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REPORT

NUCLEAR ENERGY MID-YEAR REPORT

**NAVIGATING THE CHANGING
NUCLEAR LANDSCAPE IN 2024**



NUCLEAR ENERGY MID-YEAR REPORT: NAVIGATING THE CHANGING NUCLEAR LANDSCAPE IN 2024

The first half of 2024 has been a dynamic period for the nuclear energy industry, marked by significant legislative and regulatory developments, evolving enforcement trends, and a continued focus on innovation and public safety. The [stage was set in January](#) at the biennial joint meeting of the commissioners of the US Nuclear Regulatory Commission (NRC) and Federal Energy Regulatory Commission, during which the agencies discussed the need for increased interagency collaboration to address grid reliability issues, nuclear power's role in providing stable energy amid growing reliance on intermittent resources, and the regulatory and security challenges posed by emerging nuclear technologies.

Internationally, leaders from 34 countries met in Brussels in March 2024 for [the first-ever Nuclear Energy Summit](#) to discuss nuclear power's role in achieving net-zero emissions and promoting sustainable development. The summit—held in the wake of the 2023 United Nations Climate Change Conference, which spurred an increased focus on accelerating the deployment of nuclear energy—culminated in a declaration signed by 32 nations and the International Atomic Energy Agency (IAEA) to support nuclear energy as crucial for reducing greenhouse gas emissions and enhancing energy security and resilience.

As the nuclear industry confronts a complex landscape and heightened public interest, it remains essential for stakeholders to stay up to date on the changes and trends that could impact power plant operations, compliance, and strategy. This mid-year report offers an overview of the sector's latest developments—including regulatory and legislative updates, enforcement actions, the impact of certain US Supreme Court decisions, and technological advancements—and what they mean for the nuclear industry.

Notable Trends in NRC Enforcement and Oversight

An examination of the [NRC's Allegation Program Annual Trends Report and Enforcement Program Report from 2023](#) shows both an increase in allegations brought to the agency and a decrease in escalated enforcement actions. The NRC saw a 15% increase in allegations compared to 2022, reaching levels not seen since 2018. The largest category of allegations for reactor licensees was related to a “chilling effect,” with a 39% increase over 2022, often attributed to management behavior. Wrongdoing, including issues such as falsifying records and providing incomplete information, was the second-largest category. For materials licensees, there was a 40% rise in allegations, primarily concerning exempt distribution products, reflecting heightened scrutiny of online sales.

Conversely, the NRC documented a 13% decrease in escalated enforcement actions from 2022. There was also a notable increase in notices of violations issued *without* civil penalties, reaching 65%, an indication of effective self-correction by licensees. Total civil penalties for the year amounted to \$297,750, significantly lower than the five-year average, with no penalties imposed on reactor licensees. Of the 11 enforcement actions brought by the NRC, two involved “willfulness,” (e.g., deliberate misconduct or careless disregard). The NRC is particularly concerned with the identification of willful violations and may view the willful aspect to be more egregious than the underlying violation.

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The NRC has also proposed updates to its Enforcement Policy, the outward-facing document that contains the basic framework the NRC uses to consider potential enforcement actions. NRC staff is currently seeking Commission approval for several proposed revisions, including:

- A new “Potential Safety Consequences” definition
- Modification of Section 2.2.4 emphasizing that related violations may result in dual penalties
- Clarification of the timing for assessing civil penalties
- Description of the circumstances under which violations involving licensee officials impeding or influencing specific regulatory actions rise to severity level III or IV
- A requirement to consult the Office of Enforcement for all cases involving lost or missing regulated materials, with the potential for increased civil penalties
- Clarification of when the NRC should grant self-identifying credits to licensees

Looking internally, the [NRC’s latest Reactor Oversight Process \(ROP\) self-assessment](#) revealed that the majority of performance metrics were met, with 15 out of 17 metrics achieving “green” status, indicating satisfactory performance. However, two metrics, concerning resident inspector staffing levels and the timeliness of final significance determinations for greater-than-green findings, were marked as “yellow,” signaling areas for improvement. On the latter point, the NRC noted this metric has been yellow since 2020 and recommended [several actions to improve performance](#). The report also highlighted challenges in maintaining adequate staffing levels and delays in resolving inspection findings, in part due to external factors like licensee delays and complex technical reviews.

This self-assessment indicates a generally positive regulatory environment, but the “yellow” findings highlight areas in which companies may see increased scrutiny or delay. When combined with the trends noted in the NRC’s Allegations and Enforcement Reports and proposed updates to its Enforcement Policy, these findings underscore the need for nuclear energy companies to maintain strong compliance frameworks, enhance transparency and communication with the NRC, and foster a proactive safety culture.

Statutory Developments

Extension of Price-Anderson Nuclear Liability Framework

In April 2024, US Congress [passed a significant extension to the Price-Anderson Act](#) (PAA), ensuring its provisions continue to protect and support the nuclear power industry until December 31, 2065. Originally established in 1957 and periodically updated, the PAA’s latest amendment not only extends the expiration date by 40 years but also expands the liability coverage for US Department of Energy (DOE) contractors from \$500 million to \$2 billion for nuclear incidents occurring outside the United States. Additionally, the definition of a “nuclear incident” has been simplified by removing the requirements concerning the underlying nuclear material.

The PAA sets a dual-layered framework for financial protection, involving a primary layer of site-specific insurance and a secondary layer of pooled funds from reactor licensees. This framework for commercial nuclear reactors, administered by the NRC, covers various nuclear-related activities including the transportation, storage, and operation of nuclear materials and fuel. This extension underscores Congress’s ongoing commitment to the stability and expansion of nuclear energy within a secure regulatory environment.

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Nuclear Fuel Developments and Concerns

In May 2024, [Congress passed the Prohibiting Russian Uranium Imports Act](#) (HR 1042), effectively banning the import of Russian uranium products from August 12, 2024. This act, part of broader efforts to diminish economic ties with Russia amidst geopolitical tensions, permits the secretary of energy to waive the ban under specific conditions through 2028, ensuring some flexibility in maintaining US nuclear operations. Although the immediate impact on the US nuclear industry—currently reliant on Russian uranium for more than 20% of its enriched uranium needs—is anticipated to be minimal due to preemptive diversification of uranium sources, the long-term implications could lead to a rebuilding of domestic uranium mining, conversion, and enrichment capabilities.

Finally, in June 2024, Congress passed the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (the ADVANCE Act). The ADVANCE Act addressed international nuclear cooperation, including directing DOE to evaluate changes to its nuclear technology export regulations in 10 CFR Part 810.

It also contained provisions to help advanced reactors, including (1) zero or lower fees for NRC reviews of certain early site permit and reactor construction applications, respectively; (2) authorizing DOE to issue prizes to companies submitting first-of-a-kind advanced nuclear reactor applications to the NRC, and (3) expedited procedures for the NRC to issue certain kinds of licenses. Finally, it contains some generic provisions to make the NRC's review of advanced reactors more efficient, including loosening the limits currently in the Atomic Energy Act on foreign ownership of nuclear reactors.

Regulatory and Rulemaking Developments

'Creditworthiness' and Dodd-Frank Compliance

In order to comply with the Dodd-Frank Act of 2010, which requires each federal agency to shift from relying on credit ratings to a more flexible and potentially more inclusive criterion of "creditworthiness," the NRC submitted a draft final rule to the Commission for approval in February 2024. The new rule would revise NRC regulations that address parent-company guarantees and self-guarantees, as only these financial assurance mechanisms require sufficient credit ratings to satisfy certain decommissioning requirements.

For parent-company guarantees, the new proposal retains the existing tests for net worth and asset location but replaces the requirement for sufficient bond ratings with a test for general creditworthiness. Additionally, similar updates were proposed for self-guarantees by commercial companies, where current regulations also focus on tangible net worth and asset location, with the proposed changes maintaining these requirements but again substituting bond ratings with a creditworthiness test.

These regulatory adjustments reflect a shift in how the NRC would evaluate the financial stability and assurance capabilities of companies in the nuclear industry, with the goal of ensuring entities are adequately capable of covering decommissioning costs without strictly relying on traditional credit rating systems.

Part 53 Rulemaking

In March 2024, the NRC directed its staff to develop a proposed rule and accompanying guidance aimed at establishing a new, risk-informed, performance-based, and technology-inclusive licensing process for commercial nuclear power plants. The initiative marks the first regulatory framework designed to accommodate advanced technologies, including non-light water reactors, moving beyond the traditional licensing approaches under Parts 50 and 52 of the NRC regulations.

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The forthcoming Part 53 introduces a range of criteria in areas including reactor siting requirements; analyzing potential accidents; defining safety functions; categorizing structures, systems, and components; addressing construction and manufacturing requirements; providing defense in depth; and protecting the public and plant workers during normal operations. It also modifies agency regulations for operator licensing, employee fitness-for-duty, physical security, and site access authorization.

However, it should be noted that the Commission only partially approved the draft proposed rule, specifically Framework A, with certain exceptions and clarifications pending, while entirely disapproving Framework B and calling for the development of an options paper to explore its future application. Additionally, the Commission rejected the codification of quantitative health objectives, the application of probabilistic risk assessment (PRA) standards as strict requirements, the inclusion of “as low as reasonably achievable” (ALARA)-related design requirements, and proposed requirements for the facility safety program in Part 53. These decisions show the Commission’s move towards more flexible and adaptable regulatory processes to support innovative nuclear technologies.

Adjustments to Annual Fees and Fee Schedules

In February 2024, the NRC issued a proposed rule to amend the licensing, inspection, special project, and annual fees charged to applicants and licensees. The proposed amendments are necessary under the Nuclear Energy Innovation and Modernization Act to ensure the NRC recovers approximately its full annual budget, except funds for specific excluded activities. Key aspects of the proposal include a slight reduction in annual fees for operating power reactors, lowering it by \$4,000 to \$5.488 million, despite an overall increase in the number of reactors, and an approximate 26% increase in the annual fee for spent fuel storage/reactor decommissioning, setting it at \$330,000 per reactor.

The NRC also proposed a 7% increase in its hourly professional rate, raising it to \$321, and moving to streamline payment methods in line with the Treasury’s electronic-only payment policy. These amendments aim to enhance the efficiency of fee collections and reduce associated costs. The NRC closed the window for public comments on this proposed rule on March 21 and intends to finalize it in time to collect fees for the fiscal year 2024 by September 30.

DOE Increases Civil Monetary Penalties

In addition to the NRC increasing its hourly professional rate, the DOE issued a final rule increasing the civil monetary penalties (CMPs) for unintentional violations of 10 CFR Part 810, which regulates the export of unclassified nuclear technology and assistance. This adjustment, effective from January 9, 2024, raised the maximum CMP from \$120,816 to \$124,732 per violation per day, in compliance with the Federal Civil Penalties Inflation Adjustment Act mandates.

Legal and Policy Considerations

Impact of Loper Bright on NRC

While the Supreme Court’s *Loper Bright* decision caused a sea change in administrative law generally by overturning the longstanding Chevron doctrine, it [may have less of an impact on the NRC](#) than on other federal agencies. Historically, Chevron deference allowed courts to defer to federal agencies’ interpretations of ambiguous statutory provisions when they were reasonable. However, the NRC has often been granted broad deference independently of *Chevron* due to its unique mandate under the Atomic Energy Act of 1954 (AEA). This act gives the NRC extensive discretionary power to regulate nuclear safety, a power that was affirmed even before the *Chevron* decision.

The NRC’s regulatory framework under the AEA allows it to enact necessary rules to promote national defense, public health, and safety, without stringent guidelines from Congress on how to achieve these

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objectives. Courts have historically recognized this broad authority, granting what is termed “heightened deference” to NRC decisions.

The *Loper Bright* ruling reaffirmed that agencies may continue to exercise discretion when statutory terms grant it, which supports the NRC’s longstanding regulatory practices. The decision suggests that the NRC’s approach of closely tying its regulatory actions and decisions to its AEA-mandated authority, and providing clear justifications for them, likely insulates it from significant shifts in judicial review practices post-*Chevron*.

Murray v. UBS and Implications for Whistleblower Laws and Practices in the Nuclear Industry

The Supreme Court’s [February 2024 decision in the case of *Murray v. UBS Securities LLC*](#) marked a significant development in whistleblower protection under the Sarbanes-Oxley Act (SOX). In *Murray*, the Court held that whistleblowers need not prove retaliatory intent to establish a claim of unlawful retaliation by their employers. This decision aligns with the existing precedent under the Energy Reorganization Act (ERA) Section 211 as handled by the US Department of Labor (DOL), which also does not require whistleblowers to demonstrate retaliatory intent.

The case arose when Trevor Murray was dismissed from UBS after reporting allegedly manipulative behaviors concerning US Securities and Exchange Commission-required reports. His complaint, initially handled by the DOL and subsequently moved to federal court, led to the Supreme Court ruling, which emphasized the burden-shifting framework of SOX, similar to that under the ERA. This framework does not require proving an employer’s retaliatory intent, but rather focuses on whether the protected activity contributed to the adverse employment action.

The ruling is particularly relevant for agencies like the NRC, which are directed to consider DOL’s interpretations of the ERA in applying their anti-retaliation provisions. Following this decision, the NRC may need to evaluate whether additional evidence of managerial animus is necessary under its regulations. Overall, the Supreme Court’s decision reinforces the protective measures for whistleblowers, ensuring that the challenge of proving retaliatory intent does not hinder their ability to contest unfair practices. For employers in the nuclear industry, the decision not only provides a reminder of the risks posed by ERA whistleblower claims, but also presents an opportunity to review internal practices and [take practical steps to mitigate potential exposure](#) under the ERA.

New Facilities

Changes to the Mandatory Hearing Process for New Nuclear Facilities

The NRC recently reevaluated the mandatory hearing process required under the AEA for various nuclear facility licenses, including construction permits, early site permits, combined licenses, and uranium enrichment facilities. Historically, these hearings have been viewed by both the industry and some Commissioners as inefficient and overly procedural, consisting of evidentiary-style sessions with both written and oral components. Following growing dissatisfaction with the process, the NRC’s Office of General Counsel explored alternatives to streamline these proceedings, resulting in a proposal for five options, ranging from eliminating oral hearings altogether to delegating proceedings to the Atomic Safety and Licensing Board Panel or the executive director for operations.

In a significant policy shift, the NRC decided on July 18, 2024, to adopt a modified version of the general counsel’s “Option 1.” This decision eliminates the oral component of the hearings and reduces the total hearing duration to approximately eight weeks. This new written-only format will be applicable to all the required licenses, except for uranium enrichment facilities. For those enrichment facilities, the process will follow a streamlined formal adjudication under the Administrative Procedure Act.

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Outlook for the Remainder of 2024

We expect continued bipartisan support for nuclear energy in Congress the latter half of 2024. The NRC also will be making progress in its review and approval of advanced reactor applications under the existing licensing regulations in 10 CFR Part 50 and 52 (without waiting for the new Part 53 to be implemented), including those submitted by Kairos Power (a test reactor), Abilene Christian University (a research reactor), and TerraPower LLC (a commercial sodium-cooled reactor). The economic need for more electricity across the country—for data centers, artificial intelligence, and manufacturing—will encourage uprates to existing commercial nuclear power plants and will encourage recently shuttered nuclear power plants to consider restarting.

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