



Licensing and Permitting Reforms to Accelerate Nuclear Energy Deployment

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The permitting and licensing process for nuclear power plants in the United States has long been under scrutiny for hampering the deployment of nuclear energy technologies. When Vogtle 3 came online in July 2023,¹ it was the first time in the nearly 50-year history of the U.S. Nuclear Regulatory Commission (NRC) that a new commercial reactor design had been licensed and subsequently entered into operation.² Numerous stakeholders from across the political spectrum have made recommendations for accelerating the NRC's regulatory process, but reforms so far have not been adopted or have not proved impactful.

Developers of advanced nuclear technologies are working to push the envelope on speeding reactor deployment, with some companies promising to reduce licensing and permitting hurdles by implementing conveyor-belt-like manufacturing and siting microreactors at existing industrial facilities. These efforts are finding support on Capitol Hill: in July 2023, the bipartisan ADVANCE Act,³ which aims to restore U.S. leadership in nuclear technology, passed the Senate as part of the National Defense Authorization Act (NDAA) by a vote of 86-11; more recently, the House Committee on Energy and Commerce passed H.R. 6544, The Atomic Energy Advancement Act,⁴ which contains similar provisions.

While these developments signal new opportunities for progress, more is needed to transform the landscape for nuclear technology investment and deployment in the United States. This brief identifies additional policies and reforms, beyond those included in the ADVANCE Act and similar legislation, that could increase the efficiency of the regulatory process and support an expanded role for safe, reliable, and cost-effective nuclear technologies in meeting the critical environmental and energy security challenges of this century.

The ideas and perspectives presented here were generated in a private roundtable discussion convened by the Bipartisan Policy Center in October 2023. The roundtable included stakeholders from across the political spectrum, including nuclear industry representatives, permitting and legal experts, environmental organizations, and other think tanks and NGOs. Its goal was to explore the pros and cons of specific policy options for reforming the nuclear permitting and licensing process.

This roundtable was part of a series that BPC has hosted on the broader topic of permitting reforms to accelerate the deployment of energy projects.

Issue briefs from previous permitting roundtables may be accessed through the [BPC website](#);⁵ they include:

1. [Public Engagement Roundtable](#)⁶
2. [Permitting Linear Infrastructure Roundtable](#) (i.e., transmission and pipelines)⁷
3. [Judicial Review Roundtable](#)⁸
4. [Remaining NEPA Reforms Issue Brief](#)⁹

The remainder of this brief summarizes perspectives and insights specific to the deployment of nuclear technologies from the October 2023 roundtable.

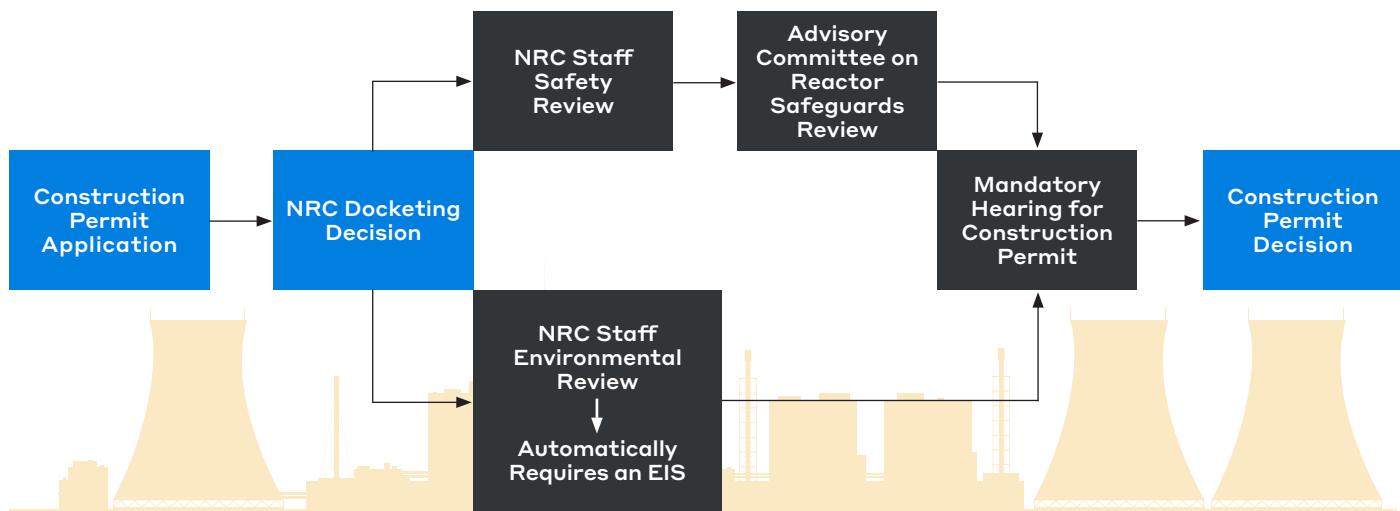
Environmental Permitting Reform for Advanced Nuclear Reactors

Option: Change the NRC environmental review process so that advanced reactors do not automatically require an Environmental Impact Statement

Consistent with the National Environmental Policy Act (NEPA), the NRC requires an environmental review to be completed before approving a construction permit for any new nuclear reactor. Under the agency's current administrative process (Figure 1), this review automatically takes the form of an Environmental Impact Statement (EIS). This is different than the federal environmental review process for non-nuclear projects, where federal agencies can choose to first conduct an Environmental Assessment (EA) to decide whether a comprehensive EIS is necessary. The EA is a more concise public document; its aim is to develop evidence and analysis sufficient to make a simpler determination: whether a project is likely to have a significant environmental impact, in which case an EIS is required, or to reach a "finding of no significant impact" (FONSI), in which case an EIS is not required and a project can proceed. The vast majority ([99% of EAs result](#) in a FONSI.¹⁰

EISs typically take much longer to complete than EAs. [A 2020 study](#) by the Council on Environmental Quality (CEQ) found that the median time to complete an EIS across all federal agencies is 3.5 years, while the average completion time is even longer at 4.5 years.¹¹ Meanwhile, [estimates](#) of time to complete a typical EA are much shorter: six to nine months, on average.¹² The recently passed Fiscal Responsibility Act attempts to place time limits on environmental reviews—it requires that EISs be completed within two years and EAs be completed within one year.

Figure 1: Current Process for the NRC to Approve a Construction Permit (10 CFR Part 50)¹³



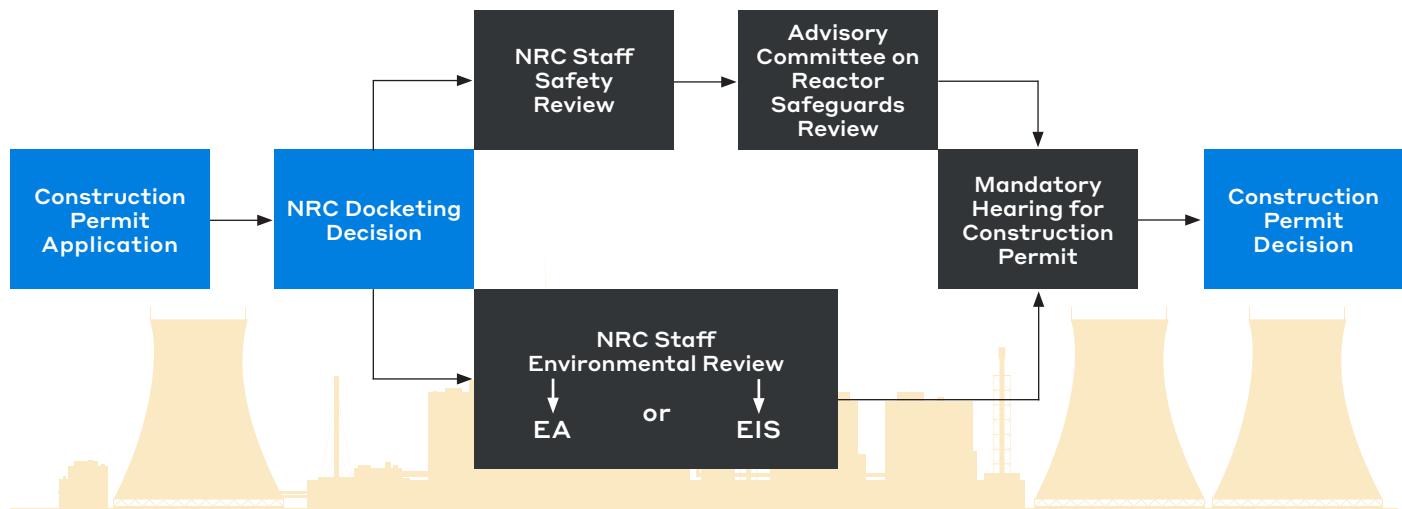
Source: [Idaho National Laboratory](#)

Roundtable participants broadly supported reforming the NRC's environmental review process for advanced reactors so that NRC staff have the option of utilizing an EA when possible (Figure 2). This reform is included in the [House Atomic Energy Advancement Act](#).¹⁴ Participants stressed that all reactors and nuclear projects do not have the same characteristics and therefore should not be required to go through the same environmental review process. In general, advanced reactors—especially new microreactors and small modular reactors—have [smaller land use](#)¹⁵ and [water requirements](#)¹⁶ than traditional nuclear reactors.

For example, the U.S. Air Force has announced a [program](#) to pilot a microreactor at Eielson Air Force Base in Alaska.¹⁷ The plan is for the base to enter into a power purchase agreement with a private company that builds and operates the microreactor. Siting this project at an existing military base has different environmental impacts than constructing a large-scale nuclear power plant at a greenfield site. As one roundtable participant observed, environmental impacts for some large light water reactor projects may likewise be considered insignificant, enabling them to benefit from this policy as well.

Allowing an EA when appropriate would not *prevent* the NRC from requiring an EIS for a specific project. Rather, it allows NRC staff the option of preparing an EA depending on the environmental considerations associated with that particular project.

Figure 2: Proposed NRC Construction Permit Process with Environmental Assessment (10 CFR Part 50)¹⁸



Source: [Idaho National Laboratory](#)

Roundtable participants also discussed whether the recently passed Fiscal Responsibility Act (FRA), which requires agencies to consider whether an EA or EIS is the appropriate level of review for a project, applies to the NRC. The [NRC has stated](#) that it considers itself to be subject to the FRA and is working to analyze and implement the FRA's permitting reform provisions.¹⁹ As participants pointed out, however, the NRC could still determine that an EIS is the appropriate level of review for all nuclear energy projects, which would leave the status quo essentially unchanged. Overall, participants were generally skeptical that the FRA will alter the NRC's current processes in significant ways; rather, they believed that statutory changes specific to nuclear energy regulation, including EIS requirements, will likely be needed.

Option: Require the NRC to create and utilize a generic EIS for the construction and operation of advanced nuclear reactors

Roundtable participants also discussed the idea of requiring the agency to create and utilize a generic EIS (GEIS) for advanced nuclear reactors. For reactor designs that will be deployed many times over, a GEIS can avoid the redundant work of analyzing environmental impacts for each individual project. The information and analysis needed to develop a GEIS for an advanced reactor design could be utilized for multiple subsequent installations, allowing the NRC to focus its resources on the unique characteristics of each project.

Participants generally supported the GEIS concept so that NRC staff can utilize analysis that has already been conducted, accelerating the environmental review process for advanced reactors. One participant noted the [NRC is already working on a GEIS](#) for constructing, operating, and

decommissioning advanced reactors, but the effort has been dormant for two years.²⁰ There was broad agreement that this effort should be completed and the NRC should vote to finalize the GEIS.

Option: Require the NRC to develop a process for timely environmental review of nuclear projects that reuse brownfield sites (e.g., coal-to-nuclear projects)

The bipartisan ADVANCE Act would require the NRC to develop a pathway to enable the timely licensing of nuclear facilities at brownfield sites. Specifically, the NRC would identify issues and develop a standard application for reutilizing brownfield sites, develop early site permits, and consider how retiring coal power plant infrastructure could be relicensed. There was broad support for this approach as a necessary first step to utilizing previously developed sites, especially retiring coal-fired power plants.

Roundtable participants emphasized the value of early site permits (ESPs) and discussed various policies that would further leverage this tool for reutilizing brownfield sites. With an ESP, the NRC could approve a site for a nuclear power plant for up to 20 years, independent of the construction or operating licensing process. The ESP process would address issues of site safety, environmental protection, and emergency planning. It would give nuclear project developers certainty that a specific site can be utilized, provided necessary licenses for construction and operation are also approved. Given the considerable potential liabilities of remediating a brownfield site, including concerns about subsurface instability and environmental radiation caused by coal ash disposal in the case of former coal plant sites, an ESP might be necessary to attract support from investors who would otherwise deem the project too risky.

Some participants proposed creating a Department of Energy program to remediate appropriate brownfield sites to a standard acceptable by the NRC for issuing an ESP. The idea would be to create a set of ready-to-build and pre-permitted sites for nuclear power plant construction, thereby mitigating the risks developers would otherwise face when attempting to reutilize a brownfield site. There were questions about whether a DOE-led remediation program would be faster than private-sector efforts. While the time required for remediation at different sites was unclear, participants generally agreed that a federal program should develop a streamlined and coordinated approach that can accelerate the process.

With certainty around site permitting, advanced nuclear project developers could capitalize on the estimated 17%–35% cost savings that could come from reutilizing retiring coal plant infrastructure.²¹ Reutilizing transmission infrastructure and avoiding some of the permitting barriers associated with new transmission projects would enable further significant time and cost

savings. As one roundtable participant pointed out, the ability to leverage existing transmission infrastructure, water rights, and workforce assets would likely be among the most valuable aspects of coal-to-nuclear projects.

Another participant noted that this approach would be similar to pre-approving land for energy projects, as some [states have done for solar projects](#)²² and as has been [proposed at a federal level](#).²³ A preclearance process means that the environmental review is conducted prior to a project application, providing developers with certainty that their project will not be delayed by NEPA requirements or other state siting and environmental review policies. An important consideration for pre-approval programs and ESPs is ensuring that the brownfield location makes business sense for investment. As a participant pointed out, to successfully catalyze investment, any DOE-led remediation program will have to focus on sites that developers are also interested in utilizing.

NRC Fee Structure Reform

A common critique of the NRC's funding structure is that it relies on annual fees charged to license holders, as well as hourly fees paid for license application reviews and other regulatory services provided by the commission. This structure places the cost of regulatory licensing and oversight on applicants and creates a disincentive for the NRC to accelerate its licensing review process. The NRC [recently increased](#) its hourly rate to \$300 for fiscal year 2023.²⁴ In 2021, the agency [estimated](#) that 18,000 NRC staff hours would be required to complete the safety and environmental review process for a construction permit for an advanced test reactor.²⁵ Workshop participants noted these costs can be prohibitive for early-stage advanced reactor companies on one hand, while also being too low to ensure that the NRC has the human resources and institutional infrastructure needed to accelerate the review process on the other hand. The ADVANCE Act includes provisions to reduce the NRC's hourly rate for reviewing challenges associated with new advanced reactors, but it does not reform the NRC's overall fee structure.

Option: Increase the NRC off-fee funding and make agency funding for infrastructure, technology upgrades, and training activities non-fee-dependent

Roundtable participants were broadly supportive of providing the NRC with more off-fee funding so that it can invest in infrastructure, develop new technologies, automate to streamline the review process, and train staff. This would mean increasing appropriations from Congress for some activities that are currently funded by hourly fees for NRC services,

consultation, and license reviews. Participants generally agreed that reducing the NRC's reliance on fees is crucial to enable the investments needed to increase permitting and licensing efficiency.

Option: Eliminate license review fees for new advanced nuclear reactors

Roundtable participants also considered the idea of eliminating NRC review fees for new advanced reactors. Most agreed that the agency's current hourly rate for license and permit reviews can be prohibitively expensive for advanced reactor companies. This is an especially important concern for microreactor companies that expect to produce numerous reactor units and face the prospect of going through the NRC review process for each one. However, many participants voiced concern about eliminating licensing fees altogether.

The most significant objection was that eliminating licensing fees could, absent increased congressional appropriations or other funding reforms, leave the NRC with less overall funding, which would decrease the agency's effectiveness as it tries to do more with less. Thus, participants were quick to emphasize that this policy should only be pursued in conjunction with increased off-fee appropriations. Provided the NRC can be made whole for any lost fee revenue, participants generally agreed that removing licensing fees would lower the barrier to entry for advanced reactor applicants. Even then, however, some participants noted there are still advantages to a fee structure that ensures applicants have "skin in the game."

In particular, a few participants were concerned that eliminating review fees could lead to frivolous applications that could consume the NRC's limited resources. Applicants would have no financial incentive to ensure that their design is mature enough to receive approval. One participant compared the potential for perverse incentives in this situation to the broadly scrutinized transmission interconnection queue, which is notoriously backlogged with electricity generation projects applying to get on the grid. Until recently, there was no cost for applying to join the interconnection queue, leading to concern that many projects in the queue are not feasible and would not be built even if approved. To address this concern, the Federal Energy Regulatory Commission ([FERC recently issued a new rule](#) requiring applicants to submit a non-refundable \$5,000 fee and put down an initial study deposit of between \$55,000 and \$250,000 depending on the project's size.²⁶

One participant added that the [Nuclear Assistance for America's Small Businesses Act](#),²⁷ introduced by Rep. Byron Donalds (R-FL) in February 2023, offers another approach to mitigate fee burdens while discouraging premature applications. The bill allows eligible advanced reactor companies to defer a certain portion of their NRC application fees until the reactor is

operational. This would give project developers time to establish a revenue stream prior to having to pay review fees.

NRC Licensing and Permitting Process Reform

The NRC's standard Part 50 licensing pathway for new nuclear power plants is a two-step process. First, the applicant must go through the construction permit process as illustrated by Figure 1. Second, the applicant must obtain an operating license, which is similar to the process of applying for a construction permit but without the mandatory hearing phase. From initial application to receiving a final decision, applicants must go through a series of steps and sub-review processes for both the construction permit and operating license. Roundtable participants considered several options that would streamline and accelerate the current two-step process.

Option: Establish and enforce timelines for each stage of the licensing and permitting process

Participants broadly agreed that statutory timelines for each stage of the licensing and permitting process would increase efficiency and give applicants greater certainty regarding the cost and timeliness of the regulatory process. Currently, the NRC provides applicants with an estimated timeline on a case-by-case basis, but there is no requirement that the agency keep to this schedule. The [NRC has stated](#) that it considers itself subject to the FRA's two-year and one-year statutory deadlines for EIS and EA reviews, respectively.²⁸ But the [NRC has yet to implement](#) these deadlines for its environmental review process and there still are no deadlines for other steps in the NRC's regulatory process.²⁹

While participants were generally supportive of specific statutory timelines, some worried that these timelines would be difficult to enforce. One issue is how to set a sensible penalty when the agency misses a deadline. Financial penalties would also decrease the NRC's resources, potentially slowing the regulatory process even further. Instead, the FRA allows project developers to take agencies to court over missed deadlines and requires agencies to submit an annual report to Congress detailing the reasons that a deadline was missed. A participant noted that the NRC already submits similar types of reports to Congress under the Nuclear Energy Innovation and Modernization Act. But these reports receive little attention and have not incentivized the NRC to maintain or accelerate timelines.

Another concern was that the NRC could simply push more activities into the pre-application phase, therefore delaying the start of a timeline. Participants recognized that the pre-application phase is valuable and can take significant time to complete, especially for novel reactor designs. To preserve these benefits while avoiding incentives to game the timeline, one participant proposed specifically detailing what is and is not part of the pre-application phase. This would help set clear boundaries and establish a shared understanding of when the official application process and associated deadlines begin.

Lastly, another participant suggested that the most effective way to expedite the review process and ensure the NRC meets deadlines is to give the agency more resources to hire experienced staff and improve project management.

Option: Eliminate uncontested mandatory hearings from the licensing process for new reactors

Under a [1957 amendment](#)³⁰ to the Atomic Energy Act of 1954, the NRC is required to hold a mandatory hearing as part of the construction permit process (Figure 1). The mandatory hearing is only between the applicant and NRC staff and is required even if there are no challenges to the construction permit or a combined license. The [Efficient Nuclear Licensing Hearings Act](#) recently introduced by Rep. Morgan Griffith (R-VA) would allow the NRC to eliminate the hearing if the construction permit is uncontested.³¹

Some roundtable participants characterized the hearing requirement as an expensive formality considering that hearings do not include public input and that any issues with the permit would have been addressed during prior stages of the process. Further, the cost of holding the hearing is paid by the applicant at the NRC staff rate of \$300 per hour. The NRC recently [estimated](#) the cost of a mandatory hearing for an advanced reactor application at approximately 1,500 NRC staff hours, or a total of \$450,000 to be paid by the applicant.³²

Roundtable participants broadly agreed that mandatory hearings can be costly and burdensome to applicants, while providing little value in cases where a construction permit is uncontested. Opinions were divided about whether uncontested mandatory hearings should be eliminated altogether versus allowing the NRC to decide on a case-by-case basis.

Option: Replace court-like hearings on contested environmental issues in license applications with a public comment process like that conducted by other federal agencies

In NRC licensing and permitting processes, the public may submit comments challenging any portion of an application, including the findings of the EIS that the NRC prepares during the environmental review stage. The NRC is [statutorily required](#) (under provisions of the Atomic Energy Act

of 1954 as amended), to resolve these public challenges by conducting a court-like hearing process.³³ At these hearings, license applicants and NRC staff present oral testimony and written information on relevant public comments and technical questions before three administrative judges who then decide how disputed issues are to be resolved. The process requires extensive paperwork and preparation by both NRC staff and the applicant.

Roundtable participants agreed that the current process is not efficient. They discussed a reform proposal that would replace the NRC's current hearing process with the public comment process that is standard under the Administrative Procedures Act (APA) and used by other federal agencies when taking a regulatory action. Both approaches provide a public comment period to gather outside input, but other agencies are not required to conduct a formal, in-person hearing to adjudicate issues raised in public comments—rather, the agency can respond when it issues a final decision. Some participants supported extending this approach to the NRC's licensing process because it removes the hassle and delay of scheduling in-person meetings and preparing written testimony.

Some participants, however, viewed an APA-style public comment process as also flawed. They recommended instead that the entire process be modernized and made iterative. Public comments would still be invited, but issues would be resolved internally, between the applicant and NRC staff, using primarily digital communication.

One participant strongly disagreed with this proposal, citing a concern that this reform could result in *increased* legal challenges to future license applications. The participant worried that changes to remove environmental issues from the NRC's adjudicatory process could remove them from the scope of Hobbs Act review. [The Hobbs Administrative Orders Review Act](#)³⁴ and Atomic Energy Act provide that final decisions issued by the Commission go directly to the circuit court after adjudication at the NRC. If a party wants to challenge an NRC license, it must raise that challenge at the very beginning of a licensing proceeding. Removing environmental reviews as part of the adjudicatory process unsettles the status quo and potentially risks putting an appeal of an agency decision in the district court, with the obligations of traditional discovery, if courts determine that there is no "final decision" per the Hobbs Act. The participant stated that this situation could negatively impact nuclear licensing, leading to higher costs, increased uncertainty, and possibly broader regulatory issues that are difficult to anticipate.

Option: Require the NRC's Advisory Committee on Reactor Safeguards to review only novel or safety-significant issues rather than all applications

As seen in Figure 1, review by the [Advisory Committee on Reactor Safeguards](#) (ACRS) is a mandatory step in the process for approving a construction permit; it is also required before the NRC can issue a license to operate.³⁵ The ACRS was established by the 1957 amendments to the Atomic Energy Act of 1954 as a statutory committee under the U.S. Atomic Energy Commission. Its mandate is to independently review safety studies and facility license applications, and to advise the federal government on the hazards of proposed or existing reactor facilities as well as the adequacy of reactor safety standards. The role of an independent regulatory body was eventually transferred to the NRC, but all nuclear projects must still go through the independent ACRS as part of the licensing and permitting process.

ACRS review entails [hundreds of hours](#) of meetings between NRC staff and applicants to analyze specific technical design considerations and risk profiles for each project.³⁶ While there are no official timelines for these reviews, a workshop participant estimated that they typically take between three and six months to complete. Scheduling difficulties for NRC staff often extend the timeline. With the NRC already acting as an independent regulatory body, workshop participants considered whether the scope of ACRS review should be narrowed to focus only on novel or safety-significant issues rather than all aspects of every application.

Some roundtable participants strongly agreed with this recommendation, pointing to past recommendations, by both the [NRC](#)³⁷ and [ACRS](#),³⁸ to right-size ACRS's role in the process. They argued that ACRS review should not be required for all applications, especially those that use standard designs that have already been approved. Instead, ACRS review could be reserved for projects that present novel design aspects. These participants viewed ACRS review as a significant barrier to the approval of new reactors and especially burdensome for companies that want to deploy many smaller reactors. One participant noted that, if this reform were to be adopted, it would be important for the NRC to have the role of referring applications to the ACRS rather than giving the ACRS discretion over which applications to review (the concern was that ACRS discretion over this decision could result in most, if not all, applications still undergoing ACRS review).

Overall, there was agreement among roundtable participants who are knowledgeable on this topic that the ACRS plays an important role in analyzing technical aspects of reactor design. But the reactor licensing and permitting process can be made more efficient and the ACRS itself can be more effective if its scope is narrowed to focus only on unique design aspects.

Conclusion

Bipartisan support for the ADVANCE Act suggests that there is interest on both sides of the aisle for accelerating and streamlining the nuclear licensing and permitting process. As Congress continues to explore options for speeding nuclear energy deployment, it will be crucial to identify which policies would be most effective at improving the nuclear regulatory process. This workshop identified several recommendations that would accelerate the regulatory process and could draw support across the political spectrum.

BPC remains dedicated to fostering meaningful discussions and collaboration on nuclear energy policy and permitting reform more generally. Our roundtables have provided a forum for vigorous debate and dialogue regarding specific permitting issues. The next issue brief in this series will analyze options to improve the permitting for specific types of energy technologies beyond nuclear power that are not generalizable to energy projects broadly.

Endnotes

- 1 Georgia Power. "Vogtle Unit 3 goes into operation." July 31, 2023. Available at: <https://www.georgiapower.com/company/news-center/2023-articles/vogtle-unit-3-goes-into-operation.html>.
- 2 Ted Nordhaus and Adam Stein. "NRC Staff Whiffs On Nuclear Licensing Modernization." The Breakthrough Institute, December 12, 2022. Available at: <https://thebreakthrough.org/blog/nrc-staff-whiffs-on-nuclear-licensing-modernization>.
- 3 U.S. Senate Committee on Environment and Public Works. "Senate Passes Bipartisan Nuclear Energy Bill from Capito, Carper, Whitehouse." July 27, 2023. Available at: <https://www.epw.senate.gov/public/index.cfm/2023/7/senate-passes-bipartisan-nuclear-energy-bill-from-capito-carper-whitehouse>.
- 4 House Committee on Energy and Commerce. (2023, December 1). Chair Rodgers announces full committee markup of 44 pieces of legislation. Retrieved from <https://energycommerce.house.gov/posts/chair-rodgers-announces-full-committee-markup-of-44-pieces-of-legislation>.
- 5 Bipartisan Policy Center. (2023, November 2). BPC Roundtable Series: Exploring Energy Permitting Reform. Retrieved from <https://bipartisanpolicy.org/blog/bpc-roundtable-series-exploring-energy-permitting-reform/>.
- 6 Fishman, X., Jacobs, J., Minott, O., Tesfaye, M., & Winkler, A. (2023, May 09). Empowering Communities while Streamlining Clean Infrastructure Permitting. Bipartisan Policy Center. Available at: <https://bipartisanpolicy.org/blog/clean-infrastructure-permitting/>.
- 7 Fishman, X., Hall, M., Jacobs, J., & Pickford, L. J. (2023, July 24). Linear Infrastructure: Options for Efficient Permitting of Transmission and Pipeline Infrastructure. Bipartisan Policy Center. Available at: <https://bipartisanpolicy.org/explainer/efficient-permitting-of-linear-infrastructure/>.
- 8 Fishman, X., Hall, M., Jacobs, J., Minott, O. (2023, Sept. 18). Reforming Judicial Review for Clean Infrastructure: A Bipartisan Approach. Bipartisan Policy Center. Available at: <https://bipartisanpolicy.org/explainer/reforming-judicial-review-for-clean-infrastructure-a-bipartisan-approach/>.
- 9 Fishman, X., & Jacobs, J. (2023, November 13). Exploring NEPA reforms needed to unlock clean energy infrastructure. Bipartisan Policy Center. Retrieved from <https://bipartisanpolicy.org/report/exploring-nepa-reforms-unlock-clean-energy-infrastructure/>.
- 10 Aidan Mackenzie. "Environmental Assessment Reform." Institute For Progress, May 9, 2023. Available at: <https://ifp.org/environmental-assessment-reform/>.
- 11 White House Council on Environmental Quality, "Environmental Impact Statement Timelines (2010-2018)," June 2020. Available at: https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2020-6-12.pdf.

- 12 DOE Loan Programs Office. "ENVIRONMENTAL COMPLIANCE." Available at: <https://www.energy.gov/lpo/environmental-compliance#:~:text=The%20average%20timeline%20for%20completing,involve%20process%20than%20an%20EA>.
- 13 Stephen Burdick. "Available NRC Licensing Pathways and Associated Hearing Processes." Page 5. Idaho National Laboratory. Available at: https://gain.inl.gov/SiteAssets/GAIN_WebinarSeries/2021.03.31_RegulatorySeries-3/Presentations/01-Burdick_OverallProjectRisk_31Mar2021.pdf. Modified to add "Automatically Requires an EIS."
- 14 House Committee on Energy and Commerce. (2023, December 1). Chair Rodgers announces full committee markup of 44 pieces of legislation. Page 28. Retrieved from <https://energycommerce.house.gov/posts/chair-rodgers-announces-full-committee-markup-of-44-pieces-of-legislation>.
- 15 ScottMadden. "Gone with the Steam." October 2021, p. 15. Available at: https://www.scottmadden.com/content/uploads/2021/10/ScottMadden_Gone_With_The_Steam_WhitePaper_final4.pdf.
- 16 Matthew L. Wald. "Nuclear Reactors Don't Need to Be So Thirsty." The Breakthrough Institute, October 17, 2023. Available at: <https://thebreakthrough.org/blog/nuclear-reactors-dont-need-to-be-so-thirsty>.
- 17 Eielson Air Force Base. "Micro-reactor Pilot Program." Available at: <https://www.eielson.af.mil/microreactor/>.
- 18 Stephen Burdick. "Available NRC Licensing Pathways and Associated Hearing Processes." Page 5. Idaho National Laboratory. Available at: https://gain.inl.gov/SiteAssets/GAIN_WebinarSeries/2021.03.31_RegulatorySeries-3/Presentations/01-Burdick_OverallProjectRisk_31Mar2021.pdf. Modified to add "Automatically Requires an EIS."
- 19 U.S. Nuclear Regulatory Commission. "Response to Request for Information House Committee on Energy and Commerce." September 1, 2023. Available at: <https://www.nrc.gov/docs/ML2325/ML23256A067.pdf>.
- 20 U.S. NRC. "GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR ADVANCED NUCLEAR REACTORS." 2021. Available at: <https://www.nrc.gov/docs/ML2122/ML2122A055.pdf>.
- 21 John Jacobs and Lesley Jantarasami. "Can Advanced Nuclear Repower Coal Country?" Bipartisan Policy Center. March 23, 2023. <https://bipartisanpolicy.org/report/nuclear-repower-in-coal-country/>.
- 22 Richard Gittleman. "California Governor Signs Executive Order Expanding State's Renewable Energy Goals and Expediting Renewable Energy Development." Akin Gump, November 19, 2008. Available at: https://www.akingump.com/a/web/5672/aogQn/081119_california-governor-signs-executive-order-expanding-state.pdf.
- 23 Bipartisan Policy Center. "Smarter, Cleaner, Faster Infrastructure Task Force: Policy Recommendations." May 2021. Available at: https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2021/05/BPC_SmarterCleanerFasterRecPage.pdf.
- 24 U.S. Nuclear Regulatory Commission. "NRC Amends Licensing, Inspection, and Annual Fees for Fiscal Year 2023." June 15, 2023. Available at: <https://www.nrc.gov/cdn/doc-collection-news/2023/23-035.pdf>.

- 25 U.S. Nuclear Regulatory Commission. "KAIROS POWER, LLC - HERMES TEST REACTOR CONSTRUCTION PERMIT APPLICATION REVIEW SCHEDULE AND RESOURCE ESTIMATE (EPIDS: L-2021-NEW-0011 AND L-2021-NEW-0012)." December 15, 2021. Available at: <https://www.nrc.gov/docs/ML2134/ML21343A214.pdf>.
- 26 Ruta Skučas et al. "ORDER NO. 2023: INTERCONNECTION REFORM IS FINALLY HERE." K&L Gates, September 6, 2023. Available at: <https://www.klgates.com/Order-No-2023-Interconnection-Reform-is-Finally-Here-9-7-2023>.
- 27 Donalds, B. (2023, February 14). H.R.1007 - Nuclear Assistance for America's Small Businesses Act. Retrieved from <https://www.congress.gov/bill/118th-congress/house-bill/1007>.
- 28 U.S. Nuclear Regulatory Commission. "Response to Request for Information House Committee on Energy and Commerce." September 1, 2023. Available at: <https://www.nrc.gov/docs/ML2325/ML23256A067.pdf>. U.S. NRC. "GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR ADVANCED NUCLEAR REACTORS." 2021. Available at: <https://www.nrc.gov/docs/ML2122/ML21222A055.pdf>.
- 29 U.S. Nuclear Regulatory Commission. "Response to Request for Information House Committee on Energy and Commerce." September 1, 2023. Available at: <https://www.nrc.gov/docs/ML2325/ML23256A067.pdf>. U.S. NRC. "GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR ADVANCED NUCLEAR REACTORS." 2021. Available at: <https://www.nrc.gov/docs/ML2122/ML21222A055.pdf>.
- 30 Matt Bowen, Rama T. Ponangi, & Stephen Burns. "Improving the Efficiency of NRC Power Reactor Licensing: The 1957 Mandatory Hearing Reconsidered." November 21, 2023. Available at: <https://www.energypolicy.columbia.edu/publications/improving-the-efficiency-of-nrc-power-reactor-licensing-the-1957-mandatory-hearing-reconsidered/#:-text=Dating%20to%20a%201957%20amendment.projects%20under%20consideration%20for%20development>.
- 31 Griffith, H. M. (2023, November 21). H.R.6464 - Efficient Nuclear Licensing Hearings Act. Retrieved from <https://www.congress.gov/bill/118th-congress/house-bill/6464/cosponsors>.
- 32 Matthew Hiser. "Hermes Construction Permit Application Mandatory Hearing Resource Estimate." August 10, 2023. Available at: <https://www.nrc.gov/docs/ML2322/ML23226A172.pdf>.
- 33 Stephen J. Burdick, J.D., Dr. John C. Wagner, Dr. Jess C. Gehin. "Recommendations to Improve the Nuclear Regulatory Commission Reactor Licensing and Approval Process." Idaho National Laboratory, April 2023, p. 6. Available at: https://inldigitallibrary.inl.gov/sites/sti/sti/Sort_65730.pdf.
- 34 Legal Information Institute. (n.d.). 28 U.S. Code Chapter 158 - ORDERS OF FEDERAL AGENCIES; REVIEW. Retrieved from <https://www.law.cornell.edu/uscode/text/28/part-VI/chapter-158>.
- 35 Nourbakhsh, H. (2023, February 24). The enduring legacy of ACRS: Reviewing safety-licensing to protect the public. ANS / Nuclear Newswire. Retrieved from <https://www.ans.org/news/article-4679/the-enduring-legacy-of-acrs-reviewing-safetylicensing-to-protect-the-public/>.

- 36 Danielle Emche et al. "Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards." Nuclear Innovation Alliance, March 2023. Available at: <https://nuclearinnovationalliance.org/sites/default/files/2023-03/NIA%20Final%20Report%20on%20ACRS%20-%20March%202023.pdf>.
- 37 U.S. Nuclear Regulatory Commission. "ACRS ACTIVITIES TO SUPPORT NRC TRANSFORMATION." October 17, 2019. Available at: <https://www.nrc.gov/docs/ML1929/ML19290F956.pdf>.
- 38 U.S. Atomic Energy Commission. "Annual Report to Congress of the Atomic Energy Commission for 1965-66." January 1966. Available at: <https://www.osti.gov/opennet/servlets/purl/16360407.pdf>.

