electricity generation mix.

Figure 3: Nuclear energy capacity / by electricity generation by source (2025)



Source: EIA

3. Progress: Reactor testing and other notable achievements

Under the second Trump administration, nuclear power promotion policies have been advanced primarily through the four executive orders issued in May 2025. These comprise: Deploying Advanced Reactor Technologies for National Security (EO 14299), Reforming the Nuclear Regulatory Commission (NRC) (EO 14300), Accelerating Reactor Testing (EO 14301), and Rebuilding the Foundations of the Nuclear Industry (EO 14302). Policies implemented pursuant to these directives have already begun to show measurable progress[6].

[6] https://www.whitehouse.gov/presidential-actions/2025/05/deploying-advanced-nuclear-reactor-technologies-for-national-security/ https://www.whitehouse.gov/presidential-actions/2025/05/ordering-the-reform-of-the-nuclear-regulatory-commission/ https://www.whitehouse.gov/presidential-actions/2025/05/reforming-nuclear-reactor-testing-at-the-department-of-energy/ https://www.whitehouse.gov/presidential-actions/2025/05/reinvigorating-the-nuclear-industrial-base/

Perhaps the most visible achievements have come from the Department of Energy's (DOE) advanced reactor testing initiatives. In June 2025, the DOE established the Reactor Pilot Program to accelerate reactor testing and demonstration. Under this program, eleven advanced reactor demonstration projects were selected. By July 4, 2026, four test reactors had achieved criticality, exceeding the program's original target of "at least three" reactors. The program significantly streamlined guidance and licensing procedures for Qualified Test Reactors and established dedicated support teams for applicants, substantially improving the development environment for research and demonstration reactors[7]. In particular, a new policy was introduced granting advanced reactors categorical exclusions from environmental review requirements under the National Environmental Policy Act (NEPA), based on their enhanced safety characteristics relative to conventional reactor designs[8]. As a result of these measures, safety reviews for test reactors, which previously could take several years or even more than a decade, can now be completed within a matter of months.

Progress has also been made in restarting existing reactors. Restart plans are currently underway for the Palisades Nuclear Plant (scheduled to resume operations during 2026), Three Mile Island Nuclear Station (targeted for restart by 2027), and Duane Arnold Energy Center (expected to restart by early 2029). In addition, license extensions for thirteen reactors, representing approximately 12 GW of generating capacity, were approved during 2025, allowing these facilities to continue operating through 2046-2062. Notably, the Three Mile Island and Duane Arnold restart projects are being pursued with investment support and long-term power purchase arrangements involving Microsoft and Google, reflecting anticipated electricity demand from AI-focused data centers. These projects have thus attracted considerable attention as examples of hyperscaler's investment in nuclear power. In March 2026, the DOE launched the Utility Power Reactor Incremental Scale-up Effort (UPRISE) initiative, which aims to expand nuclear generation through reactor restarts, license renewals, and power uprates at existing facilities. The initiative has also announced plans to host matchmaking workshops later this year to facilitate agreements between nuclear plant owners and end-users[9]. In this context, "end-users" are widely understood to refer primarily to large electricity consumers, particularly operators of AI-oriented data centers.

With regard to NRC reform, which represents the centerpiece of the administration's regulatory agenda, a major organizational restructuring plan was announced in February 2026[10]. The NRC currently operates under a structure in which a five-member Commission serves as the ultimate decision-making body for policy and regulatory matters, while the Executive Director for Operations (EDO) implements Commission

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[7] The DOE's reactor approval process, which previously required more than 1,500 pages of documentation and 17 procedural steps, has been substantially streamlined to approximately 900 pages and 11 steps. Some experts, however, have expressed concerns that these simplifications were implemented without the usual public-comment and stakeholder consultation processes. https://nuclearinnovationalliance.org/sites/default/files/2025-12/DOE-STD-1271-2025.pdf

[8] https://www.federalregister.gov/documents/2026/02/02/2026-02071/categorical-exclusion-for-advanced-nuclear-reactors

[9] https://www.energy.gov/ne/articles/nations-nuclear-reactor-fleet-rise

[10] https://www.nrc.gov/sites/default/files/cdn/doc-collection-news/2026/26-017.pdf

decisions. Under the restructuring plan, the EDO organization will be reorganized around three principal business lines: New Reactors, Operating Reactors, and Nuclear Materials and Waste. The stated objective is to better integrate licensing and inspection processes and thereby reduce administrative burdens on reactor developers and operators. The plan also includes the creation of an Office of Advanced Reactors (OAR) dedicated to advanced technologies such as Small Modular Reactors (SMRs), as well as a Chief Nuclear Reactor Inspector (CNRI) organization tasked with overseeing regional offices and standardizing inspection practices nationwide. Updated organizational charts have already been published, and the NRC intends to complete implementation of the restructuring by around September 2026[11]. Alongside these organizational reforms, the NRC is conducting a comprehensive review of its regulations. While the Commission is expected to finalize reforms mandated under EO 14300 by November 2026, proposed rule changes are already being released on a rolling basis and subjected to public comment procedures[12].

In June 2026, the administration also announced a loan program of up to $17.5 billion to support the reconstruction of the commercial nuclear supply chain and facilitate the construction of new nuclear power plants[13]. Specifically, the program is designed to support deployment of Westinghouse's AP1000, currently the only licensed large-scale advanced reactor design operating in the United States. Financing would be available for the procurement of long-lead components such as reactor pressure vessels and steam generators. Under the initiative, loans may be extended to as many as five projects, each involving two AP1000 reactors. If fully implemented, up to ten AP1000 units, each with a generating capacity of approximately 1.1 GW, could be constructed, adding a total of roughly 11 GW of capacity. Although the initiative is framed as a supply-chain reconstruction effort, the direct beneficiaries are reactor construction projects. Importantly, the structure does not exclude procurement from foreign suppliers, including Japanese firms, thereby creating potential opportunities for international participation.

As the first major project under the $550 billion U.S.-Japan investment framework agreed upon by the two governments, Hitachi and GE Vernova announced plans in March 2026 to build SMRs in Tennessee and Alabama with a potential investment value of up to $40 billion. The broader framework is expected to allocate up to $200 billion to nuclear-related investments. In a June 2026 interview, Commerce Secretary Howard Lutnick also expressed strong interest in utilizing Japanese investment financing to support nuclear plant construction within the United States[14]. Additional SMR projects are expected to be incorporated into the framework, suggesting that demand for Japanese cooperation in new nuclear construction is likely to increase further.

In the area of nuclear fuel supply, the administration announced a support program in January 2026 that will provide a total of $2.7 billion over the next decade to three companies to expand domestic production capacity for both conventional low-enriched uranium (LEU) and high-assay low-enriched uranium

[11] https://www.nrc.gov/about-nrc/organization

[12] https://thebreakthrough.org/issues/nuclear-energy-innovation/nrc-rulemaking-tracker

[13] https://www.energy.gov/articles/department-energy-announces-american-nuclear-supply-chain-loans

[14] https://www.nikkei.com/article/DGXZQOGN112FU0R10C26A6000000/

(HALEU), which is essential for many advanced reactor and SMR designs[15]. Historically, HALEU supplies have depended heavily on Russia. However, following the outbreak of the Russia-Ukraine war, legislation was enacted to prohibit imports of Russian uranium. Securing reliable HALEU supplies is a prerequisite for large-scale SMR deployment. In addition to the domestic production expansion supported by this program, the United States is working with allies such as Japan to diversify and strengthen supply sources. In May 2026, for example, Japan exported 1.7 tonnes of HALEU to the United States[16].

Regarding backend solutions for spent nuclear fuel and radioactive waste management, the May 2025 executive orders signaled a renewed commitment to advancing and restarting spent-fuel reprocessing and broader nuclear fuel cycle initiatives, areas that had largely remained dormant in the United States for decades. Consistent with this policy direction, the DOE issued a Request for Information (RFI) in January 2026 concerning the establishment of a Nuclear Fuel Cycle Innovation Campus[17]. The concept is intended, in part, to encourage states to host radioactive waste management and disposal facilities in exchange for economic and industrial benefits associated with expanded nuclear development. Interest has reportedly been expressed by several states, including Utah, Tennessee, Idaho, and Nebraska[18].

The administration has also undertaken multiple initiatives to strengthen the framework for exporting U.S. nuclear technology abroad. These include commitments to complete technology transfer reviews within 30 days and to expand financing and supply-chain support programs for nuclear export projects. In July 2025, the U.S.-Thailand Agreement for Peaceful Nuclear Cooperation (123 Agreement) entered into force. During the same month, formal negotiations toward similar agreements were launched with Malaysia and Bahrain. In addition, at the Three Seas Initiative (3SI) Summit held in Croatia in April 2026, U.S. Energy Secretary Chris Wright announced the launch of studies and preparatory work related to potential SMR exports to Croatia and Slovakia, signaling the administration's view of Central and Eastern Europe as a promising market for U.S. nuclear technology exports[19].

Finally, a variety of initiatives aimed at strengthening the foundations of the nuclear industry have also begun to move forward[20]. These include expanded reactor safety and operations training programs and performance-based apprenticeship schemes designed to cultivate a new generation of nuclear professionals. While the effectiveness of these workforce-development efforts will need to be assessed

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15 https://www.asme.org/government-relations/policy-impact/energy-department-launches-2-7-billion-push-to-rebuild-u-s-uranium-enrichment

16 https://www.energy.gov/nnsa/articles/us-secures-largest-ever-haleu-shipment-power-american-nuclear-industry

17 https://www.energy.gov/articles/department-energy-seeks-hosts-nuclear-lifecycle-innovation-campuses

18 https://www.axios.com/2026/04/07/states-nuclear-waste-tennessee-utah-idaho-nebraska

19 https://www.state.gov/releases/office-of-the-spokesperson/2026/04/new-era-of-strategic-partnership-united-states-advances-key-investments-and-cooperation-at-the-three-seas-initiative-summit/ The United States and the European Atomic Energy Community (EURATOM) concluded a Section 123 Agreement governing peaceful nuclear cooperation in 1996.

20 https://www.dol.gov/newsroom/releases/eta/eta20260213-0
https://www.energy.gov/ne/articles/office-nuclear-energy-awards-49m-enhance-nuclear-safety-training-and-workforce

over the medium to long term, the expanded programs appear to be designed with the goal of producing qualified nuclear specialists on a relatively accelerated timetable.

Figure 4: The directions and progress of the executive orders on May 23, 2025

Directions	Deadline	Progress till July 2026	
New reactors			
400 GW nuclear energy capacity	**2050**	Energy capacity remains unchanged	🟠
Start construction of 10 new large reactors	**2030**	Planning	🟠
Advanced reactor testing			
Construct at least three new nuclear reactors and achieve criticality	7/4/2026	Established Reactor Pilot Program (RPP), in which 4 reactors achieved criticality	🟢
Issue guidance regarding what counts as a "qualified test reactor"	7/22/2025	Simplified QTR including NEPA process	🟢
Consider the economic and national security benefits		Reflecting it on NRC reform guideline	🟢
Assemble support teams to assist applicants		Launched support team based on RPP	🟢
Existing reactors			
5 GW of power uprates to existing nuclear reactors	**2030**	DOE published supporting guideline	🟠
Take action to expedite the deployment of advanced reactors at DOE and national lab sites	8/21/2025	DOE revised permitting process	🟢
Restart and expand the operating period of the existing reactors		Planning the restarts of Palisades, Three Mile, etc. Passed the extention of 13 reactors operation in 2025	🟠
Leverage DOE's Loan Programs for new reactor construction	11/19/2025	Loan for Palisades project	🟢
NRC reform			
Undertake a review and wholesale revision of its regulations	**Final rules: 23/11/2026**	Multiple rules are published and on public comments	🟠
Reorganize NRC structure and staffing		Published new organization structure in the website	🟠
Reduce the personnel and functions of the Advisory Committee on Reactor Safeguards (ACRS)		Published reform guidance	🟠
Fuel supply			
Develop a plan to increase domestic uranium conversion and enrichment capacity	9/20/2025	DOE proceeded with expanding fuel supply	🟢
Update its excess uranium and plutonium management policy		Withdrawal of the policy to dilute and dispose of excess plutonium	🟢
Provide at least 20 metric tons of HALEU		Done	🟢
Waste & recycling			
Submit a report to the President on SNF management and recycling	1/18/2026	DOE submitted the report (not declassified)	🟢
Identify all U.S. uranium and plutonium stockpiles	8/21/2025	Completed the survey and launched Advanced Nuclear Fuel Recycling Program	🟢
Authorize construction of a fuel recycling facility at a DoD or DOE site		Published the reform draft to accelerate the process	🟠
Workforce development			
Seek increased participation in nuclear energy-related apprenticeships and education programs	9/20/2025	Installed Apprentice program	🟢
Make nuclear energy-related careers a priority area for investment	9/20/2025	Done	🟢
Exports			
Pursue 20 new 123 Agreements and renegotiate the existing ones	**1/2029**	Into effect with Thailand / Launched talks with Malaysia and Bahrain	🟠
Review and approve or deny all technology transfer export authorization requests within 30 days		Multiple applications were approved within 30 days	🟢
Determine a U.S. financial export strategy	8/21/2025	DOE, DOC, DOS, and EXIM coordinated comprehensive export and financial support strategy	🟢
Implement a program to compete for global nuclear energy projects	8/21/2025	Launched a TF to implement Top Sales diplomacy	🟢

🟢: Completed / 🟠: In progress

Source: White House, Nuclear Innovation Alliance (NIA)

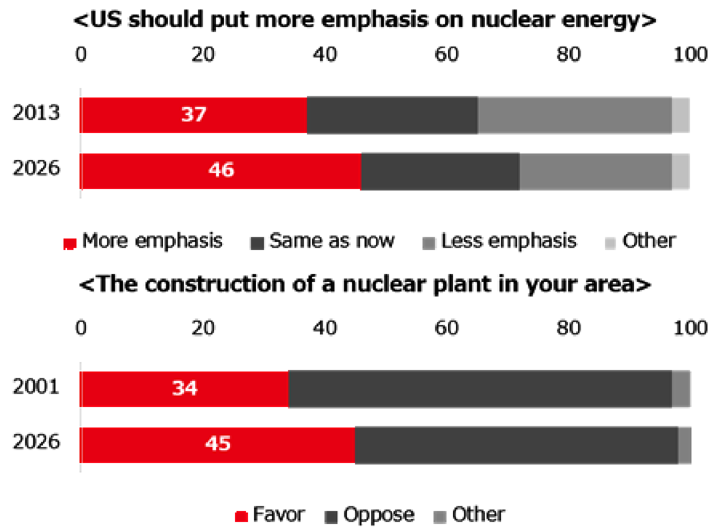
4. Project costs and NIMBY

As discussed above, the second Trump administration's efforts to accelerate the development of the nuclear power sector have produced tangible results. At the same time, however, the U.S. nuclear industry continues to face a number of significant challenges. In particular, the prolonged stagnation of the nuclear sector has led to the loss and weakening of specialized human resources, equipment and fuel supply chains, and construction expertise, all of which contribute to escalating project costs.

The experience of the Vogtle Units 3 and 4 project illustrates these difficulties. Construction originally commenced with an estimated timeline of eight years and a projected cost of approximately $14 billion. In the end, however, the project experienced substantial delays and cost overruns, requiring roughly fifteen years to complete at a total cost exceeding $30 billion. Around 40% of the project's total expenditure is estimated to have been attributable to interest payments, reflecting both the high cost of capital associated with uncertainty surrounding nuclear projects and the consequences of prolonged construction periods[21]. While some analysts argue that lessons learned from the Vogtle project, together with ongoing regulatory reforms, could significantly reduce the costs of future nuclear projects, considerable uncertainty regarding project economics remains.

Persistent public concerns about nuclear power within local communities also continue to present challenges for project developers. Nuclear energy projects have long been closely associated with the NIMBY ("Not In My Back Yard") phenomenon because of concerns over accident risks and other safety issues. To be sure, growing awareness of climate change and energy security has led to increasingly favorable views toward nuclear power as a clean and reliable source of electricity. This year, for example, both New Jersey and Illinois took steps to repeal nuclear moratoria that had restricted or prohibited the construction of new nuclear power plants.

Figure 5: Survey on support / non-support for nuclear energy plant



Source: Gallup

Support for nuclear energy has also been expanding not only at the national level but also with respect to the prospect of hosting new nuclear facilities within local communities. According to

21 https://www.eia.gov/todayinenergy/detail.php?id=61963

Gallup polling, the share of respondents who support the construction of a new nuclear power plant in their local area increased from 34% in 2001 to 45% in 2026[22].

Nevertheless, it is important to note that even in the latest survey, supporters still account for less than half of respondents. Moreover, the current administration has proposed concepts such as the Nuclear Fuel Cycle Innovation Campus, which would combine nuclear power development with facilities for the management and disposal of nuclear fuel waste. Such proposals are particularly sensitive politically. The case of Yucca Mountain in Nevada, once considered the leading candidate for a permanent nuclear waste repository, demonstrated how strong local opposition can become a decisive factor in derailing a project. Indeed, waste disposal facilities often encounter even stronger resistance than nuclear power plants themselves.

Although technological advances, including the deployment of Small Modular Reactors (SMRs), may reduce public concerns over time by improving safety and reducing the physical footprint of nuclear facilities, NIMBY-related opposition is likely to remain a major project risk. Consequently, community acceptance and site selection will continue to be critical factors affecting the future development of the U.S. nuclear power industry.

5. Long-term policy commitment

Overall, as of July 2026, institutional design, regulatory reform, and advanced reactor demonstration projects have generally progressed as planned, while efforts related to longer-term challenges, such as commercial reactor construction and the development of a nuclear fuel cycle infrastructure, remain at an early stage. Achievements such as the successful criticality of several test reactors represent remarkable progress compared with the prolonged stagnation that characterized the U.S. nuclear sector for decades. At the same time, however, reactor criticality tests are fundamentally research and development milestones. Given the considerable distance that still separates these projects from actual commercial reactor construction and operation, many observers caution against overestimating their significance.

From a broader perspective, medium- to long-term policy uncertainty remains a major constraint on the nuclear industry. The second Trump administration has advanced its nuclear agenda primarily through executive authority, including executive orders. Because these measures do not constitute long-term legislative commitments enacted by Congress, there remains a meaningful risk that they could be reversed by a future administration. For an industry in which construction and operating timelines often extend over several decades, such policy uncertainty represents a particularly significant risk. For example, there are persistent concerns that current measures to streamline environmental reviews could be rolled back under a future Democratic administration. While the recent reassessment of nuclear power enjoys a degree of bipartisan support, differences remain regarding the appropriate policy approach, particularly on issues such as regulatory and

22 https://news.gallup.com/poll/708620/less-support-solar-wind-energy-nuclear.aspx

environmental review reform. If projects are advanced too aggressively through executive action alone, they may also face litigation from environmental organizations and anti-nuclear groups. In addition, future policy support for competing generation sources, including renewable energy, could reduce the relative attractiveness of nuclear power.

In Congress, discussions are underway regarding the codification of regulatory reforms into law. In December 2025, the House of Representatives passed the Streamlining and Standardizing Economic Development Act (SPEED Act), which seeks to accelerate environmental review and permitting processes for infrastructure projects, manufacturing facilities, and energy developments including nuclear power plants[23]. Legislative efforts to institutionalize regulatory reforms based on the SPEED Act continue, but given the highly polarized nature of the current political environment, the path to enactment is expected to be lengthy and difficult. Under these circumstances, project developers and investors remain cautious about committing to the large-scale, long-term investments required for nuclear projects.

The United States produces long-term energy projections through the Energy Information Administration (EIA), but historically it has not possessed a comprehensive national energy strategy equivalent to the long-term energy master plans employed in some other countries, with explicit targets for the energy mix or generation portfolio. Although government intervention in energy markets has expanded in recent years through environmental regulations and support measures for renewable energy, the development of the U.S. energy supply system has nevertheless remained fundamentally grounded in market-based competition and private-sector investment.

Nuclear power, however, possesses a number of characteristics that distinguish it from other forms of energy infrastructure, including exceptionally high upfront capital requirements, lengthy investment recovery periods, liability risks associated with accidents, and links to national security considerations. As a result, the successful expansion of the nuclear sector continues to depend on long-term government planning and credible policy commitments. Without more effective measures to reduce medium- and long-term policy uncertainty, the current momentum behind the "nuclear renaissance" could ultimately prove unsustainable. In this sense, the ongoing nuclear renaissance represents not only a test of the future of the U.S. nuclear industry, but also a broader test of the U.S. government's willingness and ability to provide sustained strategic direction for the energy sector as a whole.

23 https://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=418526

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