

Legal and Regulatory Analysis: A Research and Practice Brief for Engaging Communities in Advanced Nuclear Energy Facility Siting

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Available online: <https://doi.org/10.15786/wyoscholar/10102>

In November¹ 2021, the private company TerraPower, in partnership with electric utility PacifiCorp and the United States Department of Energy (DOE) via its Advanced Reactor Demonstration Program (ARDP), announced plans to site its Natrium advanced nuclear reactor near the retiring Naughton coal-fired power plant in Kemmerer, located in southwest Wyoming.¹ This project marks the first commercial advanced nuclear energy facility to begin construction in the United States.² This research explores the case of the Natrium project in Kemmerer, Wyoming.³ Findings can inform an adaptable community engagement process for advanced nuclear energy siting and development, as proposals to develop similar facilities are rapidly increasing.⁴

Introduction

The Legal and Regulatory Analysis Report, a component of this project, investigates whether and how formal advanced nuclear energy siting processes currently incorporate environmental justice and to what extent they provide opportunities for stakeholders to meaningfully participate.¹ The following brief summarizes this report, which includes two sections:

- 1 Analyzing Environmental Justice within Federal Agencies Relevant to Advanced Nuclear Energy Facility Siting**
- 2 Beyond Public Comment: Toward Just Advanced Nuclear Energy Facility Siting Regulatory Procedures**

This brief reflects research conducted between 2022 and 2024, during which time several executive orders relevant to environmental justice and federal agency obligations—including Executive Orders 12898, 14008, and 14096—were in effect. In January 2025, executive actions by the second Trump administration rescinded or modified several of these policies, with implications for federal environmental justice implementation and nuclear energy siting procedures.

1. Analyzing justice within federal agencies relevant to advanced nuclear energy facility siting

The first section examines how various environmental justice executive orders and legislation have been implemented within federal agencies with a significant role in authorizing new advanced nuclear energy facilities and, specifically, the Natrium facility in Kemmerer: the Department of Energy (DOE) Office of Clean Energy Development (OCED) and the Nuclear Regulatory Commission (NRC). This examination includes legal scholarship perspectives on three types of justice most clearly represented in federal policy: distributive, procedural, and recognition. Definitions for these terms are presented in Figure 1.

Federal Agency Environmental Justice Obligations and Implementation Relevant to Natrium

The National Environmental Policy Act (NEPA) became law in 1970 and required federal agencies to evaluate the environmental impact of their policies and decisions through procedural requirements such as submitting environmental assessments and impact statements created through public comment and participation.⁹ Since then, President Clinton issued Executive Order (EO) 12898 which directed federal agencies to “identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”¹⁰ The Biden administration issued other EOs to “tackle the climate crisis” and “revitalize commitment to environmental justice for all.”¹¹

Agencies’ responses to this direction depend on their structure, primary missions, and responsibilities. The Office of Clean Energy Development (OCED) is a division of the DOE that supports the private sector to implement clean energy technologies. As a federal agency under the executive branch, it has implemented these EOs by requiring the incorporation of community partnerships and input on project development.¹² Conversely, the NRC, as an agency independent from the executive branch, is not obligated to implement EOs. Its more limited environmental justice implementation aligns with the NRC’s more narrow mission, which until very recently exclusively focused on assuring the safety and security of

Figure 1. Legal Perspectives on Environmental Justice

Distributive Justice:

“the right to equal treatment, that is, to the same distribution of goods and opportunities as anyone else has or is given.”⁵ Distributive justice focuses on the disproportionate distribution of facilities and industrial activities that directly cause environmental and public health burdens and risks within racially, ethnically, and/or economically marginalized communities. Beyond considering the distribution of burdens, distributive justice also includes “equitable access to environmental goods and services, such as clean air, clean water, and healthy and nutritious food.”⁶

Procedural Justice:

equal treatment realized through fair, accessible, and inclusive decision-making processes to determine the distribution of outcomes.⁷ Ensuring procedural justice requires that formal legal mechanisms provide communities with both an opportunity to participate in decision-making processes that affect them and a substantive right to do so in a way that yields meaningful results.

Recognition Justice:

“includes calls to acknowledge... social, cultural, ethnic, racial, and gender differences,” that may be misrepresented and/or ignored within environmental and energy decision-making processes. It interrogates the institutional structures at the root of these disparities.⁸

nuclear facilities.¹³ Consistent with EO requirements, environmental justice implementation within these agencies focuses primarily on procedural and/or distributional justice. However, new tools and programs developed by the DOE in response to EO 14008 also align with scholarly definitions of recognition justice. Table 1 lays out these implementations at the DOE and at the NRC.



Build site for the Kemmerer Unit 01 Natrium Reactor facility in August 2024.

Environmental Justice through Executive Orders by Relevant Agency

Table 1

Agency	Distributive	Procedural	Recognition
Department of Energy (DOE)/Office of Clean Energy Development	Justice40 Initiative conditions receipt of certain federal funds for energy development on a project’s demonstrated benefit for marginalized communities. Developers must track the distribution of benefits from their energy project. ¹⁴	Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA): funds from these acts are conditioned on developers’ ability to demonstrate commitment to conduct two-way engagement with communities and to meaningfully implement their feedback. ¹⁵ Environmental justice screening tools help create transparency regarding distribution of DOE funding. ¹⁶	Energy Justice Dashboard: screening tools that help both agencies and project developers identify communities that are currently overburdened. Tools create data-driven methods to account for demographic factors that underlie injustices. ¹⁷
Nuclear Regulatory Commission (NRC)		Only environmental justice obligation is in its implementation of NEPA; implementation of environmental justice executive orders is wholly voluntary. ¹⁸	

2. Beyond Public Comment: Toward Just Advanced Nuclear Energy Facility Siting Regulatory Procedures

We assessed the Natrium project as a case study, evaluating whether and how procedural justice concepts are codified into law and regulations at every jurisdictional level applicable to advanced nuclear energy facility siting in Kemmerer, Wyoming.

Process

We condensed several overlapping concepts that are most relevant to regulatory elements of procedural justice into three evaluative principles: Transparency, Public Participation, and Accountability.¹⁹

1 Transparency: procedures should provide public access to information throughout all stages of the process and at every level of decision-making,²⁰ allow interested parties to “find out what is going on inside a [government agency],”²¹ create “visibility regarding who is responsible for what risks,”²² and require decision-makers to clearly communicate their reasoning to interested parties.²³ Transparent processes empower participation by disseminating information on both the project and the decision-making processes in an appropriate form and within an appropriate time frame to allow for meaningful participation. Information should be communicated in a manner that the public can easily use and understand.²⁴

2 Public Participation: assures stakeholders meaningful, accessible, nondiscriminatory opportunities for participation and involvement.²⁵ During these processes, governments provide stakeholders with a platform to voice their concerns, opinions, needs, and ideas and engage in constructive dialogue with others. Public participation requires “organized processes adopted by elected officials, government agencies, or other public- or private-sector organizations to engage the public in environmental assessment, planning, decision-making, management, monitoring, and evaluation.”²⁶

3 Accountability: “holding responsibility for the decisions made and being answerable to the people affected by those decisions.”²⁷ This may include the ability to appeal unjust decisions and to assure that administrative procedures are followed.²⁸ In some cases, courts have reviewed agency actions to determine whether public participation requirements in statute have been met. Accountability can occur through elections, information dissemination, monitoring by a third-party, and sanctioning.²⁹ For administrative actions, like permitting and siting projects, accountability occurs via judicial review through federal and state administrative procedure acts.³⁰

We then applied these three principles to analyze the following federal and local bodies involved at different levels of oversight for the Natrium facility siting process in Kemmerer, Wyoming:



Nuclear Regulatory Commission (NRC)



Wyoming Industrial Siting Division (ISD)



Local Governments via County Level Land Use Planning



Department of Energy’s Administration of the Advanced Reactor Demonstration Program (ARDP)

Findings

The table summarizes our procedural justice assessment of the Natrium Advanced Nuclear Reactor Demonstration Project siting process

Oversight Level	Transparency	Public Participation	Accountability
Nuclear Regulatory Commission (NRC)	Public: Agencywide Document Access and Management System (ADAMS) database, open meetings, notices and draft decisions posted in the Federal Register, interested parties may subscribe to information and updates directly. Agency must respond to all comments and provide reasons for decisions.	Public: National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) scoping process, public comments on draft EIS. NRC has discretion to decide who counts as an “affected party,” which determines who can participate in NEPA scoping processes. Agency hosts information meeting; comment gathering meeting; observational meeting. While the NRC must respond to public comments submitted through NEPA processes and during rulemaking, comments do not guarantee changes in decision-making.	Parties to Proceeding; government entities: Hearings conducted by independent licensing board within NRC for specific contentions. NEPA Commenters & Parties: Judicial review of final agency action such as NRC ruling on contentions or NEPA environmental analysis.
Wyoming Industrial Siting Division (ISD)	Public: Industrial siting applications are posted online, published in newspapers and with the county clerk’s office; hearings are live streamed. Agency must detail reasons for decisions. Subject to Wyoming’s Open Meetings Law and Public Records Law	State government entities; local governments impacted by facility; residents and nonprofits of impacted local government; record title owners affected by facility: Hearing participants.	Participants in Hearing: Judicial review pursuant to Wyoming Administrative Procedure Act.
Local Governments via County Level Land Use Planning	Public: Meetings must adhere to Wyoming Open Meetings Law which requires meetings to be open to the public, restricts communication outside public meeting spaces, and requires minutes be taken at meetings. Wyoming’s Public Records Law requires that these minutes be available for public inspection during business hours and upon written request.	Petition of the local county planning and zoning commission to amend an existing land use plan; participation at public meetings.	District Court judicial review; direct complaints against county actions via petition to district court for judicial review; registration of complaint with appointed ombudsman for disputes regarding the availability of public records.
Department of Energy’s Administration of the Advanced Reactor Demonstration Program (ARDP)	Public: Funding opportunity announcement and Merit review criteria are publicly available, awards are publicly announced	Public: NEPA review and public comment for major funding decisions. [No relevant mechanisms identified]	NEPA Commenters; Judicial review of final agency action. ARDP Applicants: Judicial review of award decision process; Review by Special Procurement Executive

Conclusion

The opportunities for public participation and accountability for nuclear facilities are more robust than almost any other industrial facility built in the United States. However, the federal processes in place for nuclear energy facilities are not intended to create substantive requirements related to *distributive* environmental justice. The current regulatory framework applicable to projects in Wyoming focuses on safety, mitigation of environmental impacts, and land use compatibility. Each of these processes provide protections related to transparency, participation, and accountability. There are no regulatory processes that examine the equitable distribution of benefits and burden and, therefore, no public participation opportunities specific to that distribution. Both federal and state processes related to advanced nuclear energy facility siting could better align with procedural justice in several ways.

1 The recent 2024 Accelerating Deployment of Advanced Nuclear Clean Energy Act (ADVANCE) requires the NRC to formally consider community engagement and historical experience with energy production for facilities planned for brownfield sites or the sites of fossil fuel electric generation facilities that are retired or scheduled to retire.³¹ The NRC and commenters in NRC processes now have opportunities to suggest procedural justice protections in these cases. Congress could enact legislation to broaden these requirements to account for community-wide impacts beyond the physical facility location (e.g., the Natrium facility is planned for a greenfield site adjacent to the decommissioning Naughton Power Plant and, therefore, ADVANCE requirements would not apply).

2 The DOE can use its competitive awards evaluation process, which includes Program Policy Factors, to ensure awards effectively use government funding, to meet procedural justice goals. For example, the agency could require letters indicating community support as part of the application process. Additionally, the DOE could require community engagement, through its cooperative agreements, which are used for awarded projects that anticipate substantial involvement between the DOE and the non-federal entity.³² These measures would support robust opportunities for stakeholders to participate in decision-making and justice-informed site selection processes.

3 State legislatures have authority to pass legislation to increase the power and participation of stakeholders in siting processes and to take specific action to support environmental justice within communities. Present examples of state action include the creation of new environmental agencies,³³ substantive requirements for siting in disadvantaged communities,³⁴ and requiring voter approval before authorizing construction of new nuclear facilities.³⁵ Citizens could demand new procedural or substantive protections from their state and local elected representatives.

4 The Wyoming legislature has enacted statutes to smooth the path to construction for advanced nuclear energy facilities, and the Board of County Commissioners for Lincoln County, where Kemmerer is located, has not amended its land use plan.³⁶ While these conditions may indicate implicit majoritarian consent for advanced nuclear energy facilities, without requirements specifically tailored to identify and mitigate risks to disadvantaged or minority communities, these processes will not assure that new development does not exacerbate existing inequities.

Read the full report:

Righetti, T. & Budowle, R. (Eds.) (2024). *Engaging Wyoming communities in an environmental justice approach for advanced nuclear energy facility siting: Legal and regulatory analysis report* (Milestone #M2NU-22-WY-UW_-030210-034). Department of Energy Nuclear Energy University Program: Award #DE-NE0009297. <https://doi.org/10.15786/wyoscholar/10102>

Funding statement:

Department of Energy Nuclear Energy University Program Award #DE-NE0009297 provided funding for this research. Any opinions, findings, conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect the views of the Department of Energy Office of Nuclear Energy.

Endnotes

- i. An earlier version of this brief incorrectly identified June 2021 as the date of the Kemmerer site selection. TerraPower announced plans to locate a Natrium facility in Wyoming in June 2021 and subsequently selected Kemmerer as the site in November 2021. This brief has been corrected accordingly.

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Note, this section includes abbreviated references. Complete references are available in the full report.

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