



UNIVERSITY OF WYOMING

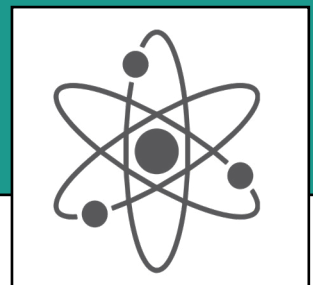
SCHOOL OF ENERGY RESOURCES  
NUCLEAR ENERGY  
RESEARCH CENTER

# WHITE PAPER SERIES

NO. 1

## White Paper Title:

**Summary - Legal Analysis of Siting a  
Nuclear Facility in Wyoming**



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# NUCLEAR ENERGY RESEARCH CENTER WHITE PAPERS

## **About the University of Wyoming School of Energy Resources' (SER) Nuclear Energy Research Center (NERC) White Paper Series**

NERC, which is one of SER's Faculty-led Centers of Excellence, is focused on interdisciplinary nuclear-energy capacity building across the UW community by connecting UW faculty and staff that are already active in research fields critical to the success of nuclear energy, and developing collaborative relationships both external and internal to UW.

The objective of the NERC White Paper Series is to share preliminary research conducted on nuclear-related energy issues in Wyoming as they emerge to serve as a public resource. The authors of the papers are solely responsible for the content of their contributions. The working papers can be found at <http://www.uwyo.edu/ser/research/centers-of-excellence/nuclear-energy-research-center/resources.html>

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## SITING NUCLEAR FACILITIES IN WYOMING

Both conventional nuclear generation and SMR or micro-reactor applications would be subject to federal licensing procedures through the NRC (42 U.S.C. § 2131). The federal license process includes NEPA compliance (10 C.F.R. § 51.20 (2022)) and contested public hearings. (10 C.F.R. §§ 50.58, 52.21, 52.85, 52.103 (2022)) The time, cost, and risk associated with the federal licensing process has been identified as a significant barrier to expanded deployment of nuclear technologies in the United States.<sup>1</sup> In response to these concerns, in 2020 DOE and the NRC approved a new-approach to licensing non-light-water reactors. The NRC is currently undergoing rulemaking to develop new regulations for the licensing and regulation of advanced reactors. Proposed Rule, Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors, 85 FR 71002 (Nov. 6, 2020). Lingering uncertainty over the federal licensing process may disadvantage nuclear technologies relative to other, more available alternatives including use of conventional or renewable resources. However, the federal licensing process may provide Wyoming with an advantage over more developed states for the location of nuclear generation facilities due to its low population: in some circumstances licensing requirements may be easier to meet where the installation is far from a population center. (10 C.F.R. § 100.21(a)-(b) (2022)) (requiring that each nuclear site have a “low population zone” and a “population center distance” of a certain size).

Though the Atomic Energy Act and NRC regulations pursuant to that act are comprehensive, United States Supreme Court precedent indicates that states (and, by extension, local governments which derive their power therefrom) retain some authority over aspects of siting not related to a nuclear facility’s radiological safety aspects. (See *Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm’n*, 461 U.S. 190, 205 (1983)). Most facilities - excepting very small facilities - would also be subject to the provisions of the Wyoming Industrial Siting Act. (Wyo. Stat. Ann. §§ 35-12-106, 35-12-102 (2022)). Cities and counties in Wyoming have authority to impose siting requirements consistent with local government authority where not otherwise preempted by state or federal law. (Wyo. Stat. Ann. §§ 18-5-201-208 (2022)) (creating zoning powers for counties); Wyo. Stat. Ann. §§ 15-1-601-611 (2022)) (creating zoning powers for cities and towns).

Wyoming recently revised its statutes to permit temporary storage of spent fuel so long as it is stored at the site of a nuclear facility. (H.B. 131, 66th Leg., 2022 Budget Sess. (Wyo. 2022)).

## STATE TAXATION OF NUCLEAR ENERGY

Wyoming has a nuclear generation production tax. (Wyo. Stat. Ann. § 39-23-103 (2022)). Advanced nuclear reactors are unconditionally exempt from the tax until 2035, at which point the exemption becomes conditioned on a facility’s use of at least 80% domestic-sourced uranium. (Wyo. Stat. Ann. § 39-23-105(c) (2022)).

## SALE OF ELECTRICITY FROM NUCLEAR GENERATION

Although several states in the western interconnection have no restriction on sale of energy from nuclear sources, the largest electricity markets limit the amount of the electricity sector available to power from nuclear sources by requiring predetermined percentages of electricity sold to come from “renewable” resources. Though definitions of “renewable” vary, all states that require “renewable” resources exclude nuclear from this preferred group of generation sources. (See, e.g., Nev. Rev. Stat. § 704.7811(2) (2022) (“[renewable energy] does not include . . . nuclear energy”); Cal. Pub. Util. Code § 25741(a)(1) (2022) (creating a list of generation sources that may be used by a “renewable electrical generation facility” and omitting nuclear energy from that list).) The percentage of electricity sales from which nuclear is excluded varies considerably among states that have restrictions, but the four states that currently or in the future will restrict nuclear energy from over 50% of electricity sales represent over half of total electricity consumption in the western interconnection. (See, e.g., N.M. Stat. Ann. § 62-16-4 (2022) (requiring unconditionally for zero carbon resources to make up 100% of retail electricity sales by public utilities that are not electric cooperatives); N.M. Stat. Ann. § 62-15-34

<sup>1</sup> Mignacca, B. & G. Locatelli. (2020). Economics and finance of small modular reactors: A systematic review of research agenda. *Renewable and Sustainable Energy Review* 118, 109519. <https://doi.org/10.1016/j.rser.2019.109519>

(2022) (requiring for electric cooperatives to supply 100% of retail electricity sales using zero carbon energy only under certain feasibility, reliability, and affordability conditions). In some states, the requirements vary for electric cooperatives or small utilities.

State legislatures continue to revise clean energy and renewable portfolio standards, which adds uncertainty regarding the size of the potential market for new nuclear generation. Several states that have recently revised these standards or are currently debating revisions and have explored using each of these standards together. (See, e.g., Wash. Rev. Code. § 19.285.040 (2022) (creating Washington’s renewable portfolio standard); Wash. Rev. Code § 19.405.050 (2022) (creating a clean energy standard in Washington in addition to the renewable portfolio standard). The combined effect of these coexisting standards requires a certain percentage of clean energy (which generally includes nuclear), a smaller percentage of which is required to be “renewable” by a renewable portfolio standard. (See, e.g., § 19.285.040; § 19.405.050). While renewable portfolio standards may limit the total market available for export of electricity from nuclear generation, a significant portion of the total market in the western interconnection remains available.

A developer of micro-reactor applications may be able to sell excess power back to the utility as a qualifying facility under PURPA. (See 18 C.F.R. §§ 292.203(b), 292.205 (2022)). A micro-reactor application would most likely qualify as a co-generation facility but may also be able to qualify as a small power production facility if heat from an industrial process were used to generate electricity, depending on how FERC categorized generation from waste heat. (§§ 292.203(a), 292.204, 292.202(b).). This could allow sale of residual electricity back into the grid at the avoided cost of generation. (See § 292.303(a)). A project developer would have the option to either self-certify or to request FERC certification. (See § 292.207.). While sale of residual electricity to the utility might be a possibility under PURPA, a developer of a MR could not sell electricity to the public or other potential users unless it was subject to regulation as a public utility. (See Wyo. Stat. Ann. § 37-1-101(a) (vi) (2022) (defining “public utility”).