

THE NUCLEAR INDUSTRY AT A TURNING POINT

**POLICY REFORM, MARKET EXPANSION,
AND RISK CONSIDERATIONS FOR 2026**

THE NUCLEAR INDUSTRY AT A TURNING POINT: POLICY REFORM, MARKET EXPANSION, AND RISK CONSIDERATIONS FOR 2026

The nuclear energy industry entered 2025 at a pivotal moment as rising electricity demand from artificial intelligence (AI), data centers, and electrification collided with decarbonization, energy security, and industrial policy priorities. Against this backdrop, federal policymakers advanced regulatory reforms, leadership changes reshaped agency direction, and market participants reassessed deployment pathways for both existing and advanced nuclear technologies. This report examines the key developments that defined 2025 and the issues shaping the industry's trajectory into 2026.

POTENTIAL OF NUCLEAR IN POWERING AI AND DATA CENTERS CONTINUES TO RISE

The rapid growth of artificial intelligence, cloud computing, and data center infrastructure has emerged as one of the most consequential drivers of electricity demand worldwide. As AI workloads become more energy-intensive and data center operators seek reliable, around-the-clock power to support mission-critical operations, nuclear energy is increasingly being reevaluated as a core component of future power strategies. Throughout 2025, policymakers, utilities, and technology companies continued to explore how nuclear generation could help meet demand while supporting decarbonization and grid reliability objectives.

Nuclear Energy's Role in Meeting AI-Driven Power Demand

Electricity demand projections tied to AI and data center expansion have accelerated, particularly in regions already experiencing grid congestion and transmission constraints. Unlike intermittent renewable resources, nuclear power offers a carbon-free baseload option capable of delivering high-capacity factors and predictable output—attributes that align closely with the operational needs of large-scale data centers. In 2025, industry discussions were further reinforced by [federal initiatives highlighting AI as a driver of energy and nuclear research, signaling that AI-enabled computing and scientific workloads are likely to intensify demand for firm, reliable power.](#)

Technology companies have shown growing interest in long-term power procurement strategies that prioritize reliability and emissions reductions. While renewable power purchase agreements remain part of many decarbonization strategies, the high reliability demands of AI-driven data centers have elevated natural gas as a leading near-term power solution due to its dispatchability and deployment speed. At the same time, sustained AI-driven load growth—including demand associated with AI-focused research platforms and secure cloud environments—has prompted renewed attention to nuclear-backed arrangements, such as direct contracts, utility-mediated supply, and potential co-location models. These dynamics reflect a broader recognition that meeting future demand will likely require a diversified generation mix in which nuclear plays a more prominent long-term role.

Power Uprates and Optimization of Existing Nuclear Assets

An immediate pathway for increasing nuclear output lies in the optimization of the existing reactor fleet. Reactor operators are [increasingly evaluating power uprates as a near-term strategy to expand generating capacity without constructing new facilities.](#) Uprates can deliver incremental capacity gains by leveraging existing infrastructure, though they require careful technical analysis and regulatory approval.

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In 2025, interest in uprates contributed to a steady flow of licensing activity at the Nuclear Regulatory Commission (NRC), highlighting the role that regulatory efficiency will play in enabling timely capacity additions. For data center developers seeking near-term solutions, uprates and supporting restart of reactors that were shuttered for economic reasons offers a practical mechanism for securing additional nuclear-sourced power, particularly in markets where siting or transmission expansion presents challenges.

Alongside optimization of existing assets, new large light-water reactors (LWRs) continue to feature in long-term planning discussions. LWR technology is well understood, benefits from an established regulatory framework, and has demonstrated operating performance over decades. Recent construction experience, both domestic and international, underscores the importance of disciplined project management, supply chain readiness, and regulatory coordination in controlling costs and schedules.

While new large reactors require substantial upfront investment and long development timelines, they remain a viable option for jurisdictions seeking significant, long-duration capacity additions. In the context of AI-driven demand growth, these projects may appeal to utilities and regions planning for sustained load increases over multiple decades rather than incremental or short-term needs.

Advanced Reactors for Dedicated and Specialized Loads

Advanced reactor technologies, including Small Modular Reactors (SMRs), non-light-water reactors, and microreactors, [were increasingly explored as potential power solutions for dedicated and specialized applications in 2025](#). These technologies offer the prospect of greater flexibility in siting, scalable deployment, and integration with industrial facilities, data centers, and national security installations that require high reliability and resilience.

In 2025, interest in SMRs and other advanced designs continued to grow among both energy developers and large energy users, particularly where behind-the-meter or co-located generation could mitigate transmission constraints. For data centers, advanced reactors may eventually enable tailored power solutions that align generation capacity more closely with localized demand, though commercialization timelines and regulatory pathways remain key considerations.

Regulatory Readiness and Infrastructure Constraints

As demand for nuclear-sourced power increases, regulatory readiness has emerged as a critical factor. The anticipated volume of licensing actions, ranging from power uprates and license renewals to reactor restarts and new reactor applications, has underscored the importance of NRC staffing, scheduling, and interagency coordination. These pressures are heightened by [broader federal resource constraints and periodic funding disruptions, which can affect agency staffing levels and review continuity](#). Absent sufficient resources and process efficiencies, increased demand could translate into new bottlenecks that delay project timelines.

Infrastructure constraints, including transmission capacity and fuel supply considerations, further complicate deployment decisions. Addressing these challenges will require coordinated planning among regulators, utilities, developers, and large energy users to ensure that nuclear projects can move forward in parallel with broader grid modernization efforts.

In addition to regulatory and infrastructure constraints, investor hesitation tied to construction risk remains a primary hurdle for new nuclear development. Cost overruns and schedule delays from prior large-scale projects continue to influence financing decisions, even as developers explore contractual mechanisms to allocate and manage construction risk more effectively. As the industry moves toward a new era of nuclear buildout, further development of the supply chain and expansion of the skilled construction workforce will be critical to improving project execution and restoring investor confidence.

Looking Ahead: AI, Data Centers, and Nuclear Power Demand

- **How will sustained AI- and data-center-driven load growth influence long-term power planning?** As computing demand continues to rise, utilities and developers may increasingly prioritize firm, carbon-free capacity—prompting greater reliance on nuclear power alongside renewables and storage.
- **Will more technology companies pursue nuclear-backed power arrangements?** Growing interest in reliability and emissions reductions may drive expanded use of nuclear-backed procurement models, including direct contracts, utility-mediated supply, and co-location strategies.
- **How will the NRC manage increasing volumes of update and licensing requests tied to demand growth?** The NRC’s ability to efficiently process power updates, license renewals, restarts, and new applications will play a central role in shaping nuclear power’s contribution to digital and industrial expansion.

As AI technologies continue to reshape electricity demand, nuclear energy is positioned to play an increasingly strategic role in delivering reliable, large-scale power for data-intensive industries.

FEDERAL SUPPORT FOR ADVANCED NUCLEAR, LEADERSHIP CHANGES, AND REGULATORY REFORM

Federal policy and regulatory activity in 2025 reflected a renewed emphasis on accelerating the deployment of advanced nuclear technologies under US Department of Energy (DOE) safety oversight, while preserving the NRC’s longstanding safety mission for commercially deployed nuclear facilities. This includes familiarizing NRC staff with pilot and other demonstration reactor technologies being deployed under the DOE’s oversight. Executive action, leadership changes at the NRC, and continued implementation of statutory reforms combined to shape an evolving regulatory environment that industry participants will continue to navigate in 2026 and beyond. These developments signal a concerted effort to reduce regulatory friction, improve predictability, and align federal agencies around a shared objective of enabling advanced nuclear deployment at scale.

Executive Action Accelerates Nuclear Regulatory Reform

Throughout 2025, the US administration [issued multiple executive directives aimed at expediting nuclear regulatory processes and addressing perceived inefficiencies within the existing licensing framework](#). These directives called on the DOE and NRC to streamline licensing reviews, terminate or reconsider certain ongoing rulemakings, and accelerate regulatory decision-making for both operating reactors and new technologies. While executive actions do not alter the DOE’s or NRC’s statutory obligations, they have influenced agency prioritization and underscored expectations for measurable progress in licensing timelines and regulatory responsiveness.

For developers of advanced reactors and fuels, these directives reinforced a broader policy signal that nuclear power is expected to play a central role in meeting energy security and decarbonization goals. They also highlighted the importance of implementation details, including how the NRC sequences reviews, allocates staff resources, and integrates new policy direction into existing regulatory processes.

New NRC Chairman Designated and Commission Returns to Full Strength

Leadership changes at the NRC further shaped the regulatory landscape in 2025. Following the confirmation of Commissioner Doug Weaver in December, President Donald Trump [designated](#)

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[Commissioner Ho Nieh as Chairman of the NRC in January 2026, marking a return to a fully staffed Commission as the agency prepares to address a significant volume of regulatory, organizational, and policy initiatives in 2026.](#) With all commissioner seats filled, the NRC is positioned to take up complex issues ranging from advanced reactor licensing and fuel qualification to internal process reform and workforce planning.

A full Commission also is expected to enhance decision-making capacity and provide greater continuity as the agency balances external pressure to accelerate reviews with its core safety and security mandate. Leadership priorities and internal governance dynamics will play a key role in determining how quickly reforms translate into tangible and durable changes for applicants and stakeholders. For example, the NRC successfully reduced review times for new nuclear plant applications from 36 months to 18 months.

ADVANCE Act Implementation and NRC Modernization Efforts

The NRC continued to implement the ADVANCE Act throughout 2025, building on statutory mandates designed to modernize licensing frameworks, reduce unnecessary regulatory burden, and support the deployment of advanced reactors. Notably, implementation included [finalization of the NRC's FY 2025 fee rule, which introduced targeted hourly rate reductions for advanced nuclear reactor applicants and pre-applicants, expanded definitional clarity around qualifying applications, and lowered costs associated with early engagement and formal licensing reviews.](#)

While implementation remains ongoing, these efforts reflect a gradual shift toward a regulatory posture that is better aligned with the characteristics of advanced nuclear technologies. For developers, the pace and consistency of ADVANCE Act implementation, including fee relief, risk-informed licensing approaches, and clearer review pathways, will be a critical factor in assessing project risk, financing timelines, and commercial viability.

DOE-NRC Coordination to Support Advanced Reactors and Fuels

Enhanced coordination between the DOE and the NRC emerged as another focal point in 2025. In October, the agencies [executed an addendum to their 2019 Memorandum of Understanding](#) that outlines how safety analyses, technical reviews, and operating experience from DOE-authorized advanced reactor and fuel demonstration projects may be leveraged to support future NRC licensing reviews, consistent with executive directives to streamline regulatory processes. These efforts aim to reduce duplicative review, improve information sharing, and accelerate the transition of technologies from demonstration programs to commercial licensing by better aligning research, safety evaluation, and regulatory review activities.

For advanced reactor developers participating in DOE-supported demonstration projects, effective coordination with the NRC may help de-risk subsequent licensing phases by narrowing the scope of NRC review to unresolved safety issues. However, translating this framework into consistent practice will require sustained interagency engagement, clear delineation of statutory roles, and sufficient technical capacity on both sides.

Looking Ahead: Federal Policy, Regulatory Reform, and Institutional Capacity

- **Will executive directives and statutory reforms deliver shorter and more predictable licensing timelines?** Industry participants will be closely monitoring whether NRC modernization efforts, including implementation of the ADVANCE Act and related executive actions, translate into sustained reductions in review timelines and greater regulatory certainty.
- **How will the NRC balance reform expectations with institutional capacity constraints?** Staffing levels, budget stability, and technical expertise will be critical

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factors as the NRC manages growing application volumes while responding to external pressure to accelerate reviews.

- **How durable will current reform efforts be across leadership and administration changes?** The extent to which recent reforms are embedded into agency practice, rather than driven by near-term policy priorities, will influence their resilience amid future leadership transitions and evolving interpretations of agency independence.

As regulatory reform efforts continue, the NRC's ability to align policy ambition with institutional capacity will shape the pace and predictability of advanced nuclear deployment.

ENVIRONMENTAL REVIEW, ENFORCEMENT, AND NUCLEAR RISK

Environmental review requirements, enforcement activity, and liability considerations shaped the nuclear regulatory landscape in 2025, even as federal policymakers sought to streamline approval pathways and accelerate deployment of new nuclear technologies. Developments over the past year reflect an ongoing recalibration of how environmental risk, community impacts, and compliance obligations are evaluated alongside broader efforts to modernize the nuclear regulatory framework. For project developers and operators, these changes underscore the need to navigate an evolving risk environment in which procedural reforms and heightened scrutiny coexist, including the uncertainty of litigation challenges to these policy changes, and the possibility of additional legislation.

NEPA Reform and Streamlined Environmental Review

In 2025, the NRC initiated significant changes to its implementation of the National Environmental Policy Act (NEPA), [directing NRC staff to undertake a consolidated rulemaking to amend its NEPA regulations in 10 CFR Part 51 and update related guidance](#). These efforts are intended to continue to align the NRC's environmental review framework with broader federal reforms under the Fiscal Responsibility Act, the ADVANCE Act, and executive directives by narrowing the scope of review, limiting alternatives analyses to actions within the NRC's regulatory authority, evaluating new categorical exclusions, and increasing flexibility in the use of environmental assessments in lieu of environmental impact statements.

For nuclear applicants, particularly those pursuing license amendments, power uprates, reactor restarts, or advanced reactor approvals, these reforms have the potential to materially affect project schedules and development risk by clarifying review boundaries and introducing new process efficiencies, including greater applicant involvement in document preparation under NRC oversight. Also, streamlined review processes may face heightened scrutiny and litigation from stakeholders concerned about the adequacy of environmental analysis, increasing the importance of a well-supported administrative record as the NRC operationalizes these changes in practice.

Withdrawal of Environmental Justice Policy Considerations

Another notable development in 2025 was the NRC's [withdrawal of its Environmental Justice Policy Statement](#). The NRC's policy, first adopted in 2004 as a limited framework for considering environmental justice within NEPA reviews, had guided how socioeconomic and demographic factors were evaluated in connection with potential impacts on low-income and minority communities. Its withdrawal alters how, and whether, such considerations are explicitly addressed in future licensing proceedings and environmental analyses.

The rescission of the policy statement does not eliminate statutory environmental obligations under NEPA or other federal laws. For applicants, however, this change will reduce the need for environmental justice-specific socioeconomic analyses and associated review costs, though it may also increase the

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likelihood that such issues are raised through litigation or other public participation avenues rather than addressed through NRC policy guidance.

Increased Enforcement Activity and Whistleblower Scrutiny

Even as regulatory reforms aim to accelerate licensing and review timelines, NRC enforcement activity remained robust in 2025. Data from the NRC's Office of Investigations [shows sustained investigative volume and a notable increase in whistleblower-related matters, including a rise in discrimination and retaliation allegations tied to employee protection provisions](#). These trends reinforce the NRC's continued emphasis on safety culture, the integrity of information submitted to the agency, and compliance with regulatory requirements across licensed facilities and the broader nuclear supply chain.

For operators and contractors, increased whistleblower scrutiny highlights the importance of internal reporting mechanisms, employee training, and proactive compliance and employee concerns programs, particularly as investigations increasingly involve allegations of deliberate misconduct, false statements, and procedural noncompliance. As new projects advance and existing facilities pursue uprates or life extensions, enforcement activity is likely to intersect more frequently with licensing and oversight functions, underscoring the need for coordinated legal, regulatory, and operational strategies.

Looking Ahead: Environmental Review, Enforcement, and Nuclear Risk

- **How will NEPA reform reshape environmental reviews in 2026?** As the NRC implements revisions to its NEPA regulations and guidance, applicants will be watching whether narrowed review scopes, increased flexibility in the use of environmental assessments, and clarified review boundaries translate into more predictable timelines without increasing litigation risk.
- **How will enforcement trends evolve as regulatory activity accelerates?** As new projects advance and licensing activity increases, enforcement and whistleblower scrutiny may intensify, particularly where accelerated timelines intersect with safety culture, documentation, and procedural compliance.

Together, developments in environmental review, enforcement, and liability will continue to influence how nuclear risk is assessed, allocated, and managed across the industry.

2026 OUTLOOK: WHAT TO WATCH

As the nuclear sector moves into 2026, the convergence of regulatory reform, rising electricity demand, and renewed federal attention places the industry at a critical juncture. The coming year is likely to test whether the policy signals and structural changes that gained momentum in 2025 can translate into durable progress across licensing, deployment, and investment. For industry participants, the outlook is shaped less by any single development than by how institutional capacity, market demand, and legal risk evolve together.

Future of the NRC and Regulatory Capacity

A central question for 2026 is whether the NRC can sustain recent reform efforts while managing increasing demands on its resources. Application volumes tied to power uprates, license renewals, restarts, advanced reactor designs, and fuel technologies are expected to continue rising, placing pressure on staffing, budgeting, and internal scheduling. The NRC's ability to sequence reviews efficiently and deploy specialized technical expertise will play a significant role in determining whether licensing timelines become more predictable or remain a source of uncertainty.

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Leadership stability will also factor into the durability of recent reforms. With a fully staffed Commission and new leadership priorities taking shape, institutional alignment may support continued modernization. Pursuant to an executive directive, the NRC is undertaking a major reorganization to align staffing to administration priorities. The extent to which reforms are embedded into agency practice—rather than driven by short-term policy direction—will influence their resilience across future administrations. Judicial developments may add another layer of complexity. The US Supreme Court’s decision in *Trump v. Slaughter* has the potential to affect how independent agencies exercise authority, raising questions about governance, discretion, and the boundaries of executive influence that could resonate beyond the NRC.

Advanced Nuclear Deployment and Commercial Readiness

Progress toward commercial deployment of advanced nuclear technologies will remain a focal point in 2026. While multiple reactor designs have advanced through early licensing stages at the NRC and more-recently at the DOE, the coming year may clarify which technologies are positioned to establish viable deployment pathways. Movement from demonstration to commercial licensing—including what could be the first NRC applications for reactor manufacturing licenses since the early 1980s—will depend not only on regulatory progress but also on supply chain readiness, fuel availability, and access to capital.

Cost reduction efforts, fee reforms, and streamlined review processes are intended to improve project financeability, but their effectiveness will be closely scrutinized. Developers and investors will be watching to see whether regulatory certainty translates into tangible reductions in development timelines and carrying costs. The indications to date are promising, such as the NRC meeting its promised 18-month reactor licensing review timeline for new reactor applications. For projects approaching key licensing milestones, the interaction between regulatory reform and financing strategy will be particularly consequential.

Power Demand, Grid Integration, and Infrastructure Constraints

Continued growth in AI- and data-center-driven electricity demand presents both opportunity and challenge for the nuclear sector. If load growth continues to outpace projections, utilities and developers may need to accelerate planning for firm capacity additions. In the near term, power uprates and reactor restarts may emerge as preferred mechanisms for expanding capacity without the delays associated with new construction.

Grid integration and infrastructure constraints will remain central considerations. Transmission availability, interconnection timelines, and regional planning processes may influence where and how nuclear capacity can be added. The extent to which nuclear generation can be integrated alongside renewables and storage solutions will shape broader system planning decisions as utilities respond to sustained demand growth.

Legal, Environmental, and Enforcement Risk Environment

The legal and regulatory risk environment will continue to evolve as streamlined environmental review processes are applied to new projects and license amendments. Courts and stakeholders may test the boundaries of the revised NEPA and broader regulatory framework, particularly where project impacts intersect with community concerns or novel deployment models. How agencies defend streamlined reviews and build administrative records will influence litigation outcomes and precedent.

Enforcement and whistleblower activity may intensify as licensing and construction activity increases. Maintaining compliance and safety culture will remain critical as projects move from planning to execution. For industry participants, managing legal and operational risk in parallel with accelerated development timelines will be an ongoing challenge.

Federal and Market Signals for Long-Term Nuclear Growth

Finally, longer-term nuclear growth will depend on the durability of federal and market support. While recent policy initiatives signal strong federal backing, questions remain about whether that momentum can be sustained across administrations and budget cycles. Market signals—from power procurement decisions to state-level incentives—will influence whether nuclear projects advance beyond planning stages.

Global competition and export policy may also shape the next phase of development. As other countries pursue advanced reactor deployment and nuclear exports, US policy choices around international engagement and domestic supply chains will affect the competitiveness of US technologies. Together, these factors will define the contours of the nuclear industry's trajectory as it enters 2026 and beyond.

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