

ONE J

Oil and Gas, Natural Resources, and Energy Journal

VOLUME 8

NUMBER 3

LIFE AFTER SIXTY: SUBSEQUENT LICENSE RENEWALS AND CRITICISMS OF N.R.C. LICENSING

CAMERON TARRY HUGHES*

Abstract

As it becomes increasingly apparent that mitigating climate change requires nuclear energy, utilities with operating nuclear reactors are seeking subsequent license renewals—extensions of a reactor's operating license from sixty to eighty years—as part of their carbon-free electricity plans. However, the use of decades-old relicensing procedures for these new extensions has revitalized equally old debates about the fairness, openness, and effectiveness of the U.S. Nuclear Regulatory Commission's licensing and hearing procedures, especially as they concern less-resourced intervenors. This article looks at those criticisms from three perspectives—safety, environmental, and procedural—and analyzes their potency through both an administrative law lens and a practical, climate-conscious lens.

Table of Contents

I. Legal Background.....	575
A. Subsequent License Renewals.....	575
1. License Renewals Generally	575

* J.D. candidate, Georgetown University Law Center, 2023; *diplôme d'université*, International School of Nuclear Law, 2021. Cameron serves as the Student Editor-in-Chief of the *Journal of National Security Law and Policy* (vol. 13) and was the Programs Vice Chair on the Nuclear Law Committee of the American Bar Association (2021-22). She would like to thank Eloise Pasachoff and Maxwell Smith for their guidance.

2. Application of License Renewal Framework to Subsequent License Renewals.....	578
B. NRC Hearing Procedures.....	579
II. Potential Problems with Subsequent License Renewal Regulations and Procedures.....	582
A. Evaluation of Safety Issues.....	582
1. Unfair Removal of Current Licensing Basis (“CLB”) Issues from Consideration in an SLR Proceeding.....	583
2. The Avenues for Questioning Issues in the Current License Basis Are Impractical.....	588
B. Evaluation of Environmental Issues.....	590
1. Unfair Removal of Environmental Issues from Public Consideration.....	590
2. The Feb. 2022 Commission Order Repealing the GEIS Solves the Main Issue but Creates Others.....	591
C. Internal Hearing Procedures.....	593
1. Prohibitively Strict Requirements to Gain a Hearing.....	593
2. Gap in Practical Access to Resources to Support Contentions....	596
3. Formally Transparent but Practically Difficult to Access.....	598
III. Recommendations.....	598
A. Safety Recommendations.....	599
B. Environmental Recommendations.....	599
C. Public Participation Recommendations.....	600

Introduction

Since the Atomic Energy Act was passed in 1954, the Nuclear Regulatory Commission (“NRC”) and its predecessor organization have licensed nuclear reactors for commercial electricity production. Since nuclear energy is carbon-free and provides near-constant “baseload” power unlike wind and solar, four of the five largest utilities in the U.S. with zero-carbon goals are relying on nuclear energy to get there.¹ Those utilities are following the science—nearly all reports on climate change agree that nuclear energy must be a part of the U.S. electricity mix to reach net zero and that existing reactors make up the bulk of that nuclear contribution.² At

1. Jeff St. John, *The 5 Biggest US Utilities Committing to Zero Carbon Emissions by 2050*, GREENTECH MEDIA (Sept. 16, 2020), <https://www.greentechmedia.com/articles/read/the-5-biggest-u.s.-utilities-committing-to-zero-carbon-emissions-by-mid-century>.

2. *Global climate objectives fall short without nuclear power in the mix: UNECE*, UNITED NATIONS (Aug. 11, 2021), <https://news.un.org/en/story/2021/08/1097572>; *All about the IPCC report on climate change*, Orano, <https://www.orano.group/en/unpacking->

the same time, most nuclear reactors in the United States are aging, having been built between the 1960s-1980s, and are nearing the end of not only their first forty-year license term but the initial twenty-year license renewal they received from the NRC in the 1990s or 2000s. Utility companies like Duke Energy and Entergy that operate these aging reactors are relying on their continued operation to meet zero-carbon goals.³ Thus, those utilities are seeking a subsequent license renewal (“SLR”)—an extension of an operating license for an additional twenty years.

This flush of subsequent license renewal activity means that petitioners have a new opportunity to rehash decades-old criticisms of NRC adjudicatory practice: namely, its (a) evaluation of safety issues, (b) evaluation of environmental issues, and (c) internal hearing procedures. The applicants are, in principle, those from the early 1990s—the owners and operators of nuclear plants, usually utility companies like those mentioned above—although in practice, most licenses have changed hands several times since then to different utility companies. These owners want their reactors to remain part of their company’s electricity generation system, either for climate reasons like Duke and Entergy or because it is far more affordable and practical to keep an existing plant running than to shut it down and build something else. Petitioners in SLR proceedings are the same petitioners that appeared in initial license renewal proceedings in the 1990s—local (usually anti-nuclear) community groups, state- or local-level branches of national environmental organizations like the Sierra Club, and sometimes national anti-nuclear groups like Beyond Nuclear and the Union of Concerned Scientists. Most of these petitioners don’t believe nuclear energy should exist at all and use NRC review of particular reactors as opportunities to reiterate this belief.

The problem with this rehashing is that license renewal proceedings were never the proper place to argue the merits of nuclear energy, and the climate crisis removes any indulgence the NRC could have offered to hear out petitioners with these improper claims. Climate change strongly incentivizes utilities with nuclear reactors to keep those reactors operating, so long as those reactors are safe and cause limited environmental harm.

nuclear/all-about-the-ipcc-report-on-climate-change (explaining that all four pathways examined by the Intergovernmental Panel on Climate Change in its 2018 climate report relied on nuclear power increasing its share to meet net zero by 2050) (last visited May 13, 2022).

3. Kristi E. Swartz, *Nuclear, gas, solar: Duke and Entergy talk transition*, E&E NEWS (Apr. 28, 2022, 7:02 AM), <https://subscriber.politicopro.com/article/eenews/2022/04/28/nuclear-gas-solar-duke-and-entergy-talk-transition-00028205>.

While it is a core principle of good regulation that affected members of the public can voice their concerns in agency proceedings, and it is equally important that well-founded safety and environmental concerns come to the NRC's attention, blocking a subsequent license renewal because of general fear of nuclear energy is an inappropriate use of agency procedure. Raising environmental issues is extremely important, and there are other opportunities for environmentalists to raise their concerns. However, the proper role of NRC licensing proceedings—both the substantive law and the hearing procedures guiding them—is to allow well-founded concerns to be heard while blocking those that should not be. This paper argues that the current NRC law and regulations hit a fair balance.

Although scholars have posed criticism and responses to these issues since the 1990s,⁴ this article is the first to address how these criticisms play out in subsequent license renewals specifically. Because nuclear energy is necessary to meet climate goals, existing reactors need to produce electricity as long as possible and ultimately require SLRs. This paper seeks to legitimize SLR processes by analyzing these vintage critiques in a modern context. The modern context presented sews together NRC informal Rulemaking comments, oral presentations by industry insiders, and industry pleadings to bring transparency to otherwise technical, mysterious SLR proceedings.

After explaining the legal background for subsequent license renewals and hearing procedures, this paper examines criticisms of the NRC's (a) evaluation of safety issues, (b) evaluation of environmental issues, and (c) internal hearing procedures. These criticisms center around not just NRC procedures, but how easy it is for the public to challenge these procedures. This paper argues that while substantive safety and environmental regulations strike the proper balance, the NRC should significantly modify its hearing regulations and procedures to enable easier participation for affected parties.

4. See *infra* sec. II; see, e.g., Diane Curran, *The Re-licensing of Nuclear Power Plants*, in *CONTROLLING THE ATOM IN THE 21ST CENTURY* 229 (David P. O'Very, Christopher E. Paine & Dan W. Reicher eds. 1994); Eric Glitzenstein, *The Role of the Public in the Licensing of Nuclear Power Plants*, in *CONTROLLING THE ATOM IN THE 21ST CENTURY* 155, 157 (David P. O'Very, Christopher E. Paine & Dan W. Reicher eds. 1994); Anthony Z. Roisman, Erin Honaker & Ethan Spaner, *Regulating Nuclear Power in the New Millennium (The Role of the Public)*, 26 *PACE ENVTL L. REV.* 317, 324 (2009).

I. Legal Background

This section explains the legal background behind subsequent license renewals. It first provides a review of the statutory and administrative framework for licensing reactors, including initial and subsequent license renewals. Then, it gives an overview of the NRC hearing procedures, which apply whenever a petitioner wants to involve themselves in one of those license renewals.

A. Subsequent License Renewals

Subsequent license renewals copy the framework for initial license renewals. This section explains first the original framework and how subsequent licenses were added to that structure.

1. License Renewals Generally

The Atomic Energy Act authorizes the NRC to issue licenses for forty-year periods to operate nuclear reactors.⁵ When the original forty-year license nears expiration, an operator—usually a utility company—can apply for a license renewal of twenty years.⁶ The NRC had no regulatory procedures governing application and review for license renewal until 1991, when it codified 10 C.F.R. 54 (“Part 54”) through informal rulemaking.⁷ This rulemaking process included a public scoping meeting and notice-and-comment period, two procedures common to administrative agencies in the United States that are meant to get public opinion on an agency decision. Part 54 was amended in 1995 to incorporate lessons learned, again through informal rulemaking, with the same public engagement opportunities as in 1991.⁸ This amended version of Part 54 is still in use today.

5. 42 U.S.C. § 2133(a), (c). This forty-year license requirement stemmed not from technical concerns, but antitrust ones. Nuclear Power Plant License Renewal, 56 Fed. Reg. 64,941, 64,960 (“The 40-year license term in section 103.C, which necessitates license renewal, was adopted for antitrust and financial reasons rather than safety or common defense and security reasons.”). When passed in 1954, this provision reflected a compromise between the Justice Department’s antitrust-focused term of 20 years and the nuclear industry’s desire for longer terms. *American Public Power Ass’n v. U.S. Nuclear Reg. Comm’n*, 990 F.2d 1309, 1313 (D.C. Cir. 1993).

6. 42 U.S.C. § 2133(c); 10 C.F.R. §§ 50.51(a), 54.31(b).

7. See Nuclear Power Plant License Renewal, 56 Fed. Reg. 64943, 64944-45 (Dec. 13, 1991) (outlining the rulemaking procedure the NRC used in promulgating 10 C.F.R. pt. 54); Nuclear Power Plant License Renewal, 55 Fed. Reg. 29043 (July 17, 1990) (proposed rule for license renewal).

8. Nuclear Power Plan License Renewal; Revisions, 60 Fed. Reg. 22,461 (May 8, 1995). The main change was focusing license renewal process on the *effects* of aging

When an operator applies for a Part 54 license renewal, it structures its issues into two categories: safety (i.e., minimizing the danger posed by the radioactive material in a reactor core) and environmental (i.e., minimizing the impacts on the local environment of operating a reactor).⁹ This bifurcation of issues comes from the Atomic Energy Act and the National Environmental Policy Act¹⁰ and is commonly used by both applicants and NRC staff to structure applications and analyses.¹¹

For safety issues, operators follow the requirements set out in Part 54.¹² While the NRC analyzes the efficacy of *all* structures and components when it grants an original license, Part 54 restricts NRC review in license renewal to the *effects of aging* on those structures and components.¹³ The original safety conditions a reactor must maintain, called the “current license basis,” are spelled out in the initial license.¹⁴ For example, the current license basis includes standards for the fire protection system,

management rather than the *mechanisms*; other procedures were streamlined or clarified after industry and technical staff feedback. *Id.* at 22,462-63.

9. *See, e.g.*, 42 U.S.C. § 2133(b) (defining safety standards as those intended “to protect health and to minimize danger to life or property”); 10 C.F.R. 50.34(1)(ii) (requiring an operating license application to include “extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products”); 10 C.F.R. §§ 51.10, 51.20-23.

10. 42 U.S.C. § 2133(b)(2) (requiring all license applicants to prove “such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish”); *Massachusetts v. United States*, 522 F.3d 115, 119 (1st Cir. 2008) (naming issuance and renewal of a license as major federal actions).

11. *See, e.g.*, Fla. Power & Light Co. (Turkey Point Nuclear Generating Units 3 & 4), 91 N.R.C. 133, 136-37 (2020).

12. *See* 10 C.F.R. § 54.4.

13. *See* 10 C.F.R. §§ 54.21, 54.29(a); Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22461, 22475 (May 8, 1995); Duke Energy Corporation (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 & 2), 56 N.R.C. 358, 364 (N.R.C. 2002) (affirming the narrow scope of Part 54 safety review). This separation is rooted in the NRC’s classification of reactor components into “active” and “passive” categories. Active components are those for which the current license basis already includes regular surveillance and performance monitoring such that “existing programs and requirements are expected to directly detect the effects of aging.” 60 Fed. Reg. at 22472. Passive components, like the reactor vessel and steam generator, are “those that perform an intended function without moving parts or without a change in configuration or properties” and as a result do not experience regular monitoring. *Id.* at 22477; *Additional Information on Safety*, U.S. NUCLEAR REG. COMM’N (last updated Mar. 29, 2012), <https://www.nrc.gov/reactors/operating/licensing/renewal/introduction/safety/safety2.html>. This latter category of passive components is subject to aging management review under Part 54. 60 Fed. Reg. at 22477-80.

14. *See* Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22461, 22464-66 (May 8, 1995).

refueling platforms, and certain reactor pressure components must maintain to be as safe as the NRC prescribed when it issued the original license.¹⁵ Part 54 assumes that the original licensing regulation, Part 50, covers this current license basis and therefore prohibits revisiting it in the renewal process except to demonstrate “reasonable assurance of future compliance”; any aging management issues, on the other hand, receive in-depth NRC staff analysis and judgment during a license renewal review.¹⁶ In other words, much of how a reactor operates is excluded from a fresh review when an operator applies for license renewal.

Environmental review for license renewals is guided by 10 C.F.R. § 51 (“Part 51”). This Part 51 incorporates the National Environmental Policy Act review into NRC procedures by setting requirements for environmental assessments and environmental impact statements. Similar to how Part 54 assumes adherence to the current license basis for safety issues, Part 51 outlines a universal set of findings about environmental issues that all nuclear reactors supposedly face in a General Environmental *Impact Statement* (“GEIS”).¹⁷

The GEIS lists structures or procedures all nuclear reactors share and describes the environmental impact of those structures or procedures.¹⁸ When an operator submits a license renewal application, they cite the GEIS and its environmental conclusions.¹⁹ The operator submits an environmental report that analyzes only the specific environmental issues that apply to the reactor in the application; for example, in the application to subsequently renew Point Beach Nuclear Plant on Lake Michigan, the environmental report detailed the reactor’s impacts on local fish and groundwater.²⁰ The NRC staff uses the applicant’s environmental report to complete a supplemental environmental impact statement.²¹ The NRC reviews a

15. *See, e.g.*, Subsequent License Renewal Application for Peach Bottom Units 2 & 3 (July 2018) (ML18193A773).

16. *See* 10 C.F.R. §§ 54.3, 54.29, 54.30, 54.31.

17. 10 C.F.R. § 51 subpart A, appx. B; *see* Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 56 Fed. Reg. 47,016 (Sept. 17, 1991) (proposed rule); Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 28,467 (June 5, 1996) (final rule).

18. *See* 10 C.F.R. § 51, subpart A appx. B; *see also* U.S. Nuclear Reg. Comm’n, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants—Final Report (NUREG-1437, Revision 1)” (updated Mar. 24, 2021) (“The intent of the GEIS is to determine which issues would result in the same impact at all nuclear power plants”).

19. 10 C.F.R. § 51.53(c)(ii).

20. ML20329A247.

21. 10 C.F.R. §§ 51.73, 51.95(c)(3).

reactor's environmental impact only after it has both the GEIS and the supplemental environmental impact statement.²²

While this bifurcation of both safety and environmental issues into topics that have been settled and topics that must be revisited may sound like it results in lean applications, license renewal documents are detailed and lengthy. Even without revisiting the current license basis or the GEIS-related environmental issues, initial license applications average 1,600 pages, with some reaching over 2,500.²³ Subsequent License Renewals

2. Application of License Renewal Framework to Subsequent License Renewals

A subsequent license renewal (“SLR”)—the topic of this paper—is a renewal after the initial license renewal, extending a reactor's operating license from sixty years to eighty years. The original Part 54 expressly allowed the concept of a subsequent license renewal: “A renewed license may be subsequently renewed in accordance with all applicable requirements.”²⁴ The Commission confirmed that Part 54 permitted and governed subsequent license renewals in 2014 when utilities began to consider filing SLR applications.²⁵ Just as with initial license renewal applications, SLR applications analyze only the effects of aging on the

22. See *Massachusetts v. United States*, 522 F.3d 115, 120 (1st Cir. 2008).

23. The author averaged the page lengths of the 62 initial license renewal applications (including environmental reports and appendices with technical specifics) submitted to the NRC. To access these applications, see *Status of Initial License Renewal Applications and Industry Initiatives*, U.S. Nuclear Reg. Comm'n (last updated Dec. 7, 2022), <https://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>.

24. The Statement of Considerations for the final rule on Part 54 also supported subsequent license renewal. Nuclear Power Plant License Renewal, 56 Fed. Reg. 64,943, 64,964-65 (Dec. 13, 1991) (stating the requirements for subsequent renewal “include the provisions of [P]art 54 (unless the Commission subsequently adopts special provisions applicable only to subsequent renewals)”).

25. Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal (SRM-SECY-14-0016) (Aug. 29, 2014); see also Taylor Mayhall, *Entering the Era of Commercial Nuclear Power Plant Subsequent License Renewal*, AM. BAR ASS'N (Aug. 26, 2019), https://dev.americanbar.org/groups/environment_energy_resources/publications/nl/20180826-entering-the-era-of-commercial-nuclear-power-plant-subsequent-license-renewal/. The Staff suggested amending Part 54 to explicitly account for subsequent license renewals, but the Commission rejected this idea based on recommendations from the Advisory Committee on Reactor Safeguards. Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal (SECY-14-0016) (Jan. 31, 2014); SRM-SECY-14-0016 (comments of William D. Magwood, IV).

current license basis, not the original plant conditions prescribed in the current license basis.²⁶ This bars NRC staff and petitioners from revisiting the current license basis in a SLR.

SLRs originally required separate analysis of environmental issues, just as in an initial license renewal, which let applicants incorporate the GEIS and analyze only site-specific issues in their environmental reports.²⁷ However, in a 2022 review of that policy, the Commission reversed its position and determined that the GEIS could *not* apply to subsequent license renewals.²⁸ They explained that because the original GEIS was promulgated via notice-and-comment rulemaking, and because subsequent license renewals are “major federal actions” distinct from initial license renewals, the original Commission decision to apply the license renewal GEIS to subsequent license renewals ran counter to both the Administrative Procedure Act and the National Environmental Policy Act. As a consequence, the GEIS must be modified via notice-and-comment rulemaking to incorporate SLR-specific analysis.²⁹ The NRC is currently determining which changes to propose; in the meantime, operators must either submit reports analyzing all environmental issues relevant to a reactor as part of their SLR application or wait for publication of the revised GEIS.

B. NRC Hearing Procedures

If a local community group, an environmentalist group, or someone who lives near a nuclear plant has concerns about the plant running for twenty more years, they can file a petition to intervene in the NRC’s application review to raise their complaints. That interested party can also request a hearing at which a special panel called the Atomic Safety and Licensing Board Panel (“Panel”) will compare its complaints against the operator’s application and NRC’s analysis. This process of intervening and requesting a hearing is a bit like a plaintiff seeking a trial in court, but instead of a

26. See Mayhall, *supra* note 25; *Fla. Power & Light Co.* (Turkey Point Nuclear Generating Units 3 & 4), 91 N.R.C. 133, 136-37 (“Apart from aging management issues, plant operation under a renewed license is sufficiently similar to operation during the previous term such that our existing oversight processes are adequate to ensure safety”).

27. *Fla. Power & Light Co.* (Turkey Point Nuclear Generating Units 3 & 4), 91 N.R.C. 133, 143-44 (2020) [hereinafter *Turkey Point*]; see also 10 C.F.R. § 51.53(c)(3).

28. Memorandum and Order (CLI-22-02) (Feb. 24, 2022) at 2; Status of Subsequent License Renewal Applications, N.R.C. (last updated May 6, 2022), <https://www.nrc.gov/reactors/operating/licensing/renewal/subsequent-license-renewal.html>.

29. *Id.* at 7.

formal trial determining whether a defendant has followed the law, an NRC hearing determines whether the operator has properly met the NRC regulations for license renewal, or whether the intervenor's concerns about the reactor's safety or environmental impact are scientifically valid.

The NRC set its own procedures for how to grant and govern hearings.³⁰ The Atomic Energy Act §189 requires that the Commission grant a hearing upon request to "any person whose interest may be affected by the proceeding" and "admit any such person as a party to such proceeding."³¹ Contrary to what this text implies, a potential intervenor is not granted a hearing automatically. Rather, they get a hearing only if they file a petition within sixty days of the NRC publishing receipt of the application in the Federal Register, and only if the petition meets two NRC-set standards: petitioner standing and contention admissibility.³² To have standing, a petitioner must demonstrate both NRC-requested facts, like the nature of the petitioner's financial or property interest in the issue, and the traditional judicial concepts of standing, like "an actual or threatened injury that is fairly traceable to the alleged action."³³ For petitioners who live within fifty miles of the reactor at issue, standing is not a barrier: The Commission created a so-called "proximity presumption" to assume standing for such petitioners.³⁴

Contention admissibility standards, on the other hand, are often difficult for petitioners to meet. These standards are "strict by design," as the Commission believes it "should not have to expend resources to support the hearing process unless there is an issue that is appropriate for, and susceptible to, resolution in an NRC hearing."³⁵ In an initial petition to

30. This freedom is because licensing is informal adjudication under the Administrative Procedure Act, so beyond the Act's bare requirements, the NRC can decide its own procedures. See *City of West Chicago v. U.S. Nuclear Reg. Comm'n*, 701 F.2d 632, 641, 643 (7th Cir. 1983) (explaining that licensing is adjudication).

31. 42 U.S.C. § 2239(a)(1)(A).

32. 10 C.F.R. §§ 2.309(a), (d), (f). The D.C. Circuit has held that while the Act requires a "hearing," it prescribes neither the content nor manner of the hearing, and the court cannot overrule NRC-imposed procedures without a clear statutory direction to impose different procedures. *Union of Concerned Scientists v. U.S. Nuclear Reg. Comm'n*, 920 F.2d 50, 51-52 (D.C. Cir. 1990).

33. 10 C.F.R. § 2.309(d)(1)(ii)-(iv); *El Paso Elec. Co (Palo Verde Nuclear Generating Station, Units 1, 2, and 3)*, CLI-20-07 (Sept. 15, 2020).

34. *Calvert Cliffs (Unit 3)*, CLI-09-20, 70 NRC at 915-16 (2009); *Fla. Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4)*, LBP-01-06, 53 N.R.C. 138, 150 (2001).

35. *Energy Nuclear Operations, Inc. ((Indian Point, Unit 2)*, CLI-16-5, 83 N.R.C. 131, 136; 69 Fed. Reg. 2182, 2202 (Jan. 14, 2004).

intervene and request a hearing, a petitioner must “demonstrate” or “provide sufficient information” on six specific factors, which generally focus on whether the contention is material, within the proceeding’s scope, and supported by a sufficient factual basis.³⁶ A petitioner must base their contentions only on the publicly available information at the time of the petition, such as the subsequent license renewal application, environmental report, or safety analysis report the applicant filed.³⁷ Akin to, but stricter than, federal pleading standards, a petitioner need not prove their contention in their petition, but must “proffer at least some minimal factual and legal foundation” to support their contentions.³⁸

Issues “addressed and decided in Commission rulemaking,” like the GEIS and the Part 54 determination not to revisit the current license basis, cannot be challenged by a petitioner in adjudication unless the Panel issues a waiver.³⁹ For petitions to intervene in a SLR application, the separation of safety issues into current license basis and aging management, and of environmental issues into GEIS and SEIS, is decided by the Commission and removes half of a petitioner’s potential contentions before they even make them. The Panel grants waivers only if a petitioner demonstrates with “particularity” that “special circumstances” exist to undermine the purpose of the rule or regulation if applied in that particular case, usually judged by the standard of “new and significant information” unique to the plant at issue.⁴⁰ Challenges to current license basis or settled environmental issues without a waiver are rejected because the Commission determined that adjudicating settled issues ad hoc “would defeat the purpose of resolving generic issues” via rulemaking.⁴¹

Only once the Panel determines a petitioner has met both the standing and contention admissibility requirements does it grant the petitioner a hearing to debate the merit of the petitioner’s claims. So far, of the five

36. 10 C.F.R. § 2.309(f)(1)(i)-(vi).

37. 10 C.F.R. § 2.309(f)(2).

38. Duke Energy Corp. (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 N.R.C. 328, 334 (1999). Compare *id.* with *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009); and *Bell Atlantic Corp v. Twombly*, 550 U.S. 544, 555-56 (2007).

39. 10 C.F.R. § 2.335

40. 10 C.F.R. § 2.335(b). See *Exelon Generation Co. (Limerick, Units 1 and 2)* CLI-13-07 (“[W]e decline to set aside the rule based merely on a claim of new and significant information, without the support necessary to show that it is unique to Limerick.”).

41. Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), CLI-07-3, 65 NRC 13, 20-21 (2007); see also *Virginia Elec. and Power Co. (North Anna Power Station, Units 1 and 2)*, LBP-21-04 (Mar. 29, 2021) at 19-20.

SLR proceedings for which the Panel has reviewed a petition to intervene and request a hearing, the Panel has granted only one, leading some critics to suggest that the standard for a public hearing is too high.⁴²

II. Potential Problems with Subsequent License Renewal Regulations and Procedures

Often, petitioners use licensing proceedings to challenge the existence of nuclear energy in the United States by using safety and environmental contentions to prevent reactors from continuing operation. Licensing individual reactors is an inappropriate avenue for these debates. Even more fundamentally, as the Supreme Court explained in *Vermont Yankee v. NRDC*, the presence of nuclear energy in any state or utility's energy mix is not for agencies to decide, but rather the lawmaking bodies of Congress and state legislatures.⁴³ When petitioners have legitimate, plant-specific concerns, the NRC should hear those concerns; if the concerns are a Trojan horse to move the U.S. away from nuclear energy, then those concerns should be treated as illegitimate within the scope of individual licensing proceedings.

This section looks at two major criticisms of the NRC's evaluation of safety issues. First, the separation of issues into the current license basis and aging management, and second, the alternate paths in administrative law besides subsequent license renewals to challenge the current license basis—and concludes that on the whole, the NRC's balance of public participation against the vetted science of nuclear reactors is fair.

A. Evaluation of Safety Issues

Determining whether a petitioner's safety concern is legitimate or is a mask for anti-nuclear goals is not only impossible for any Panel to evaluate, but could be irrelevant to the merits of the safety contention—sometimes a

42. Compare N.R.C., *Memorandum (Notice Regarding Issuance of Decision) (ML22042B286)* (Jan. 20, 2022) (Oconee); N.R.C., *Memorandum and Order (Denying Physicians for Social Responsibility Wisconsin's Request for Hearing) (ML21207A075)* (July 26, 2021) (Point Beach); N.R.C., *Memorandum and Order (Denying Intervention Petition and Terminating Proceeding) (ML21088A364)* (Mar. 29, 2021) (North Anna); N.R.C., *Memorandum and Order (Denying Beyond Nuclear's Petition to Intervene) (ML19171A159)* (Jun. 20, 2019) (Peach Bottom) with N.R.C., *Memorandum and Order (ML19067A003)* (Mar. 7, 2019) (Turkey Point) (granting a petition to intervene and request for hearing).

43. *Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council*, 435 U.S. 519, 558 (1978).

petitioner can dislike nuclear energy *and* raise a legitimate safety concern. Therefore, the best way for the NRC to evaluate safety contentions is to implement procedures which separate heavily studied safety issues, like a reactor's ability to contain radioactive material, from more novel or less studied issues. Instead, The NRC currently separates the two by categorizing issues under either the "current license basis," meaning the general operation of the plant, or "aging management issues," meaning issues specific to the effects of aging on reactor safety. This separation requires balancing efficiency of review against the ability of any one petitioner to intervene.

1. Unfair Removal of Current Licensing Basis ("CLB") Issues from Consideration in an SLR Proceeding

One complaint petitioners raise is that the way the NRC separates current license basis from aging management issues in Part 54 itself prevents the public from raising relevant issues by removing many concerns about a reactor's operation from consideration. The bifurcation of safety issues binds those living near nuclear reactors today to decisions the Commission made decades ago, when it approved the original licenses; conversely, it gives operators assurance their licenses will remain constant for decades, giving them and their investors' confidence in recouping costs. For three of the five recent SLR applications, that original license was forty years ago: for Point Beach, 1970; for North Anna, 1978; and for Oconee, 1973.⁴⁴ While operators must ensure the reactor maintains safe operation in accordance with the current license basis, that current license basis—the decisions made over forty years ago—is essentially insulated from anyone who may have developed a concern since then.

Moreover, some argue that the very use of rulemaking to codify safety decisions takes away modern intervenors' ability to have a say.⁴⁵ Because Part 54 was promulgated and amended by informal rulemaking, a process that included public scoping meetings and notice-and-comment periods, the Commission considers the original period of public involvement as settling

44. *Point Beach Nuclear Plant, Unit 1*, N.R.C. (last updated May 6, 2022), <https://www.nrc.gov/info-finder/reactors/poin1.html>; *North Anna Power Station, Unit 1*, U.S. N.R.C. (last updated May 6, 2022), <https://www.nrc.gov/info-finder/reactors/na1.html>; *Oconee Nuclear Station, Unit 1*, N.R.C. (last updated May 6, 2022), <https://www.nrc.gov/info-finder/reactors/oco1.html>.

45. See Diane Curran, *The Re-licensing of Nuclear Power Plants*, CONTROLLING THE ATOM IN THE 21ST CENTURY 229, 236 (David P. O'Very, Christopher E. Paine & Dan W. Reicher eds. 1994).

the public's interest in the rulemaking, even though that initial involvement was over 25 years ago. Legally, they're right—all the APA requires for informal rulemaking is public participation for promulgation and major changes, and the courts cannot require the NRC to go beyond those basic requirements.⁴⁶ However, many of today's potential intervenors were not around in 1991 to criticize the decision to remove current license basis reevaluation from license renewal proceedings. Sierra Club Virginia, for example, boasts 20,000 members and “grassroots” participation; given Millennial and Gen Z passion for climate change, it's almost certain that many of those 20,000 weren't even born when Part 54 was promulgated.⁴⁷ People may have also moved near operating reactors in the thirty years since, creating new affected parties.⁴⁸ Thus, petitioners to NRC proceedings argue the NRC hides behind procedure to prevent genuinely affected parties from questioning Commission decisions.⁴⁹

Additionally, some argue that while legally defensible, the removal of most of the potential safety issues from consideration contradicts the *intent* of the Atomic Energy Act. When the Act was passed in 1954, §189 represented a “bargain” between the nuclear industry and those who lived near reactors: Locals forfeited the right to local regulation of radiological health and safety in favor of federal regulation, and in turn, they received a “commitment to the full panoply of trial-type procedures as part of the federal licensing process.”⁵⁰ Read this way, using rulemaking to “remove” the current license basis from potential adjudication violates the original agreement between Congress and local communities, which should require an adjudication on the full swath of safety issues.

46. See *Vermont Yankee*, 435 U.S. at 558.

47. SIERRA CLUB VA. CH., <https://www.sierraclub.org/virginia> (last visited May 13, 2022); Alec Tyson, Brian Kennedy & Cary Funk, *Gen Z, Millennials Stand Out for Climate Change Activism, Social Media Engagement With Issue*, PEW RESEARCH CTR. (May 26, 2021), <https://www.pewresearch.org/science/2021/05/26/gen-z-millennials-stand-out-for-climate-change-activism-social-media-engagement-with-issue/>.

48. See, Bill Dedman, *Nuclear neighbors: Population rises near US reactors*, NBC NEWS (Apr. 14, 2011), <https://www.nbcnews.com/id/wbna42555888>.

49. See Diane Curran, *The Re-licensing of Nuclear Power Plants*, CONTROLLING THE ATOM IN THE 21ST CENTURY 229, 236 (David P. O'Very, Christopher E. Paine & Dan W. Reicher eds. 1994) (“It is simply absurd to expect that neighbors of nuclear power plants, whose license renewal applications may not be filed for another five to twenty years, will seek to comment on—or even know about—the sweeping conclusions that are intended to bind them years down the road.”)

50. Eric Glitzenstein, *The Role of the Public in the Licensing of Nuclear Power Plants*, in CONTROLLING THE ATOM IN THE 21ST CENTURY 155, 157 (David P. O'Very, Christopher E. Paine & Dan W. Reicher eds. 1994).

This argument is undermined by the Atomic Energy Act itself, which does not contain the words “on the record” to indicate an intention for formal adjudication. Instead, in the tradition of administrative legal analysis, the lack of formal adjudication implies an intent to delegate to the now-NRC whatever level of public engagement it sees fit to maintain the “common defense and security” and “protect the health and safety of the public.”⁵¹ Additionally, the legislative history of the Atomic Energy Act demonstrates that the forty-year license term represented a compromise not between Congress and the public, but between the Justice Department and the nuclear industry.⁵²

The problem with unmitigated deference to public concerns is that some petitioners use otherwise valid safety concerns to limit the overall use of nuclear energy in the U.S. For example, while the Sierra Club raised a contention about the Oconee reactors’ likelihood of core meltdown in its petition to intervene, it based standing on statements from South Carolina residents who believed that “[b]ased on the historical experience of nuclear power stations . . . these facilities are inherently dangerous.”⁵³ Other petitioners parade their antipathy towards nuclear: Beyond Nuclear, a petitioner in many NRC proceedings, including the Oconee subsequent license renewal, states its organizational mission as “[w]orking for a world free from nuclear power and nuclear weapons.”⁵⁴ If such petitioners were permitted unlimited time to raise concerns, similar groups could strategically prolong NRC procedures and cause renewal to become nonviable.

The administrative problem with these broadly anti-nuclear motivations in a license renewal proceeding is that license renewals by their nature focus on the technical aspects of a particular reactor, not concerns about nuclear energy in general. Fears connected to a reactor’s technical aspects can be legitimate, but may also be unjustly weaponized. Sierra Club and Beyond Nuclear raised objectively well-researched contentions in

51. *Vermont Yankee*, 435 U.S. 519 at 558 (1978); 42 U.S.C. 2133(b).

52. *Supra* note 5.

53. N.R.C., *Hearing Request and Petition to Intervene by Beyond Nuclear and Sierra Club and Petition for Waiver of 10 C.F.R. §§ 51.53(c)(3)(i), 51.53(c)(3)(ii)(L), 51.71(d), 51.95(c)(1), and 10 C.F.R. Part 51 Subpart A, Appendix B, Table B-1 to Allow Consideration of Category 1 NEPA Issues (ML21270A250)* (Sept. 21, 2021) [hereinafter Oconee Petition] at 2-3; N.R.C., *Declaration of Jane F. Powell (ML21270A250)* (Sept. 21, 2021) (Attachment 2A to Oconee Petition); N.R.C., *Declaration of Frank M. Powell (ML21270A250)* (Sept. 21, 2021) (Attachment 2B to Oconee Petition).

54. BEYOND NUCLEAR (last visited Oct 13, 2022), <https://beyondnuclear.org/>.

Oconee—their petition to intervene included a detailed, Oconee-specific declaration of concerns from a former NRC staff Reliability and Risk Analyst.⁵⁵ The best balance the NRC can strike would review concerns that have legitimate scientific underpinnings, regardless of motivation, while limiting those contentions that already have been heavily reviewed and therefore can be motivated only by concerns outside the scope of a licensing proceeding. In other words, the NRC needs to balance efficiency with fairness to the public’s legitimate concerns.

One approach to this balance comes from *Breaking the Vicious Circle* by then-Professor Stephen Breyer, who argued that public say in highly technical, highly consequential safety decisions should be severely limited. Breyer wrote that “[s]tudy after study shows that the public’s evaluation of risk problems differs radically from any consensus of experts in the field,” with nuclear energy having the widest spread between public and expert concerns.⁵⁶ He pointed out that making a regulatory decision on something as complicated as nuclear energy involves not only a deep understanding of different technical fields at once, but can also require making assumptions when empirical data doesn’t give a clear answer.⁵⁷ If petitioners are motivated by fear of nuclear energy, it begs the question, how can they raise legitimate concerns about niche technical matters within nuclear energy? Surely, if they understood nuclear energy well enough to raise contentions, they wouldn’t raise them in the first place, right?

Several legal scholars have poked holes in Breyer’s approach. For one, Breyer’s emphasis on scientific risk assessment and trust in bureaucrats has been criticized by environmentalists as “undemocratic.”⁵⁸ Professor Lisa Heinzerling noted that “the reasonableness of many agency decisions depends on how costs and benefits of those decisions are characterized.”⁵⁹ In the subsequent license renewal context, the reasonableness of the NRC decision to insulate current license basis issues from review depends on how valid one thinks that criticism of original licensing decisions is at the cost of administrative efficiency of review; both Breyer and Heinzerling

55. N.R.C., *Declaration of Jeffrey T. Mitman in Support of Beyond Nuclear and Sierra Club Hearing Request (ML21270A250)* (Sept. 27, 2021) (Attachment 1 to Oconee Petition).

56. Stephen Breyer, *BREAKING THE VICIOUS CIRCLE* 33 (Harv. Univ. Press 1993).

57. *Id.* at 42-45

58. Hoffman, Brent L., *Justice Stephen G. Breyer, Business Friend and Environmental Foe: An Analysis of Justice Breyer’s Judicial and Non-Judicial Works concerning Environmental Regulation*, 100 *DICKINSON L. REV.* 211, 224.

59. Lisa Heinzerling, *Justice Breyer’s Hard Look*, 8 *ADMIN. L. J. AM. U.* 767, 772 (1995).

would agree the NRC has favored the latter, but different people may disagree on the merits of that choice. Then-Professor Elena Kagan also criticized Breyer's approach as ignoring the potential "ossification" of the bureaucracy—that without public feedback to keep an agency fresh, the quality of agency decision-making can severely diminish.⁶⁰ One could argue, then, that the NRC has become too confident in its staff's decades-old decisions, and it could actually enhance safety if a petitioner offers substantive scientific evidence that the NRC was wrong, or at least inaccurate as we have learned more about reactor operation and aging.

If climate change were not an issue, this discussion would end there. Sure, a petitioner's safety contentions could bring revitalization to a perhaps stagnant agency. Not all petitioners are as uninformed as Justice Breyer seems to think them—in the Oconee subsequent license renewal, Beyond Nuclear and the Sierra Club called a former NRC risk regulator as an expert witness supporting their concerns about the plant's flood protective measures.⁶¹ However, all balancing tests must eventually come down to a decision; one must ask when enough review is enough. The NRC created thousands of pages of analysis in the original license; created thousands more pages of documentation when it promulgated Part 54 and decided to isolate the current license basis; involved the public in that promulgation of Part 54 through scoping and notice-and-comment; and required all operators to maintain the current license basis, something enforced by regular inspection and reporting to this day. That is enough review. The fact that fighting climate change *requires* nuclear energy⁶² puts a thumb on the scale of efficiency when questioning thoroughly-researched

60. Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2263-64 (2001).

61. N.R.C. *Declaration of Jeffrey T. Mitman in Support of Beyond Nuclear and Sierra Club Hearing Request (ML21270A250)* (Sept. 27, 2021) (Attachment 1 to Oconee Petition).

62. Rogelj, J., D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Khesghi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, and M.V. Vilariño, *2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development*, CAMBRIDGE UNIV. PRESS at 93-174 (projecting an increase in nuclear energy in scenarios limiting global warming to 1.5°); U.N. Econ. Council for Europe, TECHNOLOGY BRIEF NUCLEAR POWER at 1, [https://unece.org/sites/default/files/2021-08/Nuclear power brief_EN_0.pdf](https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf) (Aug. 2021) (“[T]he world’s climate objectives will not be met if nuclear technologies are excluded.”); NUCLEAR POWER IN A CLEAN ENERGY SYSTEM, INT’L ENERGY AGENCY at 1 (May 2019), https://iea.blob.core.windows.net/assets/ad5a93ce-3a7f-461d-a441-8a05b7601887/Nuclear_Power_in_a_Clean_Energy_System.pdf (“Achieving the pace of CO2 emissions reductions in line with the Paris Agreement is already a huge challenge, as shown in the Sustainable Development Scenario. It requires . . . an increase in nuclear power.”).

technical issues, especially given that extensions of nuclear power licenses is one of the lowest-cost options for mitigating climate change.⁶³ When comparing the need to fight climate change against the benefits of public participation on settled safety issues, it is clear that the NRC has struck the right balance.

2. The Avenues for Questioning Issues in the Current License Basis Are Impractical

Petitioners have avenues to challenge the current license basis outside of individual SLR adjudication. Using other paths could provide a public perspective while retaining the balance of SLR hearing reviews. However, these paths do not offer a more practical route for challenging the current license basis than the existing hearing procedures.

For one, members of the public could petition for rulemaking to change the original regulation.⁶⁴ Rulemaking offers more public participation than adjudication but is not a practical solution for challenging a licensing proceeding. Not only does it take years for the NRC to review petitions for rulemaking thoroughly,⁶⁵ after which time an SLR will almost certainly have been granted, but in many cases petitioners don't necessarily want to *change* an underlying rule overall but rather question its *application* to one particular reactor or seek to argue a reactor is in *violation* of that rule. For example, petitioners in the Point Beach SLR contended that the reactor was operating substandard to the reactor coolant pressure boundary of its current license basis, and that the way the NRC evaluated its own standard for reactor embrittlement violated NRC regulations.⁶⁶

The Panel and Commission often point to waivers as an alternative, but waivers are nearly as impractical a solution as petitioning for rulemaking. As discussed above, the strict waiver standards require petitioners to prove not only "special circumstances" as required by 10 C.F.R. §2.335, but also the Commission-created "Millstone test" that the new facts were not considered in the rulemaking and are unique to the facility.⁶⁷ Waiver

63. U.N., TECHNOLOGY BRIEF NUCLEAR POWER 16 (2020), https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf.

64. *See* San Luis Obispo Mothers for Peace v. N.R.C., 449 F.3d 1016, 1026 (9th Cir. 2006).

65. *See* N.R.C., *Denial of Petition for Rulemaking on Power Reactors in Extended Shutdown (SECY-19-0121)* (Feb. 16, 2020) (denying a 2016 petition for rulemaking).

66. Point Beach Petition at 31-35.

67. N.R.C., *Memorandum and Order (Denying Intervention Petition and Terminating Proceeding) (LBP-21-04)* (Mar. 29, 2021) at 16.

requests rarely pass this threshold. In the North Anna SLR, for example, the Panel refused to grant a waiver to consider the impacts of earthquakes, even though the reactors at North Anna experienced a seismic event in 2011 that exceeded what it was designed for, because that information could be considered encapsulated by NRC regulations.⁶⁸ The strict standard is reinforced by its practical limitations. While national organizations like Beyond Nuclear or the Sierra Club may be able to gather enough expertise to prove the “special circumstances” at the quality the NRC requires, grassroots community groups or simple neighbors to nuclear reactors lack those resources. Thus the strict standard removes the ability to participate from those it is most important to hear from—those directly affected in case of a safety or environmental incident.

A final way petitioners could challenge the current license basis is the § 2.206 process, which permits any person to petition to “modify, suspend, or revoke a license, or [] any other action as may be proper.”⁶⁹ After a person files a 2.206 petition, the NRC establishes a Petition Review Board that the person can address their claim if their petition raises a novel issue in a well-supported way.⁷⁰ After a hearing before the Petition Review Board, the NRC issues a decision on the issue after giving notice to the affected licensee.⁷¹ The NRC issues 3-5 of these decisions per year and receives about three times as many petitions under this process,⁷² making it perhaps a more successful avenue for intervention than waivers or rulemaking petitions. Additionally, a study into this process found that the NRC is remarkably responsive to 2.206 petitioners—giving them an opportunity to address relevant NRC officials, providing a draft copy of their opinion to petitioners for comment, and even adding its own claims to the petition on occasion.⁷³ Challenging the current license basis through the 2.206 process could therefore be a viable alternative for potential SLR petitioners.

Like other issues discussed in this paper, the limitations on ways to question the current procedures reflect the NRC trying to find a balance

68. *Id.* at 19-22 (This seismic issue was technically raised in an environmental context, but the waiver standard applies to both safety and environmental issues).

69. 10 C.F.R. § 2.206(a).

70. Catherine E. Kanatas, Lisa G. London & Maxwell C. Smith, *Legitimate From the Inside Out: A Review of How Agencies Act When Judges Are Not Watching*, 17 RUTGERS J. L. & PUB. POL’Y 243, 291 (2020) (citing N.R.C., Management Directive 8.11, Directive Handbook, Review Process for 10 C.F.R. § 2.206 Petitions (Mar. 1, 2019), at 4,8).

71. *Id.*

72. *Id.* at 295-96.

73. *Id.* at 296-97.

between public participation and licensing efficiency. As discussed above, however, petitioners raise legitimate issues about a reactor's current license basis. In those cases, the NRC needs a way to revisit those issues in a way that neither sacrifices efficiency for operators and staff nor places an impractical burden on petitioners that lack the resources to meet waiver standards.

B. Evaluation of Environmental Issues

Any criticism of environmental issues review during subsequent license renewals is tempered by the Feb. 2022 Commission decision to rewrite the GEIS for subsequent license renewals. That decision places the balance between efficiency and public participation firmly in favor of the latter since the revised GEIS will not be final for twenty-four months from the decision, or spring 2024. The NRC should take this revision as an opportunity to not only revisit environmental issues it considers settled but ask whether it should favor public participation over efficiency in other NRC practices.

1. Unfair Removal of Environmental Issues from Public Consideration

Like with current license basis and safety contentions in subsequent license renewal proceedings, petitioners traditionally complained that the existence of the GEIS removes serious environmental issues from consideration. The NRC has traditionally held that issues in the GEIS are there because they are truly settled. As both the First and D.C. Circuits have held, revisiting those settled issues in each subsequent license renewal proceeding would be unnecessarily duplicative.⁷⁴ Further, the agency creates a GEIS to apply to all reactors in a certain category of regulatory action; questioning GEIS elements in a particular adjudication would raise issues for reactors outside the proceeding. In short, the NRC says, the GEIS fairly balances efficiency and public participation.

Critics of the GEIS have claimed a right to more public participation than the NRC so far has offered, basing their arguments on the National Environmental Policy Act. Unlike for safety issues, which the NRC has wide discretion over how to regulate, the National Environmental Policy Act's "hard look" requirement provides an outside check on the NRC—although it is worth noting that case law is less clear-cut about the hard

74. See *Environmental Review for Renewal of Operating Licenses*, 56 Fed. Reg. 47,016, 47,017-18 (proposed Sept. 17, 1991); Martin O'Neill, *Forging a Clear Path for Advanced Reactor Licensing in the United States: Approaches to Streamlining the NRC Environmental Review Process*, 105 NUCLEAR L. BULL. 31, 69 (2020).

look's extent than some critics might argue.⁷⁵ Such critics argue that the GEIS improperly prevents the NRC from considering "new and significant" environmental issues petitioners may raise.⁷⁶ For example, petitioners in the North Anna SLR argued that the Commission did not intend to "sacrifice [National Environmental Policy Act] compliance to goals of efficiency or cost-savings" in promulgating the GEIS.⁷⁷

Additionally, even where critics of NRC processes may agree that the agency strikes the right balance on safety, they argue that environmental issues require even more public participation; for example, one response to Justice Breyer's book argued that "[i]t is far more imperative that the public retain some influence over environmental regulation. Otherwise priorities within the process will be set without ever considering the practical needs of the people."⁷⁸ It seems the public has come to expect more "say" in environmental issues, perhaps because those issues more directly affect people's daily lives—the members of Physicians for Social Responsibility Wisconsin, for example, claimed standing to intervene in the Point Beach renewal on environmental contentions because many of them fish, swim, or kayak in Lake Michigan, which the reactor uses for its cooling water.⁷⁹ Whether the reactor's cooling system harms fish can feel more immediate than whether that same reactor needs better embrittlement testing. Because of public expectations about environmental issues, perhaps the public is entitled to more participation if only to feel their concerns are being heard.

2. The Feb. 2022 Commission Order Repealing the GEIS Solves the Main Issue but Creates Others

The Commission recently agreed with the above subset of complaints rooted in the National Environmental Policy Act, and repealed the use of the current license renewal GEIS for subsequent license renewal applications in February 2022.⁸⁰ It found that considering a subsequent license renewal is an agency action independent of the agency action to issue a first license renewal, and as such, the National Environmental

75. See, e.g., *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (emphasizing that NEPA's requirement is procedural rather than substantive).

76. N.R.C., *North Anna Petition* at 33.

77. *Id.* at 32.

78. Brent L. Hoffman, *Justice Stephen G. Breyer, Business Friend and Environmental Foe: An Analysis of Justice Breyer's Judicial and Non-Judicial Works concerning Environmental Regulation*, 100 *Dick. L. Rev.* 211, 224-25 (1995).

79. *Petition in Point Beach* at 2-10.

80. N.R.C., *Memorandum and Order (CLI-22-02)* (Feb. 24, 2022).

Policy Act requires the NRC to revise the GEIS to more adequately address renewal-specific issues.⁸¹ The Commission froze all SLR applications that relied on the license renewal GEIS and directed the staff to modify the GEIS through informal rulemaking.⁸²

This reversal allows for more public participation than currently exists. When the NRC prepares an environmental impact statement, it holds “at least one” public meeting, as well as an open house before the meeting for one-on-one discussion with interested parties.⁸³ It already holds such public meetings when it prepares the Supplemental Environmental Impact Statement (SEIS), the site-specific environmental supplement to the GEIS, but those meetings are limited to SEIS-specific issues. Holding such meetings for a new GEIS means that those affected by reactors today can finally raise environmental issues that have not been questioned since the 1990s. The Commission made explicit in a follow-up order that for applications already under consideration, new site-specific hearings would be held *without* requiring intervenors to meet some of the Part 2 pleading standards for environmental contentions, making it even easier for the public to participate.⁸⁴ In terms of public administration, revising the GEIS will provide public confidence in the regulatory process: It “gives the public assurance that the agency has indeed considered environmental concerns in its decision-making process.”⁸⁵

However, while this change is a positive resolution for GEIS-related complaints about subsequent license renewals, it raises serious questions about the NRC’s overall justification for streamlining licensing processes like SLRs. In this order, the Commission justified the creation of a new GEIS by noting that the applications affected by this order were for reactors with operable licenses through at least 2030; thus, “[g]iven the timeframe involved,” the Commission expressed full confidence that the NRC could promulgate a revised GEIS—drafting, scoping, public comment, and revision included—before the affected applicants needed the GEIS.⁸⁶ This

81. *Id.* at 10.

82. *Id.* at 7-8, 14 (explaining the Commission’s intention to freeze applications and direct the Staff to modify the GEIS); Memorandum and Order (CLI-22-03) (Feb. 24, 2022) at 2-3 (separately and explicitly directing the Staff to do so).

83. Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040, 52,043 (Aug. 24, 2004).

84. N.R.C., *Memorandum and Order (CLI-22-03)* (Feb. 24, 2022) at 4.

85. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (internal citations omitted) (quoting *Baltimore Gas & Elec. Co.*, 462 U.S. 87, 97 (1983)).

86. N.R.C., *Memorandum and Order (CLI-22-02)* (Feb. 24, 2022) at 10.

conclusion begs the question: if operators are submitting subsequent license renewal applications with so much time left on their licenses, and the NRC is fine waiting a few months for a new GEIS, why is it so important to prevent petitioners from gaining hearings that would cost a few months' delay? Why isn't there time to revisit more plant-specific safety and environmental issues in subsequent license renewal applications?

One answer could be the difference between *any* participation and *meaningful* participation. The issues in a GEIS are there because they apply to all reactors; rehearing the same complaints would not add anything meaningful to the discussion of reactor environmental impact except to give a voice to those who wanted their complaints heard. For those voiceless, the SEIS public meetings exist, and the tradeoff between additional participation and agency resources may not be worth it for yet another public meeting. Regardless of the answer, however, this order raises questions about whether the NRC's subsequent license renewal process truly fulfills its statutory and administrative obligations.

C. Internal Hearing Procedures

For any local community group or neighbor to complain about a nuclear reactor, they must first jump through the NRC's hearing requirements and procedures. For many of these grassroots petitioners, the burden to participate is too high. At issue in discussing NRC hearing procedures is not the legitimacy of any petitioner's contentions like in discussions of safety or environmental issues; rather, hearing procedures guard petitioners from getting a chance to participate *at all*. The NRC justifies its strict hearing procedures as appropriate for a licensing proceeding, citing that anyone can more easily participate in a rulemaking or public meeting. However, the uniquely broad effect of licensing decisions warrants different standards that are appropriately sized to the limited resources of SLR petitioners.

1. Prohibitively Strict Requirements to Gain a Hearing

Both anti-nuclear petitioners like the Union of Concerned Scientists and attorneys who represent grassroots petitioners have long criticized the contention of admissibility hearings as placing too high a burden of proof on potential intervenors.⁸⁷ This criticism is based on a fundamental

87. *See* Union of Concerned Scientists v. U.S. Nuclear Reg. Comm'n, 920 F.2d 50, 53 (D.C. Cir. 1990); *See also* Comments of Diane Curran, submitted to Opportunities for Environmental Justice in Nuclear Law, Am. Bar Ass'n (Feb. 3, 2022) at 7; *Publication of*

argument about American participation in government: that intervenors “are people raised on the American notion that they have a legitimate right to inquire into events affecting the fundamental nature of their communities.”⁸⁸ On an NRC-specific level, if the compromise of the Atomic Energy Act is to grant the public agency-level adjudication in exchange for giving up local regulation, fair, low-barrier access to such hearings is a core part of that compromise, especially when petitioners are local organizations like Alliance for a Progressive Virginia or Physicians for Social Responsibility Wisconsin.⁸⁹

Both the NRC and critics of it agree that the purpose of high contention admissibility standards is to limit the extent of hearings,⁹⁰ although they disagree on why—intervenors believe the purpose of this high standard is to limit their participation, while industry believes it improves licensing efficiency.⁹¹ The D.C. Circuit has agreed factually in holding that §189(a) “does not confer the automatic right of intervention upon anyone.”⁹² The core disagreement at play is about the *merit* of public intervention in an SLR application. The NRC’s existing procedures reflect a balance between providing a “fair hearing process” to intervenors and granting applicants “a prompt resolution of disputes concerning their applications.”⁹³ The Commission often points to its other avenues for questioning NRC regulations, like its pre-licensing public meetings or the opportunity to petition for rulemaking as a justification for these high standards.⁹⁴

Harvard Negotiation and Mediation Clinical Program (HNMCP) Report, N.R.C., (Dec. 2020).

88. Eric Glitzenstein, *The Role of the Public in the Licensing of Nuclear Power Plants*, *Controlling The Atom In The 21st Century* 155, 159 (David P. O’Very, Christopher E. Paine & Dan W. Reicher eds. 1994).

89. *Id.* at 157.

90. *See, e.g.*, Statement of John F. Ahearne, Chairman, U.S. N.R.C., Hearing of the Subcommittee on Government Operations, U.S. Gov’t Publishing Office 9, 54-55 (July 2, 1980).

91. *Publication of Harvard Negotiation and Mediation Clinical Program (HNMCP) Report* at 28-29 (Dec. 2020), <https://www.nrc.gov/docs/ML2117/ML21173A166.pdf>.

92. *Union of Concerned Scientists v. U.S. Nuclear Reg. Comm’n*, 920 F.2d 50, 55 (D.C. Cir. 1990).

93. Policy on Conduct of Adjudicatory Proceedings, 63 Fed. Reg. 41,872-73 (Aug. 5, 1998); *see also* Statement of Policy on Conduct of Licensing Proceedings, 46 Fed. Reg. 28,533 (May 27, 1981) (noting concern about getting through all the hearings requested on reactor licensing activities in the wake of Three Mile Island).

94. *See* Enhancing Participation in NRC Public Meetings, 86 Fed. Reg. 14,964 (Mar. 19, 2021) (describing the NRC public meeting process as part of the Commission’s

However, some, including former Commissioner Peter Bradford, have criticized the NRC as “doing its damndest to contain the areas of expanded public questioning to the minimum legally necessary to get on with licensing.”⁹⁵ In other words, the NRC arguably found a balance that tilts towards applicants. While it is difficult to assert whether that allegation is true, a study into NRC licensing timelines has revealed no correlation between licensing delays and requests for hearings.⁹⁶ If hearings cause no significant delay in licensing, that would severely undermine NRC’s justification for strict contention admissibility standards.

A core argument for high contention admissibility standards lies in the fundamental difference between rulemaking and adjudication: rulemaking is meant to capture a wide swath of opinions to create a general policy, while adjudication is meant to resolve a specific issue with a specific party. One could fairly argue that people should be barred from participating in matters that don’t affect them. The problem with this argument, however, is that licensing is a unique application of adjudication. A license for a nuclear reactor inherently affects more people than a typical informal adjudication by nature of nuclear reactors themselves. Reactors have a large footprint, an even larger incident zone in case of accidents, and run for a very long time. Nuclear reactors affect hundreds of acres and generations of people. A decision on whether to license a reactor, therefore, fulfills a more similar function to rulemaking than adjudication by deciding something that indirectly affects many people. Normatively, then, those affected people should have lower barriers to participation than for a typical adjudication.

A different argument in favor of high contention admissibility standards is that the NRC’s standards are no less fair than other pleading standards since they are based on those in Article III courts. Critics of the NRC process could argue that NRC contention standards should be lower than Article III courts precisely because of the bargain the Atomic Energy Act represents: if the people living near a reactor are to be granted hearings as a compromise, shouldn’t those hearings be easy to access? On the other hand, one could argue that, in line with Justice Breyer’s analysis, the public should have to meet higher standards to second-guess highly complicated

“longstanding practice [] to provide the public with substantial information on its activities”).

95. Statement of Peter Bradford, Commissioner, U.S. N.R.C., Hearing of the Subcommittee on Government Operations, U.S. Gov’t Publishing Office 61, 62 (July 2, 1980).

96. N.R.D.C., *Comments on Systematic Assessment for How the NRC Addresses Environmental Justice* at 14 (Oct. 2021).

technical issues than they should to, say, complain about a neighbor's trespassing. The difference with nuclear reactors, however, is that many petitioners in NRC proceedings dislike them and will use adjudications to stall a reactor's renewal; Beyond Nuclear in North Anna and Physicians for Social Responsibility Wisconsin in Point Beach are just two examples. Even if people expect more participation in environmental issues than in safety issues, for example, both should still require some minimal technical support that the petitioner raises a legitimate concern rather than overloading the licensing proceeding with anti-nuclear complaints masked as contentions. Because lowering the bar exposes communities to the potential for bad faith actors to coopt legitimate concerns to stop reactor operations rather than improve it, the NRC should retain contention admissibility standards at least at a moderate level.

On the other hand, one cannot argue for higher contention admissibility without acknowledging the same unspoken problem that revising the GEIS raises: if the NRC is willing to wait a few years for a new GEIS, delaying applications in the meantime, then why won't it accept a few months' delay to let petitioners thoroughly voice their concerns? The answer is effort. While a few departments across the NRC will labor extensively on the GEIS, that labor is for a document that can be used in all subsequent license renewals going forward. Asking for lower contention admissibility standards, on the other hand, generates work for a few departments across the NRC—Office of General Counsel, environmental and safety experts, and the Panel staff themselves—three to four distinct times per year depending on how many licenses are filed.

2. Gap in Practical Access to Resources to Support Contentions

Petitioners are expected to meet these high-contention admissibility standards with access to far less expertise than the operator and NRC staff, who usually oppose petitions to intervene and requests for hearing. Although all the relevant *information* is posted on a particular SLR's online page, there is a gap in both sides' *ability to evaluate* that information. An applicant can rely on an entire company's worth of experts and research to support their technical justifications. NRC Staff can pull in the staff safety and environmental experts to help them understand the merit of a petitioner's contentions.⁹⁷ Petitioners must find their own experts, convince

97. Martin O'Neill, *Forging a Clear Path for Advanced Reactor Licensing in the United States: Approaches to Streamlining the NRC Environmental Review Process*, 105 NUCLEAR L. BULL. 31, 43-44 (2020) https://inis.iaea.org/collection/NCLCollectionStore/_Public/52/048/52048856.pdf; Anthony Z. Roisman, Erin Honaker & Ethan Spaner, *Regulating Nuclear*

those experts to give testimony, get those experts up to speed on the thousands of pages of documents, and have the expert file a statement in support of the petition. When considering that an interested petitioner may be a working mother who happened to buy a house down the street from a nuclear power plant, this gap becomes starker.

The short time for petitioners to file a petition to intervene and request for hearing compounds this expertise gap, as petitioners must scrounge up support for their contentions in a far shorter time than applicants and NRC staff. This gap is unfair. The Commission may understand this itself: it adopted the sixty-day window after finding that thirty days was “often insufficient for potential petitioners to frame and support adequate contentions.”⁹⁸ Sixty days is a little better. In the North Anna SLR, petitioners requested a thirty-two-day extension of the deadline to file a petition and request because (i) the SLR application was 3,000 pages; (ii) the petitioners could not assemble experts to respond to the application’s “significant, complex, and unprecedented” issues within sixty days; and (ii) the NRC itself had not released “significant information” in response to petitioners’ questions, and would not do so after the filing deadline.⁹⁹ The applicants’ response, which the Panel agreed with, was that 3,000 pages was an average length for SLR applications and did not constitute reason for a filing extension.¹⁰⁰ Putting aside the factual claim about application length, whether an application is of average length is irrelevant to the practicality and fairness of a sixty-day filing period. It is still too short a time for petitioners with far fewer resources at their disposal.

Power in the New Millennium (The Role of the Public), 26 Pace Envtl. L. Rev. 317, 324 (2009) <https://digitalcommons.pace.edu/pelr/vol26/iss2/2>.

98. Miscellaneous Amendments Parts 2 and 8, 43 Fed. Reg. 17,798, 17,799 (Apr. 26, 1978) (expanding the window from 30 to 45 days); Licenses, Certifications, and Approvals for Nuclear Power Plants, 72 Fed. Reg. 49,474, 49,471 (Aug. 28, 2007) (expanding the window from 45 to 60 days).

99. N.R.C., *Corrected Partially Unopposed Motion by Beyond Nuclear, Sierra Club, and Alliance for a Progressive Virginia for Extension of Deadline for Filing Hearing Requests (ML20344A291)* at 1-5 (Dec. 9, 2020).

100. N.R.C., *Applicants’ Answer Opposing Beyond Nuclear’s, Sierra Club’s, and Alliance for a Progressive Virginia’s Motion for Extension of Deadline for Filing Hearing Requests (ML20335A433)* at 4-5 (Nov. 30, 2020).

3. Formally Transparent but Practically Difficult to Access

Although everything the NRC does is published online, only a person in the know can really access critical information.¹⁰¹ The NRC publishes all filings for a particular license online in “ADAMS,” a free, publicly accessible database. However, the link to ADAMS from its official NRC webpage is a different database homepage than the one that clearly shows SLR dockets; to access any adjudicatory filings, a potential interested party must Google “NRC ADAMS EHD” to even find the ADAMS version with the “Electronic Hearing Docket” containing docket folders.¹⁰² From either the EHD or the regular ADAMS homepage, one must already know exactly what they are looking for to find it: the EHD is organized only by application name, not type of proceeding, and from either homepage a petitioner must search by “ML number,” the internal reference number, rather than any common-sense terms.¹⁰³ These complaints are neither novel nor unique to subsequent license renewals, but being unable to easily access relevant information compounds the other barriers to participating in subsequent license renewal proceedings.

III. Recommendations

This section offers recommendations to improve the NRC’s balance between efficiency and public participation. Because the NRC has fairly struck that balance in its evaluation of safety issues, this section offers limited suggestions there. For NRC evaluation of environmental issues, this section offers ways the GEIS revision can be used to increase public confidence in NRC procedures and substantively review reasonable environmental issues. Finally, this section offers four recommendations to loosen NRC hearing procedures to permit more petitioners to raise their complaints.

101. Complaints about ADAMS are not new; see Comments of the Nuclear Energy Institute, Opportunities for Environmental Justice in Nuclear Law at 14-15, Am. Bar Ass’n (Feb. 3, 2022).

102. See N.R.C. Agencywide Documents Access and Management System, <https://www.nrc.gov/reading-rm/adams.html>.

103. Compare <https://adams.nrc.gov:4443/ehd/> (EHD homepage) with <https://adams.nrc.gov/wba/> (regular, “web-based” ADAMS homepage). To find and corroborate any of the NRC sources in this paper, the author recommends Googling the ML number rather than seeking the document in ADAMS.

A. Safety Recommendations

The bifurcation of safety review into current license basis and aging management strikes a fair balance between public participation and NRC expertise. Thus, this paper does not recommend procedural changes to how the NRC evaluates safety issues in subsequent license renewal proceedings. However, perhaps the NRC could improve public confidence in its safety decisions with better education about how it comes to those decisions. There is fertile opportunity here, as former Justice Breyer pointed out, since nuclear safety is the issue with the widest gap between expert and public opinion. However, perhaps some grassroots organizations or neighbors who are otherwise unfamiliar with nuclear energy could still gain confidence in the NRC's decision-making if it were more transparent. For example, the Commission could host a public meeting, as it already does monthly on other topics,¹⁰⁴ re-explaining what the current license basis is, how staff determined and oversee the current license basis, and why the NRC remains confident in using it as an operating standard. Public administration is as much about public perception as it is about actual administration; the NRC could improve the latter by improving the former.

Petitioners who do not believe nuclear energy should be part of the U.S. electricity mix will not be mollified by these recommendations; yet, frankly, they will not be mollified by any changes to the subsequent license renewal process because it's not really subsequent license renewals they are concerned about. Perhaps on some issues there is room for scientific discussion, like the best method of measuring reactor embrittlement, but on other issues the science is clear and there is little room for discussion, for one, that nuclear energy is necessary to fight climate change and that nuclear energy, on the whole, is safe. Fear-based contentions cannot be permitted to hold up the extension of reactor licenses to eighty years, let alone at the level of individual reactor applications. If organizations like the Union of Concerned Scientists or Beyond Nuclear want to prohibit states from using nuclear energy in their electricity mixes, they can take those fights to the democratic halls of state legislatures, not NRC adjudications.

B. Environmental Recommendations

The Commission made the right choice to rescind the use of the license renewal GEIS for subsequent license renewals. However, the GEIS revision creates an opportunity for the NRC to “clearly communicate[] to allow for

104. Public Meeting Schedule, U.S. N.R.C., <https://www.nrc.gov/pmns/mtg> (last visited Oct. 13, 2022).

proper public participation” by reviewing a wide range of complaints.¹⁰⁵ First, for all the contentions that the NRC has rejected as outside the scope of individual licensing proceedings, NRC staff could revisit those complaints and analyze any broad links between them; for example, if petitioners in multiple proceedings raised concerns about groundwater leakage or fish spawning rates, the NRC could revisit those issues. Second, the public and the NRC both have a better understanding of environmental justice than in the 1990s;¹⁰⁶ the NRC should seek out traditionally underrepresented communities to make sure their perspectives are incorporated and consider their concerns. By involving potential petitioners in the rulemaking this way, and by considering the widest scope of issues reasonable, the NRC can legitimize the revised GEIS in the eyes of potential petitioners.

On a different note, the NRC must acknowledge that if it is willing to favor public participation over efficiency in environmental issues, it must engage the public elsewhere; modifying hearing requirements provide the best place for this engagement.

C. Public Participation Recommendations

The most significant opportunities to improve public participation are in hearing procedures. The Commission’s willingness to undergo a revision of the GEIS with little concern about it delaying SLR applications demonstrates that the Commission’s hard line between efficiency and participation may not be as permanent as it implies when arguing for high contention admissibility standards. Additionally, the standards at issue are those that *gate-keep hearings in the first place*. This paper advocates for lowering those standards, a completely separate issue from how seriously the Atomic Safety Licensing Board Panel or Commission should consider the merits of any contention.

Contention admissibility standards should not be “strict by design.” Reactor operators are already filing their SLR applications years, if not a full decade, ahead of when they need to; they cannot argue that a several-month contention admissibility hearing would delay them too severely. As discussed above, licensing is much more similar to rulemaking than adjudication in the number of people it affects; further, the Atomic Energy Act represents a balance in which affected parties gain access to hearings

105. N.R.C., *Memorandum and Order (CLI-22-02)* (Feb. 24, 2022) at 13.

106. Comments at Environmental Justice Panel, Am. Bar Ass’n, Feb. 2022 (CLE Panel) (on file with author).

anyway. From both an administrative and organic statute perspective, the NRC should make it easier for interested, affected parties to intervene. If petitioners can meet the standing requirements, all that should be required is a *prima facie* showing of safety and/or environmental issues, not the specificity with which they must currently be plead.

If the Commission wants to pursue the lowest-hanging fruit, it can expand the time to file a petition to intervene and request for hearing. The Commission has lengthened this time before from thirty, then to forty-five, and now to sixty days, demonstrating its willingness to do so. Simply giving petitioners more time to read the thousands of pages in an SLR application and prepare their contentions does not itself guarantee that petitioners will be granted a hearing, but it gives them a much fairer shot at doing so and signals that their participation is welcome.

Another easy solution is fixing ADAMS. The NRC could rework ADAMS's search functions to mirror FERC's EDocket, which has more user-friendly search fields.¹⁰⁷ The NRC could create a way to search dockets based on type, like license renewal, SLR, or enforcement, rather than just name. The Electronic Hearing Docket should also be a permanent fixture of the ADAMS homepage that is linked from the NRC website.

Finally, the NRC could try to close the practical gap in access to resources. Judge June Lorenzo of the Pueblo Zia, who works with tribes most affected by NRC uranium mining and waste disposal, has suggested making more of the NRC's technical resources available to petitioners like offering a staff member to guide petitioners through technical contentions.¹⁰⁸ For example, the Internal Revenue Service provides taxpayer advocates for citizens facing heavy tax burdens with immediate adverse implications.¹⁰⁹ While this service is currently unique within the federal government, the Biden agency recently encouraged other agencies to expand their citizen support.¹¹⁰ For local grassroots petitioners that lack the resources of national organizations, similar agency support would go a long way towards increasing the meaningful nature of petitioner

107. eLibrary, F.E.R.C., <https://elibrary.ferc.gov/eLibrary/search> (last visited Oct. 13, 2022).

108. Comments at Environmental Justice Panel, Am. Bar Ass'n, Feb. 2022 (CLE Panel).

109. Internal Revenue Serv., *Local Taxpayer Advocate* (last updated Oct. 27, 2022) <https://www.irs.gov/advocate/local-taxpayer-advocate>.

110. Jory Heckman, *OMB names 5 priority areas to improve interagency customer experience, as IRS also tackles citizen services*, FED. NEWS NETWORK (May 9, 2022), <https://federalnewsnetwork.com/federal-insights/2022/05/omb-names-5-priority-areas-to-improve-interagency-customer-experience-as-irs-also-tackles-citizen-services/>.

participation. Additionally, the Harvard Negotiation and Mediation Clinic recommended that for advanced reactor hearings, the NRC encourage joint fact-finding between industry, intervenors, and the NRC;¹¹¹ there is little reason such an approach could not be applied to subsequent license reactor hearings, too. If actively incentivizing petitioners to criticize NRC decisions is a step too far for the Commission, then perhaps it should not expect petitioners with few resources to meet the high pleading expectations with as much specificity as the operators and staff. If a hearing is granted, petitioners can conduct discovery anyway, which would give them the same access to technical material as hiring an expert.

Conclusion

Nuclear energy is vital to fighting climate change, and subsequent license renewals are vital to keeping nuclear energy a part of the U.S. electricity mix. While petitioners can raise legitimate challenges to NRC procedure, others are motivated by desires to stop all nuclear energy. NRC procedures must find a way to involve affected members of the public, like neighbors to nuclear reactors or grassroots organizations, without holding licenses hostage to anti-nuclear manipulation of agency practice.

On the whole, the NRC's ways of involving the public have been fair to petitioners and appropriately vet legitimate from illegitimate complaints; however, there is room for improvement. The NRC strikes a fair balance between efficiency and public participation in its consideration of safety issues, has ripe opportunity to strike such a fair balance in its consideration of environmental issues with the upcoming revised GEIS, and needs to revise its hearing procedures to more fairly involve petitioners. If the NRC can strike an appropriate balance between efficiency and participation in all three aspects of subsequent license renewal procedures, it can help legitimize the renewals among the public. This legitimacy in turn would reduce arguments about nuclear reactors in the electricity mix and could let public attention fixate on solving the rest of the climate problem instead of re-hashing settled science.

111. *Publication of Harvard Negotiation and Mediation Clinical Program (HNMCP) Report* at 7, 38-42 (Dec. 2020), <https://www.nrc.gov/docs/ML2117/ML21173A166.pdf>.