WYOMING LEGISLATIVE SERVICE OFFICE

Memorandum

DATE April 28, 2025

TO Joint Minerals, Business, and Economic Development Interim Committee

FROM Brian Fuller, Deputy Legal Administrator

SUBJECT Topic Summary: Nuclear Energy

This summary provides background information on federal and state laws concerning the licensing and siting of nuclear-related facilities.

Approved Interim Topic

Priority No. 1: Nuclear Energy.

The Committee intends to study ways to grow nuclear energy in Wyoming, including reviewing the permitting framework for storing spent nuclear fuel from advanced nuclear reactors manufactured in Wyoming. Additionally, the Committee will review security measures and needs for nuclear generation and storage facilities.

Federal Law: Nuclear Facilities

The primary law applying to nuclear generation facilities is the Atomic Energy Act of 1954.[1] Among other things, the Act authorizes the Nuclear Regulatory Commission to regulate and issue licenses for utilization and production facilities, which are facilities that: (1) produce special nuclear material (generally plutonium or uranium), or (2) make use of special nuclear material.[2] This includes the authority to regulate nuclear reactors and conversion, enrichment, and fuel-fabrication facilities.[3]

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[1] Pub. L. No. 83-703, 68 Stat. 919.
[2] 42 U.S.C. §§ 2131, 2014(v) & (cc).
[3] See 42 U.S.C. § 2021b(3).

To receive a license, an applicant must complete and submit various materials to the Commission, including, among other things, a safety analysis report (showing the design information and criteria for the proposed facility), a physical security plan, a comprehensive assessment of the environmental impact, and evidence that the applicant has sufficient funds or a reasonable assurance of obtaining the funds to cover estimated construction costs, fuel-cycle costs, and estimated operation costs (if the application is for an operating license).[4]

Once a license is complete, the Commission will consider whether the application contains sufficient technical information to allow its evaluation; if it does, the Commission will hold a public meeting in the locale of the proposed facility and publish notice of the application and proposed facility in the Federal Register.[5] In addition to a safety evaluation of the proposed facility, the Commission must also complete an environmental review under the National Environmental Policy Act.[6]

Licenses are subject to conditions that the Commission imposes (by rule) to effectuate the purposes of the Atomic Energy Act.[7] Licenses must be for a specified period but cannot exceed 40 years from the authorization to commence operations; licenses can be renewed upon the expiration of the specified period.[8] Licenses generally cannot be transferred, and the Atomic Energy Act authorizes the Commission the right of recapture or control of a license if necessary.[9]

The Atomic Energy Act authorizes the Nuclear Regulatory Commission to transfer oversight and regulation of the following to any state: (1) byproduct materials (any radioactive material, except special nuclear material, yielded incident to the process of producing or utilizing special nuclear material and the tailings or wastes produced by the extraction of uranium or thorium); (2) source material (uranium and thorium, generally); and (3) special nuclear materials in quantities not sufficient to form a critical mass.[10] During the duration of any agreement with a state, the state has the authority to regulate the materials covered by the agreement "for the protection of the public health and safety from radiation hazards."[11]

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[4] 10 C.F.R. §§ 50.33 & 50.34.
[5] See 42 U.S.C. §§ 2232 & 2239.
[6] See 10 C.F.R. §§ 51.20 & 51.21; 10 C.F.R. parts 20, 50, 73, & 100.
[7] 42 U.S.C. § 2133(a).
[8] 42 U.S.C. § 2133(c).
[9] 42 U.S.C. § 2233.
[10] 42 U.S.C. §§ 2021(b), 2014(e).
[11] 42 U.S.C. § 2021(b).

The state of Wyoming has the authority to enter into agreements with the Nuclear Regulatory Commission for the state to assume regulatory authority over the first two items (byproduct materials and source material).[12] The authority to seek an agreement with the Commission for source material was provided in the 2023 General Session.[13] The Atomic Energy Act expressly prohibits the Commission from delegating or discontinuing the authority to any state for regulating the following:

- The construction and operation of any production or utilization facility or any uranium enrichment facility.
- The export from or import into the United States of byproduct material, source material, or special nuclear material, or of any production or utilization facility.
- The disposal into the ocean or sea of byproduct material, source material, or special nuclear waste materials.
- The disposal of other byproduct material, source material, or special nuclear material that the Commission determines by regulation or order should, because of the hazards or potential hazards thereof, not be so disposed of without a license from the Commission.[14]

Federal Law: Spent Nuclear Fuel Storage

The Nuclear Waste Policy Act of 1982 is the law that primarily governs the storage of spent nuclear fuel (fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing).[15] The Commission is tasked with establishing safety, security, and environmental regulations for the licensing of interim spent fuel storage installations and for cask designs for the dry storage of spent nuclear fuel.[16] In 1987, Congress selected Yucca Mountain in Nevada to serve as a permanent repository for the storage of spent nuclear fuel in the United States.[17] To date, a storage facility at Yucca Mountain has not been completed.[18]

The Commission grants two types of storage licenses: general (allowing the licensee to receive title to and own spent nuclear fuel without regard to quantity), and specific (a

[12] W.S. 35-11-2001(a).
[13] 2023 Wyo. Session Laws, Ch. 46.
[14] 42 U.S.C. § 2021(c).
[15] 42 U.S.C. §§ 10101(23), 10151.
[16] See 42 U.S.C. § 10155.
[17] 42 U.S.C. § 10172.
[18] See Nuclear Energy Institute v. EPA, 373 F.3d 1251 (D.C. Cir. 2004).

license allowing the receipt, handling, storage, and transfer of reactor-related GTCC[19] and that is issued to a specific named person).[20]

The United States Supreme Court is currently considering whether the Atomic Energy Act and the Nuclear Waste Policy Act allow the Nuclear Regulatory Commission to license private entities to temporarily store spent nuclear fuel away from the nuclear-reactor sites where the spent fuel was generated. The United States Court of Appeals for the Fifth Circuit held that the Atomic Energy Act and the Nuclear Waste Policy Act do not authorize the Commission "to license a private, away-from-reactor storage facility for spent nuclear fuel."[21] That court concluded that the decision of "such magnitude and consequence" rests with Congress itself, or an agency acting under a "clear delegation" from Congress.[22] A decision from the Supreme Court is expected by the end of June 2025.

State Law: Advanced Nuclear Reactors

State law provides for the operation of advanced nuclear reactors in Wyoming (reactors that is an improvement over nuclear reactors placed in service before January 2021 and that have a license from the Nuclear Regulatory Commission).[23] This law provides that any person operating an advanced nuclear reactor in Wyoming shall not store spent nuclear fuel or high-level radioactive waste from the advanced nuclear reactor without first meeting all Nuclear Regulatory Commission requirements.[24] Wyoming's Industrial Development Information and Siting Act applies to these reactors only to the extent that the Act does not interfere with, contradict, or duplicate any requirements of the Nuclear Regulatory Commission.[25] At least 30 days before commencing construction on an advanced nuclear reactor, an operator is required to submit a report to the Department of Environmental Quality that includes information on the number of jobs that will be created, estimated taxes to be generated, and benefits and impacts accruing to the state.[26] Wyoming law requires the operator of an advanced nuclear reactor to forward all reports

[19] Greater than Class C waste, which is low-level radioactive waste that exceeds the concentration limits of radionuclides established for class C waste. 10 C.F.R. § 72.3.
[20] 10 C.F.C. § 72.6.
[21] Texas v. Nuclear Reg. Comm'n, 78 F.4th 827, 844 (5th Cir. 2023).
[22] Id.
[23] W.S. 35-11-2101.
[24] W.S. 35-11-2101(b).
[25] W.S. 35-11-2101(e).
[26] W.S. 35-11-2101(f).

sent to or received from the Nuclear Regulatory Commission to the Department of Environmental Quality.[27]

State Law: Siting of Radioactive Waste Storage Facilities

State law provides a process for the siting of a high-level radioactive waste storage facility; this process is in addition to any requirements for storing spent nuclear fuel that must be completed under federal law.[28] A high-level radioactive waste storage facility includes "any facility for high-level radioactive waste storage," excluding a permanent repository, and also includes an independent spent fuel storage installation as defined under federal law.[29] In turn, "high-level radioactive waste" means the highly radioactive material resulting from the reprocessing of spent nuclear fuel and other highly radioactive material that the Nuclear Regulatory Commission determines by rule requires permanent isolation.[30]

In order to undertake the siting of a high-level radioactive waste storage facility, the applicant must submit an application that includes information on the site-selection criteria, the technical feasibility of the technology, the environmental, social, and economic impacts of the facility, and conformance with federal guidelines.[31] The facility application must include an initial deposit of at least $800,000 (that figure is annually adjusted for inflation).[32] The initial deposit is to be used to cover the state's costs in investigating, reviewing, and processing the application and proposed storage facility, with unused fees being refunded to the applicant.[33] Once an application is received, the director of the Department of Environmental Quality must apply for any funds that may be available to the state for the storage of spent nuclear fuel under the federal Interim Storage Fund or the Nuclear Waste Fund.[34]

Within 21 months of receiving an application to site a storage facility, the Department must complete a report that examines the environmental, social, and economic impacts to

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[27] W.S. 35-11-2101(g).
[28] W.S. 35-11-1501 through 35-11-1507.
[29] W.S. 35-11-1501(a)(iii).
[30] W.S. 35-11-1501(a)(i); 42 U.S.C. § 10101(12). For purposes of this Wyoming law, "spent nuclear fuel" has the same definition as under federal law. W.S. 35-11-1501(a)(iv).
[31] W.S. 35-11-1502(b).
[32] W.S. 35-11-1502(c).
[33] Id.
[34] W.S. 35-11-1502(e); 42 U.S.C. §§ 10156, 10222.

site the facility within the state.[35] The report must assess all probable impacts with the proposal to site a storage facility in the state, including short-term impacts and impacts that may be "serious, reversible or irreversible."[36] The report must also evaluate the environmental, social, and economic impacts from a range of alternative actions (including siting the facility as proposed, a "no-action" alternative, and other alternatives).[37] The report must also include a proposed benefits agreement to be negotiated with the applicant, and the DEQ director must identify a recommended action from among the alternatives evaluated in the report.[38]

After completing the report, the DEQ director must submit the report for public review; the public must be afforded an opportunity to review the report and provide comments.[39] The director is also required to hold public hearings in the counties where the proposed storage facility will be located and "throughout the state, to the extent practicable," to receive comments on the report.[40] The director must submit the report to the Legislature, including the director's recommended action, any conditions proposed regarding siting, construction, and operation, the proposed benefits agreement, and a summary of the Department's considerations to any public comments received.[41]

The benefits agreement that the Department and applicant must enter into must be sufficient to offset adverse environmental, public-health, social, or economic impacts to the state and to the local area where the facility is sited.[42] The agreement may be terminated if the applicant fails to adhere to the agreement.[43]

Generally, the Legislature must affirmatively approve (through legislation) the siting, construction, and operation of a storage facility before any construction commences and before the storage facility may be sited in Wyoming.[44] Statute specifies that the Legislature may authorize a storage facility if the Legislature finds all of the following:

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[35] W.S. 35-11-1503(a). The director may extend the deadline and notify the applicant and the Legislature if more time is needed to complete the report. Id.
[36] W.S. 35-11-1503(b).
[37] W.S. 35-11-1503(c).
[38] W.S. 35-11-1503(d)–(e).
[39] W.S. 35-11-1504(a).
[40] Id.
[41] W.S. 35-11-1504(b).
[42] W.S. 35-11-1505.
[43] Id.
[44] W.S. 35-11-1506(a).

- The siting of a storage facility within the state is in the best interests of the people of Wyoming.
- The siting of a storage facility within the state can be accomplished without causing irreversible adverse environmental, public-health, social, or economic impacts to the state as a while and specifically to the local area hosting the proposed storage facility.
- The proposed benefits agreement is sufficient to offset any adverse impacts to the state and the local area where the storage facility is sited.
- Sufficient safeguards (by contract or other means) exist to provide that the authorization for the storage facility is limited to no more than 40 years; any waste in storage at any facility remain the property of the waste generator or the civilian reactor owner (until transferred to permanent storage or to the ownership of the federal government); conditions substantially equivalent to federal law are and remain effective for the facility; and there is a cooperative agreement between the state and the Nuclear Regulatory Commission to provide for state regulation of the facility.[45]

If the Legislature authorizes the siting of a facility, the Department must issue a permit; the issuance of the permit is not appealable to the Environmental Quality Council.[46]

State law also specifies advance legislative authorization for the siting of a temporary high-level radioactive waste storage facility within Wyoming, subject to all of the following:[47]

- A facility is authorized if:
    - It is operated on the site of and to store high-level radioactive waste or spent nuclear fuel produced by a generation facility operating within the state.
    - The facility has received a license from the Nuclear Regulatory Commission.
    - The required report is submitted.
    - And the operator of the facility is in compliance with other applicable law.
- Not later than 30 days before construction of a nuclear generation facility commences, the operator submits a report to the Department that includes information on the number of jobs created, estimated taxes to be generated, and the benefits and impacts accruing to the state and applicable local community.

[45] W.S. 35-11-1506(b).
[46] W.S. 35-11-1506(d).
[47] W.S. 35-11-1506(e).

- The operator must send all publicly available reports, notices, and violations sent to or from the Nuclear Regulatory Commission to the Department.

Conclusion

Please let me know if you have any questions or would like additional information.[48]

[48] Two resources may be of additional benefit to the Committee. First, this website provides background information on the licensing process for nuclear generation facilities: Nuclear Reg. Comm'n, Backgrounder on Nuclear Power Plant Licensing Process, available at **https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/licensing-process-fs.html** (last visited April 24, 2025); and Nuclear Reg. Comm'n, Overview of Licensing, available at **https://wyoleg.gov/InterimCommittee/2024/09-202410082-01BriefingonNRCLicensing.pdf** (last visited April 24, 2025). The latter material was presented to the Committee at its third meeting in 2024.