

Implications for NRC Comprehensive Risk Standards in Part 53 Post Loper Bright Decision

By Adam Stein and Kyle Danish

Introduction and Summary

At the direction of Congress, the Nuclear Regulatory Commission (NRC) has proposed a rule for public comment (10 CFR Part 53) that would establish new licensing and regulatory standards for nuclear power plants. However, in its current form, the proposal does not comply with the NRC's statutory directives. Instead of following its mandate to set risk standards for nuclear plants that "provide reasonable assurance of adequate protection to public health and safety," the NRC has doubled down on an approach that is both arbitrary and excessively conservative. The NRC may be under the impression that it can continue to rely on a deferential judiciary to support its work. However, in a post-Chevron world, courts will not simply defer to an agency's judgments on questions of statutory interpretation. The courts will do their own work. To evaluate what Congress intended for reactor risk standards, a reviewing court will take note of the numerical cancer risk standard that Congress codified in the Clean Air Act—and which Congress made clear should be the benchmark that applies to nuclear power plants. The reviewing court will also give weight to the unmistakable message that Congress has sent through recent legislation that the licensing framework for reactors should be risk-informed and should enable the public to obtain the benefits of safe nuclear power. To ensure legal durability in a post-Chevron world, the NRC should revisit its proposal to ensure that it has established a metric for protection of health and safety that is consistent with the long-established standard codified by Congress.

The NRC's Proposed Part 53 Rule

In recent years, Congress has passed new laws that are significantly prescriptive about how the NRC should implement its role as the nation's nuclear regulator. With overwhelming, bipartisan majority votes, Congress sent an unmistakable message in the 2019 “Nuclear Energy Innovation and Modernization Act” (NEIMA)¹ and the 2024 “Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act” (ADVANCE Act)² that it expects the NRC to overhaul its licensing framework—and that it should be establishing a significantly more risk-informed and efficient licensing and regulatory environment for nuclear reactors. The NRC has commenced that process in its current Part 53 rulemaking.³ In the ADVANCE Act, Congress went as far as mandating that the NRC revise its mission statement to ensure that it “does not unnecessarily limit (1) the civilian use of radioactive materials and deployment of nuclear energy; or (2) the benefits of civilian use of radioactive materials and nuclear energy technology to society.”⁴ The NRC responded to that mandate in January 2025.⁵

Long-standing laws require the NRC to limit the risks from reactor operations to the public, including the risks from emissions of radionuclides, which are a known carcinogen at certain levels. The foundational Congressional directive to the NRC on risk regulation is stated in Section 182 of the Atomic Energy Act (AEA):

In connection with applications for licenses to operate production or utilization facilities, the applicant shall state such . . . information as the Commission may, by rule or regulation, deem necessary in order to enable

¹ P. L. No. 115-439 (Jan. 14., 2019) (the NEIMA).

² P. L. No. 118-67 (July 9, 2024) (the ADVANCE Act).

³ NRC, Risk-Informed, Technology-Inclusive Framework for Advanced Reactors, 89 Fed. Reg. 86,918 (Oct. 31, 2024) (Part 53 Proposed Rule). Part 53 refers to the section of the Code of Federal Regulation in which the new rule would be codified.

⁴ ADVANCE Act, Sec. 501.

⁵ NRC, NRC Approves Updated Mission Statement (Jan. 24, 2025), available at <https://www.nrc.gov/cdn/doc-collection-news/2025/25-005.pdf>.

it to find that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public.⁶

Under this structure, the objective is “adequate protection to the health and safety of the public.” The statute then affords the NRC a degree of discretion in determining what “information” the Commission needs from applicants to determine whether a proposed reactor will meet this objective. Inherent in this ends-means structure is the initial establishment of a consistent metric for “adequate protection” even if the “information” needed to make an “adequate protection” finding may vary for different plants in different settings.

However, the NRC has not implemented its authority this way. Historically, the NRC has expressly avoided establishing a regulatory definition of “adequate protection.” Instead, the NRC has prescribed a host of performance requirements, design objectives, and other criteria. Then, the NRC has declared that compliance with this assemblage of requirements provides reasonable assurances of “adequate protection.”

In its Part 53 rulemaking, the NRC proposes to continue this approach:

Consistent with historical practice, Sections 182 and 161 of the Act are cited as authorizing legislation within the proposed rule. However, specific language from the Act would not be incorporated into the safety objectives or safety criteria in part 53. This is because, again consistent with historical practice, the NRC would not be defining “adequate protection” through the individual safety requirements in part 53. Rather, part 53 would enable the NRC to make its required findings under the Act by providing sufficient performance standards, safety criteria, and related requirements on how

⁶ Atomic Energy Act of 1954, as Amended Through P.L. 118–67, Enacted July 9, 2024 (Atomic Energy Act), Sec. 182.

applicants must demonstrate compliance with Subpart B and other subparts.⁷

There are several problems with this approach. First, it is arbitrary and capricious.⁸ The NRC insists that its job is to ensure that each applicant provides “reasonable assurance” of “adequate protection.” Yet, the NRC reasons it need not define the “adequate protection” end-point for these assurances. In particular, in the case of cancer risk from radionuclides, the NRC has failed to specify a numerical exposure level that all applicants must meet, even though measuring radiation is necessarily a numerical exercise. As a result, it is impossible to identify the standard of “adequate protection” that applies to all applicants and impossible to evaluate whether the “assurance” demanded from any particular applicant is “reasonable.” That is not a valid approach under administrative law. In a case-by-case review regime, an agency may require different applicants to take different *actions* based on each applicant’s unique circumstances—e.g., the type of assurance required for a new AP1000 reactor is likely different from that required for a new microreactor—but an agency may not hold similarly situated applicants to different *standards*.

Absent a cognizable standard for “adequate protection,” the level of protection imposed by the NRC’s suite of requirements could be well less or far more than what is adequate. The NRC’s implicit answer to this question is: “trust us.” Yet, without a discernable stopping point for what constitutes “adequate protection,” the NRC can—and typically does—ask for endless mitigation and assurances from applicants. For example, the NRC proposes to continue under Part 53 a requirement that applicants keep radionuclide doses to the public “as low as reasonably achievable” (the so-called ALARA requirement). The proposed rule points to an ALARA “goal” of keeping doses to the public from routine plant effluents below 10 millirem per year, but the NRC cautions that this metric “should

⁷ Part 53 Proposed Rule at p. 86,925.

⁸ 5 U.S.C. Sec. 706(2)(A) (requiring a court reviewing an agency action to hold the action unlawful if it is arbitrary and capricious).

not be construed as a radiation protection standard.”⁹ Radiation protection standards are in Part 20 and other regulations, and ALARA requires the licensee to identify further protections with a goal of at least an order of magnitude reduction or until cost prohibitive. In other words, there is no defined floor to what the NRC can request of an applicant. If the Commission determines more protection from a particular applicant is “achievable,” it considers itself authorized to demand it, whether or not the added protection achieves significant public health benefits. “Achievable” reductions are not the same as what may be “necessary” to achieve adequate protection. As a result, every application is its own, standard-less adventure. Under the NRC’s interpretation of the statute, its discretion is unbounded. However, in general, reviewing courts must be able to ascertain the agency’s rationale so as to evaluate whether the agency’s action can be shown to be understandable, adequately explained, and rational.¹⁰

Congress’ Unambiguous Statement about Preferred Metrics for Limiting Cancer Risk from Operation of Nuclear Reactors.

The other flaw in the NRC’s interpretation is that it implies that Congress had no intention for what constitutes “adequate protection to the health and safety of the public” in the context of radionuclide emissions—leaving the Commission to fill that void with its collection of criteria, guidance, and generalized objectives. However, this is

⁹ Part 53 Proposed Rule at p. 87.052 (proposed sec. 53.425).

¹⁰ *Motor Vehicle Mfrs. Ass’n v. State Farm Auto. Ins. Co.*, 463 U.S. 29, 43 (1984) (“Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. The reviewing court should not attempt itself to make up for such deficiencies; we may not supply a reasoned basis for the agency’s action that the agency itself has not given. *SEC v. Chenery Corp.*, [332 U.S. 194](#), [332 U.S. 196](#) (1947).”); see also *Airmark Corp. v. FAA*, 758 F.2d 685, 691 (D.C. Cir. 1985) (“Deference to agency authority or expertise . . . is not a license to treat like cases differently”) (quoting *U.S. v. Diapulse Corp. of America*, 748 F.2d 56, 59 (9th Cir. 1984)).

inaccurate. Congress has spoken directly to this question, albeit in another law: the Clean Air Act.¹¹

In Section 112 of the Clean Air Act, Congress gave the EPA and the NRC overlapping authority to set cancer risk limits for nuclear reactors.¹² Congress vested this authority in the EPA as part of EPA's Clean Air Act Section 112 authorities to set risk standards for carcinogenic and other hazardous air pollutants from industrial facilities—a category that includes nuclear reactors.

In the original, 1970s version of Section 112, Congress directed the EPA to limit carcinogenic pollutants to levels that would ensure “an ample margin of safety to protect public health”—a narrative mandate that is noticeably similar to the NRC’s “adequate protection” narrative mandate. If anything, the requirement for an “ample margin” suggests a safety metric even more restrictive and conservative than “adequate protection.”

As we explained in an article published last year in the *Environmental Law Reporter*, Congress then took important steps to set the boundaries of this “ample margin of safety” mandate as part of its amendments to the Clean Air Act in 1990.¹³ Prior to 1990, the EPA had promulgated Section 112 hazardous air pollutant standards for several types of regulated facilities. In the process, the EPA formulated a methodology with quantitative metrics for maximum lifetime cancer risk, which the EPA applied to all of the regulated facilities.

The EPA “residual risk” methodology generally provides that the “ample margin of safety” standard is met using a two-step process.¹⁴ First, determining “acceptable risk” includes a

¹¹ 42 U.S.C. §§ 7401 *et seq.*

¹² *Id.* § 7412.

¹³ K. Danish, A. Stein, and P. Libus, “Will Risk Aversion at the NRC Avert the Energy Transition?”, 54 *Env'tl. L. Rep.* 10,241 (Mar. 2024), available at <https://www.vnf.com/webfiles/WillRiskAversionAtTheNRCAvertTheEnergyTransition.pdf>.

¹⁴ *Id.* 10,249.

presumptive limit on the maximum individual lifetime cancer risk (MIR) for as many people as possible, which is no greater than one in one million.¹⁵ Second, the methodology allows no person to face an MIR greater than 100 in one million. The second metric addresses what is sometimes called the “Maximum Exposed Individual” (MEI).¹⁶ It constrains the lifetime risk of contracting cancer that a person living near a regulated source of carcinogenic emissions—typically within 50 kilometers—would have if the individual were exposed to the maximum pollutant concentrations 24 hours per day for 70 years.¹⁷

In its 1990 amendments to the Clean Air Act, Congress explicitly codified this quantitative methodology as a valid interpretation of “ample margin of safety.”¹⁸ In other words, Congress adopted specific numerical metrics for what is an “ample margin of safety” for cancer risk. Notably, Congress did not require or authorize different levels of cancer deaths from different types of facilities. Rather, as drafted, this quantified “ample margin of safety” standard applies to all facilities subject to Section 112—expressly including nuclear reactors.¹⁹

In the same set of amendments, Congress addressed the overlapping EPA-NRC regulatory authority over carcinogenic emissions from nuclear reactors. Congress allowed the EPA to cede regulation to the NRC—but only if the EPA determines that the NRC’s regulations meet the “ample margin of safety” standard.²⁰

Accordingly, through the 1990 amendments, Congress established that its now-quantified “ample margin of safety” metric would be the yardstick for measuring the health-protectiveness of the NRC’s regulations.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Clean Air Act Section 112(f)(2)(B).

¹⁹ *Id.* Section 112(d)(9).

²⁰ *D.*

In the mid-1990s, the EPA undertook this comparative analysis.²¹ The methodology that the EPA used for this analysis is worth noting. The agency converted its Congressionally codified cancer risk metric into an annual maximum radiation dose level, which it calculated to be ten millirems per year. The EPA then found that the maximum permissible dose from an NRC-regulated nuclear reactor during routine operations was one millirem per year—at least an order of magnitude below the ten millirem maximum that provides an “ample margin of safety.”²²

In other words, Congress has spoken clearly about what it considers to be the appropriate metric for health protection from nuclear power plants. Yet, the NRC has proposed to continue to regulate at a level far more stringent than what Congress intended. The NRC’s approach is not only arbitrary and capricious; it also is inconsistent with its statutory authority and Congressional intent.

Loper Bright and the End of Deferential Judicial Review

Given these flaws, the legal durability of not only the proposed part 53 rule but even the NRC’s longer-standing regulations is in question. Yet, the NRC may be under the impression that it can continue to rely on what has historically been a deferential standard of review from the federal judiciary. This would be a mistake.

In June of 2024, the U.S. Supreme Court issued a series of decisions that will have far-reaching impacts on judicial review of actions by administrative agencies. The headliner of these decisions was *Loper Bright*²³, which overruled the Court’s 1984 decision in *Chevron*²⁴. The latter case had established what has been known as the “*Chevron* doctrine.”

²¹ National Emission Standards for Radionuclide Emissions From Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities Not Covered by Subpart H, 60 Fed. Reg. 46206 (Sept. 5, 1995).

²² *Id.* at 46208

²³ *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369 (2024) (*Loper Bright*).

²⁴ *Chevron U.S.A. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984) (*Chevron*).

To understand the impact of *Loper Bright*, it is important to understand what it overturned. The now-defunct *Chevron* doctrine, presumed that if Congress did not directly address the precise question at issue in an agency's governing statute, the question for the reviewing court is whether the agency's rule-based interpretation is based on a permissible reading of the governing statute. Therefore, under *Chevron*, if a statute is "silent or ambiguous" on a particular matter, a reviewing court should uphold an agency's interpretation so long that it is a "reasonable interpretation" of the underlying law.²⁵

In *Loper Bright*, the Supreme Court rejected this highly deferential approach. Importantly, the decision emphasizes that it is the *duty of the courts* to exercise their independent judgment in deciding whether an agency has acted within its statutory authority. *Loper Bright* holds that even when a "statute [is] ambiguous, there is a best reading all the same," and the reviewing court is required to adopt the one that "after applying all relevant interpretive tools, [the court] concludes is best."²⁶

To be clear, *Loper Bright* acknowledges that courts should consider the expertise of the relevant agency. However, that guidance should be weighted based solely on its "power to persuade"; the agency guidance is not controlling.²⁷

The *Loper Bright* majority also recognized some instances in which the meaning of the statute is that Congress intended to delegate "a degree" of discretion to the implementing agency.²⁸ The decision cites the example of the Atomic Energy Act requirement that the owner of a nuclear facility notify the NRC when the facility "contains a defect which could create a substantial safety hazard, as defined by regulations which the [NRC] shall promulgate."²⁹ [emphasis added] As noted above, Section 182 includes an element of this

²⁵ *Id.* at 844.

²⁶ *Loper Bright*, at slip op. at 23.

²⁷ *Id.* at 25 (quotation omitted).

²⁸ *Id.* at 17.

²⁹ *Id.* at 17 fn. 5 (emphasis in the original).

kind of delegation. It allows the NRC to define the “information” that the Commission “may . . . deem necessary” for its safety review. However, Section 182 does *not* include language delegating to the NRC the underlying determination of what constitutes “adequate protection” for nuclear plants. Again, Section 182 distinguishes ends from means. Congress acknowledged the expertise of the NRC in identifying the specific information needed for a safety determination; however, it did not expressly delegate to the NRC a determination of how safe nuclear power should be.

Even in explicit or implicit delegation situations, however, *Loper Bright* makes clear that the reviewing court may not simply defer to any “reasonable” interpretation of the agency. Rather, the court must independently interpret the statute and “effectuate the will of Congress”³⁰; the court must “fix the boundaries” of the delegation.³¹

The last qualification is particularly important as the NRC (and its predecessor agency, the Atomic Energy Commission) has enjoyed a long history of wide deference from the courts, including pre-*Chevron*.³² Some observers believe these decisions generally insulate the NRC’s interpretations of its governing statutes (the AEA) from the impacts of *Loper Bright*. Moreover, the NRC itself appears to believe it may be insulated from the impacts of *Loper Bright*.³³

However, this view disregards the plain instructions from the *Loper Bright* decision directing reviewing courts that they may no longer simply defer to any “reasonable” interpretation of an agency and must instead independently interpret the statute and

³⁰ *Id.* at 18.

³¹ *Id.*

³² See, e.g., *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, (“*BG&E v. NRDC*”) (noting that “a reviewing court must remember that the Commission is making predictions, within its area of special expertise, at the frontiers of science. When examining this kind of scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.”) ; *Power Reactor Dev. Corp. v. Int’l Union of Electrical, Radio and Machine Workers, AFL-CIO*, 367 U.S. 396 (1961),

³³ Letter to the Honorable Eric S. Schmitt, et al., from NRC Chair Hanson, responding to letter regarding the Supreme Court decision in *Loper Bright Enterprises v. Raimondo* (dated Sept. 26, 2024).

“effectuate the will of Congress.” The presumption that other, non-*Chevron* cases (especially ones articulating similar standards of review) will enable courts to circumvent the impacts of the *Loper Bright* decision fails to recognize not only the broad reach of the decision, but also the new mandates from Congress after those earlier decisions. These changes include the 1990 Clean Air Act amendments, which established a clear Congressional benchmark for radionuclide emissions from nuclear plants. It also includes the recent Congressional laws that include detailed mandates for the NRC on a host of matters. As noted above, the NEIMA explicitly directs the NRC to establish a new “technology-inclusive, regulatory framework” for licensing commercial advanced nuclear reactors. The NEIMA also specifically requires the NRC to account for the relative safety advances of such reactors in its licensing framework; it directs the Commission to report to Congress on “the unique aspects of commercial advanced nuclear reactor licensing, including the use of alternative coolants, operation at or near atmospheric pressure, and the use of passive safety strategies.” In short, in the NEIMA, Congress made clear its view that advanced reactors were a new, safer type of reactor, deserving of their own licensing framework with appropriately tailored standards.

The ADVANCE Act goes even further. It doubles down on mandates to the NRC to make licensing for *all* reactors more timely, predictable, and efficient. In addition, as noted above, the ADVANCE Act commanded the NRC to change its mission to ensure that it is not unnecessarily depriving the public of the benefits of nuclear energy technology—a mandate in the AEA that the agency has not fulfilled.³⁴

These Congressional directives, combined with the evolution of case law over the years—especially the recent decisions coming down from the Supreme Court—mean that the NRC is no longer subject to such extremely deferential judicial review, especially when it comes to interpreting Congressional intent. It is far less likely that a reviewing court will place substantial weight on the NRC’s body of past experience or judgments with respect

³⁴ Adam Stein, Considering Nuclear Energy’s Benefit to Society, The Breakthrough Institute (Nov. 26, 2024), available at <https://thebreakthrough.org/issues/energy/considering-nuclear-energys-benefit-to-society>.

to its licensing framework. In the wake of the *Loper Bright* decision and the recent enactment of the NEIMA and the ADVANCE Act, reviewing courts will no longer simply accede to the Commission's judgments about what Congress has told it to do.

For these reasons, any court reviewing the NRC's interpretation of "adequate protection of public health and safety" will not simply interpret the silence in the AEA as a delegation to the NRC to come up with its own approach. Rather, the court will engage in a search for any statement by Congress about what it intends to be the yardstick for protection of public health from radionuclide emissions from nuclear plants. That searching look necessarily will lead to the 1990 Clean Air Act amendments and the numerical "ample margin of safety" standard codified by Congress and established as the benchmark for nuclear plants. The court will also take into account the recent directives in the NEIMA and the ADVANCE Act.

Implications for the Proposed Part 53 Licensing Framework

What does this demonstrated Congressional intent mean for the NRC's promulgation of a cumulative risk-informed standard in the Part 53 rulemaking? One way to visualize this issue is to examine its implications for the Licensing Modernization Project (LMP).³⁵ The LMP was an industry initiative to formulate a risk-informed standard that the NRC could use for licensing advanced reactors, which the NRC endorsed.³⁶ The industry proponents derived the standard from the Commission's prior risk determinations for light-water

³⁵ Nuclear Energy Institute, Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Based Development (Report Revision 1) (August 2019), available at <https://www.nrc.gov/docs/ML1924/ML19241A472.pdf>.

³⁶ NRC, Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for License, Certifications, and Approvals for Non-Light-Water Reactors, Regulatory Guide 1.233, Revision 0 (June 2000), available at <https://www.nrc.gov/docs/ML2009/ML20091L698.pdf>.

reactors.³⁷ In its March 2023 draft of Part 53, the NRC staff proposed to adopt 'Framework A' based on the LMP and to codify the QHOs as the cumulative risk standard. In the draft, the staff again avoided using the cumulative risk metrics (i.e., the QHOs) to define "adequate protection" and reiterated that the NRC can "make its required findings under the AEA" by "providing sufficient performance standards, safety criteria, and related requirements on how applicants must demonstrate compliance."³⁸ In short, the NRC requires further regulation beyond the cumulative risk metrics.

As noted above, the Commission voted to avoid codification of the QHOs in Part 53. Instead, the staff was directed to "specify that applicants must propose a comprehensive plant risk metric (or set of metrics)" and associated methods for calculating the metrics.³⁹ The Commission defined the term "cumulative" or "comprehensive" to mean "that the risk metric(s) should approximate the total overall risk from the facility (i.e., all modes, all hazards) to the extent practicable." The proposed rule indicates that the individual cancer risks in the NRC Safety Goals and the QHOs would be acceptable to meet this requirement.⁴⁰ Yet, despite encompassing overall risk, the Commission emphasized that "approval of the metric or set of metrics is not, by itself, an indicator of adequate protection"—a position that is more conservative still (i.e., requires still lower risk).

The LMP methodology, endorsed by the NRC as an acceptable approach for Part 53, includes consideration of "risk significant" events below the limit. These events are considered to account for uncertainty and edge effects. However, the EPA MIR standard is clear that both the acceptable risk and ample margin of safety values are inclusive of

³⁷ Idaho National Laboratory, Modernization of Technical Requirements for Licensing of Advanced Non-Light Water Reactors: Selection and Evaluation of Licensing Basis Events (March 2020), available at https://inldigitallibrary.inl.gov/sites/sti/sti/Sort_27107.pdf.

³⁸ SECY-23-0021: Proposed Rule: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (March 2023), available at <https://www.nrc.gov/reactors/new-reactors/advanced/modernizing/rulemaking/part-53.html>.

³⁹ Memorandum to Raymond Furstenau, Acting Executive Director for Operations, from Carrie M. Safford, Secretary, SECY-23-0021, available at <https://www.nrc.gov/docs/ML2406/ML24064A039.pdf>.

⁴⁰ Part 53 Proposed Rule at p.87926

uncertainty, not requiring further margin below those levels. The graph below depicts the LMP standard alongside the EPA's ample margin of safety metrics at different frequencies and doses.

Comparison of NRC-endorsed risk metrics with the Clean Air Act

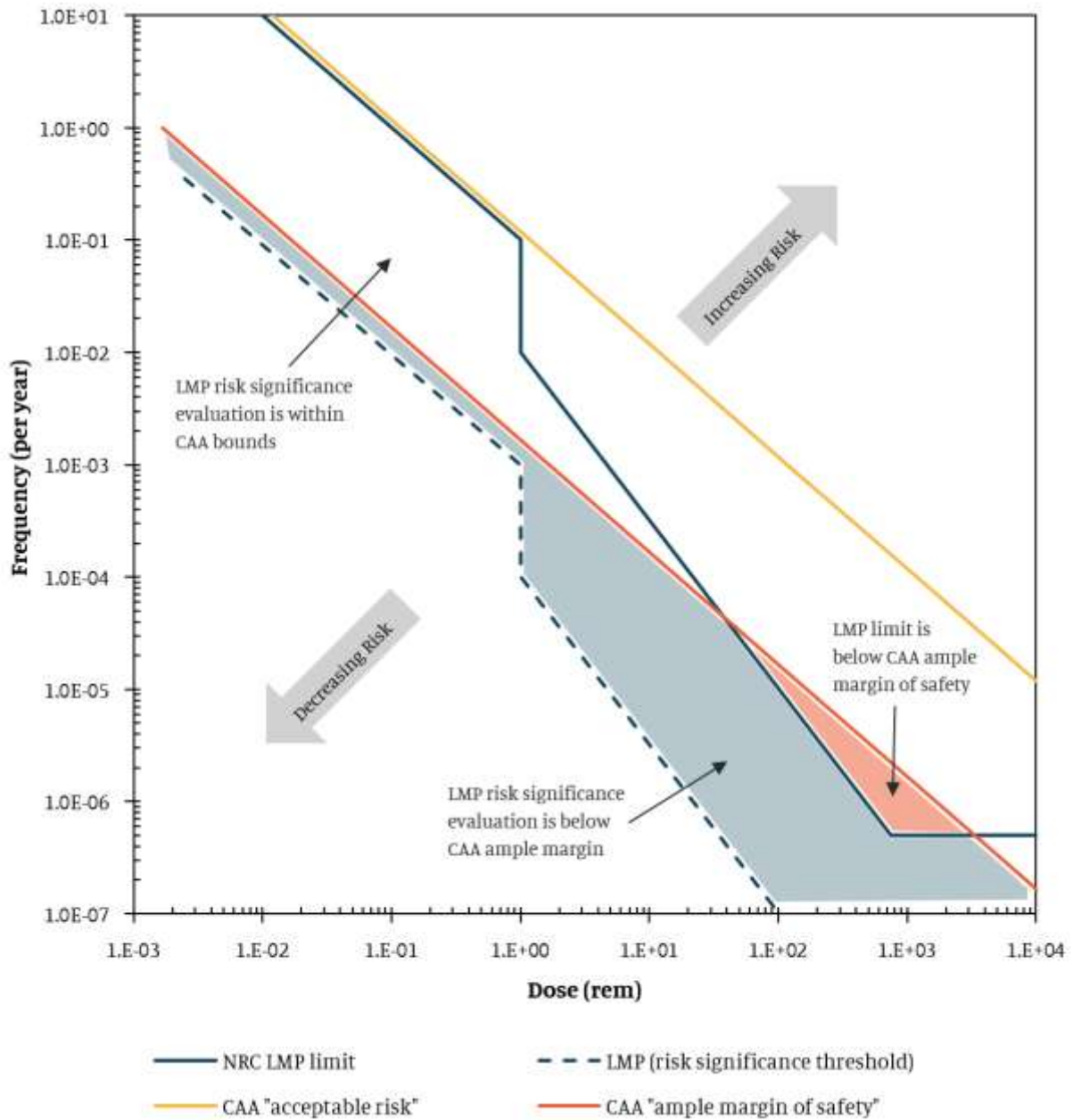


Figure 1: Comparison of [NRC-endorsed risk thresholds](#) for licensing and acceptable risk metrics defined in the Clean Air Act. The NRC-endorsed risk limit never exceeds the CAA maximum limit. The NRC risk limit and region that is considered “risk significant” is more conservative (lower risk) than the CAA minimum “ample margin of safety” in some areas. The CAA relative dose values are calculated using the [ISCORS conversion factors](#).

The graph makes clear that the LMP more or less tracks the “ample margin” standard codified by Congress in its 1990 amendments to the Clean Air Act, falling below the EPA’s “acceptable risk” standard and at or above the EPA’s “ample margin of safety” standard for standard operations and accidents. For very low frequency, high dose events, however, the LMP cumulative dose standard is far stricter than the “ample margin of safety” metric; it is an order of magnitude or greater more restrictive.

Therefore, if the NRC were to adopt the LMP-based standard as proposed in 2023 in the final Part 53 rule, or require equivalent risk performance objectives, it would exceed the authority granted to the Commission by Congress. Put another way, once a licensee has established that its design meets the “ample margin of safety” level, the NRC lacks the legal authority to require additional demonstrations from the licensee, much less additional mitigation. Yet, in the case of the proposed Part 53 rule, the NRC requires further demonstration even beyond the satisfaction of these risk metrics, including compliance with other regulations and guidance, deterministic criteria, methodologies to evaluate margin and uncertainty, required defense-in-depth, and prescriptively assuming that only some systems are available to mitigate postulated accident sequences.

This standard is not only inconsistent with the “ample margin of safety” standard, but it would also obviate current practice at the NRC, whereby any event within two further orders of magnitude of the LMP dose/frequency standard is deemed risk significant, requiring further information, analysis, or mitigation against uncertainty. The congressionally codified “ample margin of safety” standard already anticipates uncertainty in exposure to ionizing radiation associated with the operation of commercial nuclear energy facilities. The Section 112 standard is what Congress

concluded not only provides adequate protection but also provides an *ample margin* of safety. Therefore, the Section 112 standard already accounts for these additional factors.

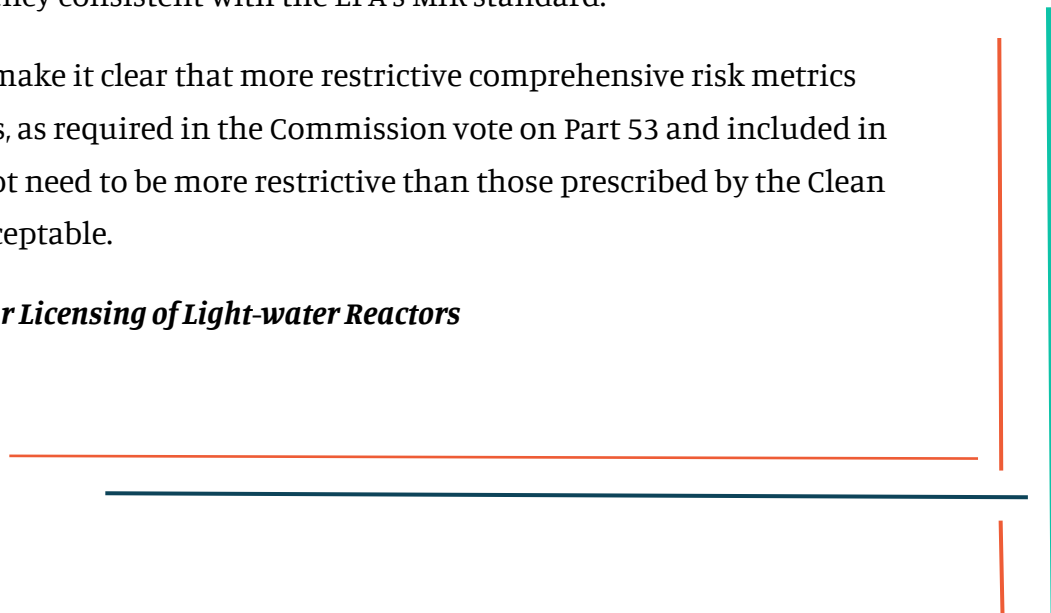
The existence of a threshold for an ample margin of safety does not strictly prescribe the use of risk-based regulation where all decisions rely on meeting a specific risk value. Nor would it undermine the use of a suite of regulatory requirements to protect the public and environment, such as financial qualifications, operator licensing, or quality control.

Insisting on further demonstration of safety beyond the already conservative “ample margin of safety” standard goes far beyond the authority to protect public safety delegated to the NRC by Congress, essentially insisting, uniquely for nuclear energy, on additional layers and margin of safety on top of the ample margin of safety already established through the EPA’s MIR standard. Yet, there is no evidence of any Congressional intent to hold nuclear energy to a standard distinct from other known risky industrial activities.

For these reasons, if the NRC seeks to establish a new comprehensive risk standard and associated overall risk objective or requires applicants to define such standards with NRC approval, it will need to make modifications to the proposed rule to avoid exceeding its congressionally granted authority. The additional layer of requirements for analysis and mitigation associated with dose/frequency events below the EPA standard would have to be abandoned or considered as part of the “comprehensive” risk standard. Moreover, any alternative approach to regulating cumulative risk will need to avoid promulgating rules, practices, or standards that functionally require license applicants to demonstrate safety beyond dose and frequency consistent with the EPA’s MIR standard.

The Commission must make it clear that more restrictive comprehensive risk metrics developed by applicants, as required in the Commission vote on Part 53 and included in the proposed rule, do not need to be more restrictive than those prescribed by the Clean Air Act to be deemed acceptable.

Potential Implications for Licensing of Light-water Reactors



To be sure, the implications of *Loper Bright* should be top of mind for the NRC in its Part 53 rulemaking as it works to meet the mandates from Congress to establish a new licensing framework tailored to advanced reactors.

However, the analysis outlined above raises an additional question: Could an applicant for a license, or a license renewal, for a light-water reactor challenge a restrictive NRC rule—whether specific to the application or generally applicable—that is predicated on the existing latent cancer risk standard, i.e., by asserting that the underlying standard is inconsistent with Congressional intent and has been since at least 1990?

Until this year, such a legal challenge to an agency's long-standing regulation might have been considered to be time-barred. By way of background, in some respects, federal law provides that the deadline to bring a lawsuit against an agency (known as the "statute of limitations") is six years after the cause of action "first accrues."⁴¹ Until this year, courts were divided about how to apply the statute of limitations for challenges to a general agency regulation. Does the cause "accrue" when the plaintiff was injured by the application of that regulation? Or does it "accrue" when the regulation was first published? United States Courts of Appeal have held that the latter interpretation applies. This interpretation has foreclosed challenges to the validity of agency regulations that have already been "on the books" for many years.

However, the Supreme Court overturned this precedent in its blockbuster set of June 2024 decisions. In *Corner Post, Inc. v. Board of Governors of the Federal Reserve System*, the Supreme Court held that the statute of limitations to challenge an agency enforcement action based on a previously promulgated regulation begins to run when the plaintiff suffers an injury from the enforcement action, not when the agency published the underlying rule.

It may take some time to assess the full implications of *Corner Post* for NRC orders, at least outside the context of enforcement proceedings. However, one potential implication is

⁴¹ In the specific case of the NRC, whose rules are subject to review under the "Hobbs Act," such review must be sought within 60 days of promulgation. 28 U.S.C. 2344.

that *Corner Post* opens the door to a lawsuit challenging the latent cancer risk standards anytime they are used as the basis for a new order—whether a case-specific order or an order of general application. This could mean that an unfavorable order on a license for a new light-water reactor or a license renewal for an existing reactor could attract a challenge claiming that the NRC predicated the order on invalid standards.

Were such a challenge to go forward, the reviewing court could very likely evaluate whether the highly restrictive existing standard is consistent with Congressional intent as stated in Section 112 of the Clean Air Act and in the recent ADVANCE Act directive for the NRC to modify its mission to more fully take into account the benefits to the public of nuclear power.

