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December 2025

State Policies Supporting the Implementation of Small Modular Reactors

In 2025, the Washington State Legislature directed the Washington State Institute for Public Policy (WSIPP) to review the funding mechanisms and policies adopted by other states to support the implementation of small modular reactors (SMRs). The legislative requirements for this study are displayed in Exhibit 1.

Small modular reactors are nuclear fission reactors with a generating capacity of approximately 300 megawatts or less, designed with modular technology that enables factory fabrication. Our review focuses on understanding how other states are supporting the development and deployment of SMRs through policy and financial strategies.

Section I explores Washington State's electricity system, SMR technology, and the SMR site development process. Section II details our policy review methodology. Section III presents our results. Section IV concludes with implications for policymakers.

Summary

The Washington State Institute for Public Policy was directed by the 2025 Washington State Legislature to review the funding mechanisms and policies adopted by other states to support the implementation of small modular reactors (SMRs).

Small modular reactors are nuclear reactors with a generating capacity of approximately 300 megawatts or less, designed with modular technology that enables factory fabrication, promotes economies of scale through series production, and allows for shorter construction timelines.

We identified 79 policies in 35 states supporting SMR implementation. The most common area of support was preliminary research and coordination. States have also adopted policies affecting SMR site permitting, power purchase agreements, and construction. The most common financial mechanisms were direct grants and loans, bond issuance, tax exemptions and credits, and advanced cost recovery.

Our review is targeted at policies that explicitly affect advanced nuclear reactors such as SMRs. Other policies that support energy infrastructure more broadly are not included in our review.

Suggested citation: Gibson, C., & Cramer, J. (2025). *State policies supporting the implementation of small modular reactors* (Document Number 25-12-4101). Olympia: Washington State Institute for Public Policy.

I. Background

Small modular reactors (SMRs) are a type of nuclear reactor that is used to generate electricity. In this section, we explore the Washington State electricity system, SMR technology, and the SMR site development process.

Exhibit 1

Legislative Assignment

> *$80,000 of the amounts in fiscal year 2026 are provided solely for a review of the funding mechanisms and policies adopted by other states to support the implementation of small modular reactors.*
>
> *The review shall be submitted to the legislature, pursuant to RCW 43.01.036, by December 31, 2025.*
>
> Engrossed Substitute Senate Bill 5167, Chapter 424, Laws of 2025

Washington State's Electricity System

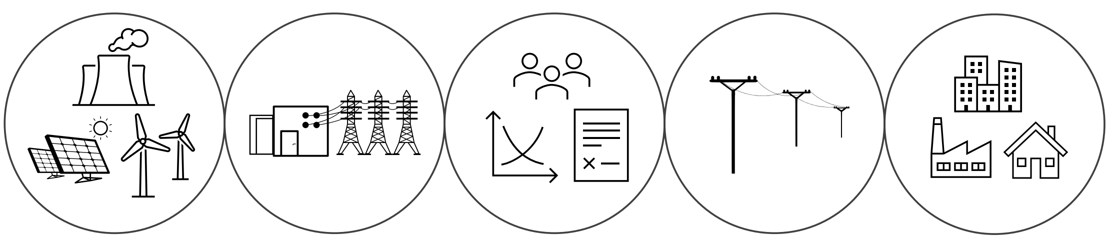
First, we explore Washington State's electricity system. This will provide important background information on the environment in which SMR facilities could be developed and for identifying policies in states with similar systems. Exhibit 2 illustrates how electricity is generated, transmitted, traded, and distributed to consumers.

What is Washington's Electricity Fuel Mix?

Washington State's electricity system relies heavily on hydroelectric power generated by dams on the Columbia River and other rivers throughout the state. Exhibit 3 presents Washington's distribution of electric fuel sources. In 2023, hydroelectric power accounted for 49% of electricity consumed in the state, followed by natural gas, wind, coal, and nuclear power. The Clean Energy Transformation Act (CETA), passed by the Washington State Legislature in 2019, requires the state's electricity supply to be fully carbon-free by 2045.[1]

Exhibit 2

Washington State Electricity System



Generation: Power plants generate electricity. These facilities are owned by public and private utilities, utility consortiums, federal agencies, and independent power producers.

Transmission: Electricity is transmitted on high voltage transmission lines. These are primarily owned by the Bonneville Power Administration, with some lower voltage lines owned by utilities.

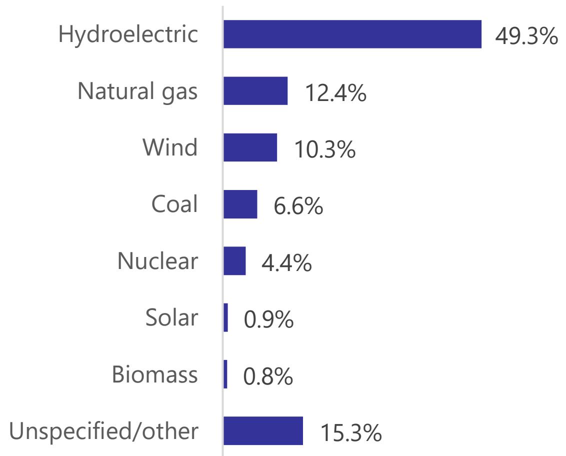
Wholesale market: Utilities and other power producers buy and sell electricity on the wholesale market. Purchases are governed by power purchase agreements.

Distribution: Utilities reduce voltage at substations and distribute electricity on lower voltage power lines.

End use: Commercial and residential customers purchase electricity from utilities.

[1] Engrossed Second Substitute Senate Bill 5116, Chapter 288, Laws of 2019.

Exhibit 3
Washington State's Electricity Fuel Mix



Note:
Values are from the Washington State Department of Commerce's 2023 Electric Utility Fuel Mix Disclosure report.

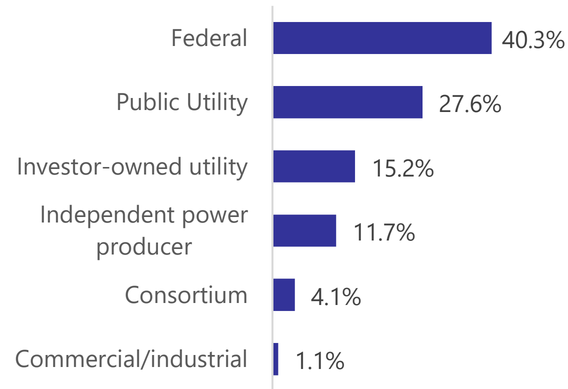
Who Owns Washington's Electricity-Generating Facilities?

Washington's electricity-generating facilities are owned by a mix of federal agencies, public and private utilities, and independent power producers.[2] Exhibit 4 presents the distribution of electricity-generating facility ownership in Washington State. Exhibit A3 in Appendix I presents a map of power plants in Washington.

Washington is notable for its high proportion of federally owned electricity-generating capacity. Four of the ten largest power-generating facilities in the state are hydroelectric dam facilities owned by the federal Bureau of Reclamation or the U.S. Army Corps of Engineers.

Columbia Generating Station is owned by Energy Northwest, a consortium of municipal utilities and public utility districts.

Exhibit 4
Power Plant Ownership in Washington State



Note:
Data are from the U.S. Energy Information Administration's 2025 Q2 U.S. Energy Atlas and are based on plants' total generating capacity.

Who Owns Washington's Electricity Transmission Infrastructure?

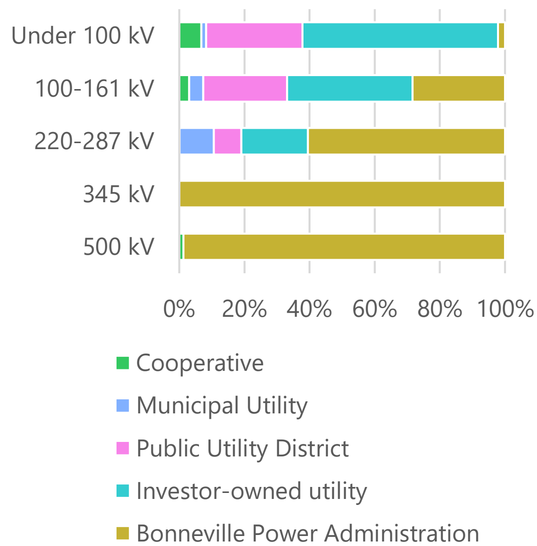
After electricity is generated, it is typically routed on high-voltage transmission lines to electric substations, where the voltage is reduced for distribution to end users.
As with its electricity-generating facilities, much of Washington's transmission infrastructure is federally owned. Exhibit 5 presents the distribution of transmission infrastructure ownership in Washington state.[3] The Bonneville Power Administration (BPA), part of the U.S. Department of Energy, is responsible for selling the electricity generated at 31 federally owned hydroelectric dams and the Columbia Generating Station. Bonneville Power Administration owns more than 99% of the extra-high voltage transmission lines in the state.[4] Lower voltage transmission lines are owned by a mix of BPA and public and private utilities.

[2] Independent power producers are entities that produce electricity and sell it to utilities, rather than delivering it directly to end-use customers.

[3] Exhibit A4 in Appendix I presents a map of transmission infrastructure in Washington State.
[4] 345 kilovolts and above.

Exhibit 5

Transmission Infrastructure Ownership



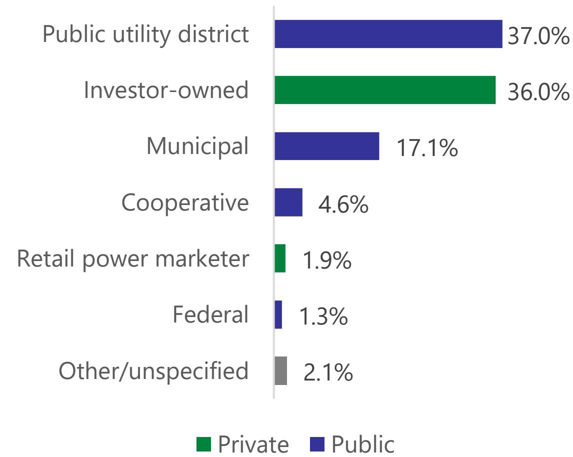
Notes:
Data are from the U.S. Energy Information Administration's U.S. Energy Atlas and are based on total transmission line length.
Kilovolt value ranges are based on EIA's classifications.

Who are Washington's utilities?

Electric utilities are responsible for delivering electricity to customers. Washington State features a regulated electricity market in which utilities are typically responsible for both power generation and distribution.[5]

Exhibit 6

Washington State Utility Types by Total Megawatt-Hours Delivered



Note:
Data are from the U.S. Energy Information Administration's 2023 Annual Electric Power Industry Report.

Washington's market has a relatively high proportion of public utilities compared to other states. Exhibit 6 presents the distribution of utility types in Washington State. Municipal utilities, electric cooperatives, public utility districts, and federal agencies together accounted for 60% of electricity delivered to Washington customers in 2023.[6] Washington is one of only six states in which a majority of power was delivered by public utilities, along with Tennessee, Nebraska, Alaska, North Dakota, and Mississippi. In Washington, public utilities are regulated by their elected commissioners, while private utilities are regulated by the Washington State Utilities and Transportation Commission (UTC).

[5] By contrast, in deregulated electricity markets, utilities are only responsible for distribution and typically purchase electricity from independent power producers.

[6] Exhibit A5 in Appendix I presents a map of utility service areas in Washington.

Nuclear Power in the United States

Next, we briefly explore nuclear power in the United States. The U.S. Energy Information Administration provides a succinct explanation of nuclear power:

> *Nuclear power reactors use heat produced during atomic fission to boil water and produce pressurized steam. The steam is routed through the reactor steam system to spin large turbine blades that drive magnetic generators to produce electricity.*[7]

In the United States, there are currently 55 nuclear power facilities operating in 28 states, including one in Washington. In 2023, nuclear power accounted for 18.5% of total electricity generation in the U.S., and 8.2% in Washington.[8]

Columbia Generating Station near Richland is Washington State's only nuclear power facility. It began commercial operation in 1984 and has a generating capacity of approximately 1,200 megawatts electric (MWe).[9] Washington's total nuclear generating capacity ranks 27th out of the 28 states with nuclear power generation. Exhibit A1 in Appendix I presents a map of existing nuclear power facilities in the United States.

Small Modular Reactors

Small modular reactors are nuclear reactors that generate approximately 300 MWe or less and consist of modules that can be manufactured off-site and transported to an energy facility for assembly and installation. This distinguishes them from conventional reactors, which are typically larger, custom-designed, and custom-built for the specific needs of a facility.

It is important to note that SMRs are a type of advanced nuclear reactor, but not all advanced reactors are SMRs. Exhibit 7 provides an overview of different designs.

Exhibit 7

Nuclear Reactor Designs

Conventional reactors

- Large light water reactors power almost all nuclear power facilities in the United States. These water-cooled reactors generate at least 700 megawatts electric (MWe) by boiling or pressurizing water and are typically custom-designed and built for the specific needs of a facility.

Advanced reactors

- Small modular reactors (SMRs) generate approximately 300 MWe or less and feature a modular design, meaning that they can be manufactured off-site and transported by truck or rail to an energy facility for assembly and installation.
- Non-light water reactors use alternatives to water for coolants, including gas, liquid metal, and molten salt.
- Microreactors generate 10 MWe or less and are designed for specialty and off-grid applications (e.g., space and maritime).

[7] US Energy Information Administration. (2023). *Nuclear explained.*

[8] U.S. Energy Information Administration. (2025). *Form EIA-923, Power Plant Operations Report.*

[9] IAEA. (2025). *Power reactor information system.*

SMR Implementation Globally

As of 2025, there are two operational SMR facilities globally. The first is a floating power station in Pevek, Russia, north of the Arctic Circle, that consists of two 35 MWe pressurized water reactors.[10] The second is a facility located in Shandong province, China, that consists of two high-temperature gas-cooled reactors generating a combined 211 MWe.[11] The Russian facility began commercial operation in May 2020, while the Chinese facility began in December 2023.

Since beginning commercial operation, the two SMR facilities have operated at a lower percentage of full output than conventional reactors.[12] The Russian and Chinese facilities have operated at 63% and 27% of capacity, respectively. This compares to an average of 80% globally, and 83% at Columbia Generating Station.[13] A 2023 report concluded that the reasons for the gap in performance between SMRs and conventional reactors are unclear.[14]

SMR Implementation in the United States

The U.S. Nuclear Regulatory Commission is currently involved in permitting for 18 advanced nuclear reactor projects in the United States.[15] Exhibit A2 in Appendix I presents a map of advanced nuclear reactor projects in the United States.

Twelve projects, including one in Washington, are engaged in pre-application activities, three are under active review, and three have received approval. In December 2025, the U.S. Department of Energy awarded $800 million in federal funding to SMR projects in Michigan and Tennessee.[16]

The SMR Site Development Process

Site developers face several requirements when building an SMR facility. Understanding these requirements will provide a framework for analyzing state policies that support SMR implementation. The following categories are adapted from the Washington State Department of Commerce's 2022 Compatible Energy Siting Assessment.[17]

Site Location

An early step in the development process is identifying and securing access to a suitable location for the facility. Desirable site characteristics for SMR facilities include seismic stability and access to transmission and transportation infrastructure. Undesirable site characteristics include nearby population centers, sensitive ecological systems, and geographic features like volcanic hazards and floodplains.[18]

[10] Ibid.
[11] Ibid.
[12] One measure of reactor performance is the energy availability factor (EAF), which measures the ratio of a reactor's actual electrical output to its rated sustainable electrical output.
[13] IAEA. (2025). *Nuclear power reactors in the world*.
[14] Schneider, M. & Froggatt, A. (2023). *The world nuclear industry status report 2023*.
[15] Ahn, A., Teplinsky, E., Qvist, M., McMurray, N., Merrifield, J., Kincer, J., Cothron, E., & Tolliver, C. (2024). *The global race for advanced nuclear is on*.
[16] U.S. Department of Energy. (2025). *Energy Department Selects TVA and Holtec to Advance Deployment of U.S. Small Modular Reactors*.
[17] Washinton State Department of Commerce. (2022). *Washington State compatible energy siting assessment.*
[18] Golder Associates. (2016). *Small modular reactors: An analysis of factors related to siting and licensing in Washington State*.

One siting consideration is whether a proposed location is on or near an existing power plant site. An advantage of established power plant sites is that they have existing transmission access and have already successfully undergone the site identification and permitting process.

For example, there have been proposed SMR sites near the Columbia Generating Station (the Washington Nuclear Project No. 1 site) and at the TransAlta coal power plant near Centralia.[19]

Interconnection

Power plant owners need access to transmission infrastructure. Some utilities own transmission lines and may be able to meet this need independently. Others need to secure access to new or existing transmission lines. Constructing new transmission lines can considerably extend project timelines. An analysis of transmission lines built since 2005 found that lines can take 10-15 years to complete.[20] Connecting to existing lines typically involves submitting an interconnection request to a transmission line owner like BPA. Bonneville Power Administration's existing transmission network is currently strained by long application queues and limited physical capacity to transmit additional electricity.[21]

Power plants that decommission non-nuclear generating units and replace them with SMRs may be able to maintain existing BPA transmission rights if they successfully undergo a facility interconnection study.[22] This involves an examination of the effects of the proposed conversion on grid performance and reliability.[23]

Inputs

The primary operating inputs for SMR facilities include water, electricity, and nuclear fuel. Water and electricity availability are considered more important siting considerations than proximity to facilities that produce nuclear fuel.[24]

Access to skilled workers is also critical and can be improved by the presence of nearby educational, research, and industrial institutions.[25] Examples include colleges and universities, research labs, and other private or public sector nuclear industry organizations. Economic development authorities have observed the benefit of nuclear "hubs" in sustaining nuclear supply chains.[26]

Permitting and Stakeholder Engagement

Nuclear power plants face a particularly complex and time-consuming permitting process. Site permitting requires approval from federal organizations, including the Nuclear Regulatory Commission (NRC), the Federal Emergency Management Agency, and the Environmental Protection Agency (EPA).[27]

[19] Weimar, M.R., Zbib, A., Todd, D., Buongiorno, J., & Shirvan, K. (2021). *Techno-economic assessment for generation III+ small modular reactor deployments in the Pacific Northwest*. Pacific Northwest National Laboratory.
[20] Moch, J. (2022). *Review of transmission lines since 2005*. Harvard Dataverse.
[21] New Project Media. (2025). *Interview: Bonneville Power Administration executives discuss new projects being connected to grid in next two years.*
[22] Bonneville Power Administration. (2025). *Technical requirements for interconnection to the BPA Transmission Grid*.
[23] North American Electric Reliability Corporation. (2022). *FAC-002-4 - Facility interconnection studies.*
[24] Golder Associates (2016).
[25] Zbib, A., Cullen, G., Steuerwalt, M.,& Marrs, B. (2025, September 25-26). *Economics of nuclear power*. NGA Nuclear Energy Policy Retreat, Olympia, WA, United States.
[26] Morrow, H. (2025, September 25-26). *Western states' regional activities*. NGA Nuclear Energy Policy Retreat, Olympia, WA, United States.
[27] Golder Associates (2016).

The NRC issues construction permits, conducts safety analyses, and certifies reactor designs. As of 2025, two SMR designs have received NRC approval.[28]

At the state level, the Washington State Energy Facility Site Evaluation Council (EFSEC) is the primary permitting authority for nuclear power facilities. The council evaluates and supports facility compliance with all state and local regulatory requirements.

Power Purchase Agreements

Both nuclear and non-nuclear power plant owners need to ensure that they have customers for the electricity they produce. In Washington, this is typically done through power purchase agreements (PPAs), which are bilateral contracts between generators and buyers. The agreements help reduce uncertainty for both parties and are often a precondition for site developers to obtain project financing.[29]

The structure of a PPA depends on who owns the power plant. Utilities primarily sell power to their retail customers, so their PPAs mostly govern the sale of surplus electricity to other utilities or the BPA. Independent power producers do not have retail customers, so they tend to seek long-term PPAs with utilities. Energy Northwest has an arrangement with BPA to distribute power generated by its plants to its member utilities.

Emerging ownership models like "colocation" involve a large power user building a generation facility, consuming power on a single site, and selling surplus power to other utilities.[30]

Construction and Operation

Once the siting and permitting requirements have been met, SMR developers can begin construction. The construction process for nuclear power plants has historically been characterized by high capital costs and long project lead times. Both features are associated with increased risk of cost overruns.[31]

Construction risks include supply chain issues, design misspecification, and permitting delays. An intended benefit of SMRs is to reduce capital costs and lead time through economies of modularization. However, because they have not yet been successfully implemented in the United States, SMRs also face first-of-a-kind technology risk. Utilities in Washington State have cited this as a decisive factor in their development decision-making process.[32]

Operating risks include fuel supply disruptions, electricity market conditions, and natural disasters. Other risks include public acceptance and changing regulatory environments.

[28] These approvals relate to SMR designs, not to specific SMR facilities. See NuScale's US460 and US600 designs.
[29] Washington State Department of Commerce (2022).
[30] Federal Energy Regulatory Commission. (2025). *Docket No. EL25-49-000.*
[31] Boarin, S., Mancini, M., Ricotti, M., & Locatelli, G. (2021). Economics and financing of small modular reactors In D.T. Ingersoll & M.D. Carelli (Eds.), *Handbook of small modular nuclear reactors*
[32] Zbib et al. (2025).

Funding Mechanisms

Conventional nuclear power plant developers rely on several funding mechanisms to finance their projects.[33] The most common mechanisms involving private entities are bond issuances and loans.

Government entities can employ several additional mechanisms, including:

- Direct support in the form of subsidies, loans, and tax exemptions;
- Loan guarantees, which involve a government agreeing to assume a developer's debt obligation in the case of a default;
- Revenue guarantees, which can include power purchase agreements;
- Contracts for difference, in which a government and a developer agree upon a base electricity rate, and the government agrees to pay any difference between market rates and the base rate to the developer; and
- State ownership, as is the case with the current SMR facilities in Russia and China.

Practically, because of the high cost of nuclear reactor projects, the financial mechanisms available to individual U.S. state governments may be limited by their capacity for financial risk.

Summary

Policymakers have shown increased interest in SMR development in recent years. SMR developers face several challenges, including risks associated with new technology, a time-consuming permitting process, integration with existing transmission infrastructure and electricity markets, and high construction costs. In the next section, we describe our methodology for reviewing state policies that support SMR implementation.

[33] Weibezahn, J., & Steigerwald, B. (2024). Fission for funds: The financing of nuclear power plants. *Energy Policy, 195.*

II. Methodology

In this section, we detail our methodology for identifying and analyzing state policies and financial mechanisms that support SMR implementation.

Policy Sources

We identified three organizations that maintain databases of state nuclear and advanced nuclear policies.[34] Exhibit 8 presents the policy trackers used in our analysis. The policies included in these trackers were implemented by state-level entities. Our review does not include federal or local SMR policies.

Policy Identification

First, we compiled policies from the three sources mentioned above. After removing duplicates, we identified 318 policies related to nuclear energy.

Next, we restricted our search to policies that relate specifically to SMRs or advanced nuclear technology by searching policy descriptions for key terms including "modular," "SMR," and "advanced." We identified 79 policies enacted in 35 states between 2010 and 2025 that mentioned relevant keywords.[35] These policies were primarily enacted by state legislatures, public utility commissions, governors' offices, state energy offices, and environmental agencies.

Exhibit 8

Policy Sources

Organization	Policy tracker	Description
National Conference of State Legislatures (NCSL)	State energy legislation database	Includes all energy-related legislation introduced from 2023 to the present and is updated weekly.
National Association of Regulatory Utility Commissioners & National Association of State Energy Officials (NARUC-NASEO)	Advanced nuclear state action tracker	Includes state activities related to advanced nuclear efforts by public utility commissions, state energy offices, legislatures, and governors' offices. The tracker includes activities from 2013 to the present and is updated monthly.
Nuclear Energy Institute (NEI)	Report: state legislation and regulations supporting nuclear energy	Compiles state legislation, executive orders, and regulations related to nuclear energy enacted from the early 2000s through 2024.

[34] NCSL. (2025). *State energy legislation database*; NARUC-NASEO. (2025). *Advanced nuclear state action tracker*; NEI. (2025). *State legislation and regulations supporting nuclear energy*.

[35] See Appendix Exhibit A6 for a diagram depicting our policy inclusion and exclusion decisions.

Policy Categorization

To facilitate our policy analysis, we categorized each policy based on two dimensions: 1) the site development requirements it targets and 2) the policy tools it uses.

First, we determined which of the site development requirements discussed in Section I are addressed by each policy:

- Preliminary: policies like feasibility studies that do not address specific requirements but provide general support for SMR implementation.
- Site location: policies that deal with identifying suitable SMR site locations.
- Interconnection: policies that address SMR access to transmission infrastructure.
- Inputs: policies that address the material inputs and workforce needs of SMRs.
- Permitting and legal requirements: policies that address state-level legal requirements faced by SMR site developers.
- Power purchase agreements (PPAs): policies that address how SMRs integrate with electricity markets.
- Construction and operation: policies that address the financing, building, and ongoing operation of SMRs.

Next, we determined which of the following policy tools each policy uses:

- Information Gathering: policies that call for information gathering efforts or research on different aspects of SMRs or related advanced nuclear energy topics. Many of the policies in this category assign an entity to conduct a feasibility study to determine the ability to develop SMRs in a state or region.
- Coordination: policies that call for entities to collaborate on SMR development activities. Coordination can be between entities within a state, like state energy offices and public utilities, or can establish multi-state coalitions.
- Regulations: policies that outline the development of integrated resource plans or call for specific regulations related to SMRs and advanced nuclear activities, like processes for certifying nuclear reactors or lifting or changing nuclear energy moratoriums.
- Financial Mechanisms: policies that support the advancement of SMRs or advanced nuclear energy through financial channels like tax exemptions or credits, loans and bonds, or programs that provide developers cost sharing or recovery.

The categories described above are not mutually exclusive. Each policy can be associated with multiple site development requirements and policy tools.

Identifying Policies Relevant to Washington's Nuclear Landscape

In Section III, we explore policies supporting SMR implementation in terms of the site development requirements they address and the policy tools they use. We also describe how policies are relevant to Washington.

The relevance of specific policies depends on the structure of Washington's existing resources, electricity markets, and legal requirements. For example, Washington State does not currently have a prohibition against new nuclear power plant construction, so policies lifting such prohibitions are not relevant. By contrast, Washington is home to a Department of Energy (DOE) laboratory, so policies encouraging collaboration between state entities and DOE are relevant.

Limitations

In conducting our policy review, we rely on three existing policy trackers rather than conducting a new systematic search. We determined NCSL, NARUC-NASEO, and NEI to be credible sources and their coverage of state nuclear energy policies to be comprehensive (see Exhibit 8). Nevertheless, we acknowledge some limitations of our approach:

- Our review does not include federal or local SMR policies.
- With the exception of integrated resource plans published by investor-owned utilities, our sources do not include private sector initiatives.
- Our review does not include broader energy policies, even if they might be relevant to SMR facilities. For example, a policy that modifies the permitting process for all energy facilities could affect SMRs but would be excluded from our analysis.

These limitations are consistent with our legislative assignment but are worth considering when interpreting our findings.

III. Policy Review

As previously discussed, we identified 79 policies in 35 states that support the implementation of SMRs. In this section, we summarize policies according to the site development requirements they target and the policy tools they use to address those requirements. A document detailing all 79 policies is available.[36]

Preliminary

Preliminary policies like feasibility studies do not target specific site development requirements. The majority of these policies focus on information gathering and coordination.

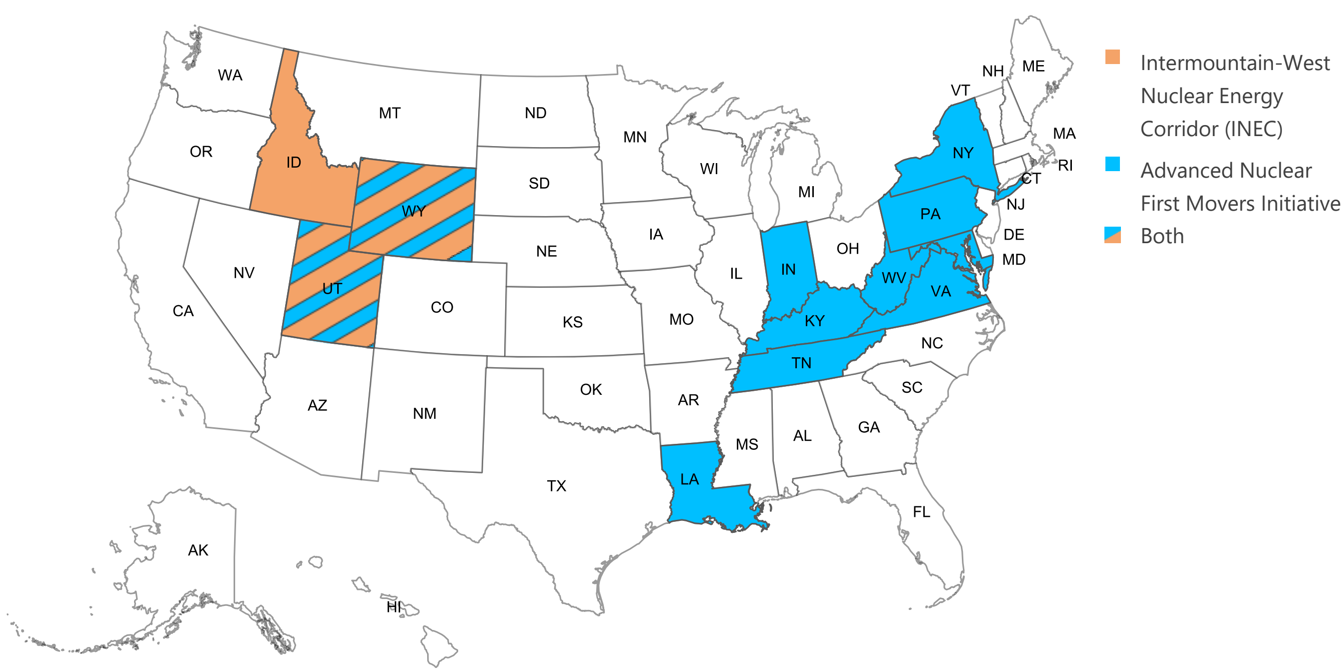
Information Gathering (22 States, 31 Policies)

Preliminary information gathering was the most common policy area we identified. Most of this activity involves SMR feasibility studies conducted by state energy offices, regulatory utility commissions, and public universities.

For example, a study in Indiana considered costs, workforce impacts, technical design considerations, and regulatory issues related to SMR implementation. A study in Montana considered the feasibility of coal-to-SMR conversions. A study in New York solicited information related to SMR implementation from utilities, nuclear industry companies, workforce development agencies, financial institutions, and research and development entities.

Exhibit 9

Multi-State Coordination Related to SMR Development



[36] WSIPP—State policies supporting the implementation of SMRs.

Coordination (18 States, 24 Policies)

Policies in this category focus on multi-state or within-state coordination. Exhibit 9 presents a map of multi-state advanced nuclear coalitions.

Multi-state coalitions include the Intermountain-West Nuclear Energy Corridor (INEC) and the Advanced Nuclear First Mover Initiative (ANFMI), both of which were announced in 2025. The Intermountain-West Nuclear Energy Corridor focuses on aligning state energy policies, coordinating infrastructure projects, and collaborating on workforce development.[37] The Advanced Nuclear First Mover Initiative is focused on reducing financial risk, enhancing supply chains, and coordinating reactor and fuel procurement.[38]

Policies related to within-state coordination focus on partnerships between state agencies, universities, and private industry. Common stated goals are to create clarity regarding regulatory responsibilities, reduce redundant efforts, and identify opportunities for collaboration.

Regulations (1 State, 1 Policy)

A legislative resolution in Idaho declared support for advanced reactor permitting reform.

Financial Mechanisms (2 States, 2 Policies)

A policy in Arkansas allows advanced cost recovery for public utilities that conduct SMR feasibility studies.

Advanced cost recovery is a practice in which utilities raise electricity rates to fund ongoing projects. A policy in Connecticut establishes a funding program for SMR feasibility studies.

Relevance to Washington State

The Energy Facility Site Evaluation Council and Pacific Northwest National Laboratory (PNNL) have conducted studies on the feasibility of implementing SMRs in Washington. Coordination activity in Washington includes the 2025 National Governors Association nuclear energy retreat.

Representatives of INEC have indicated that the presence of the DOE laboratory in Idaho has helped foster collaboration between public and private advanced nuclear organizations.[39] Notably, Washington is also home to a DOE laboratory and is adjacent to INEC, so policies related to collaboration between these entities are more relevant to Washington.[40]

Site Location

Policies in this category are related to the identification, preparation, and permitting of SMR sites.

Information Gathering (7 States, 7 Policies)

Site feasibility studies accounted for most information-gathering activities in this category. Agencies responsible for these studies included state energy offices, economic development offices, and public utility commissions.

[37] Governor of Utah Spencer J. Cox. (2025, April 30). *Governors of Utah, Idaho, and Wyoming sign tri-state agreement to strength regional energy collaboration* [Press release].

[38] Jones, K. (2025, February 5). NASEO *initiative aims to propel advanced nuclear energy projects across multiple states* [Press release].

[39] Morrow (2025).

[40] Pacific Northwest National Laboratory in Richland.

A majority of siting studies were tasked with identifying all suitable SMR locations in the state. Studies in Maryland and Montana focused on potential coal-to-SMR conversion projects.

Regulations (3 States, 5 Policies)

Regulatory changes were mostly designed to address the unique characteristics of SMRs relative to conventional nuclear reactors. For example, Wyoming implemented a policy distinguishing SMRs from conventional reactors and authorizing permits for SMRs to replace natural gas and coal power generating facilities, as long as the SMR facility's generating capacity remains below 300 MWe. Alaska reduced barriers to deploying SMRs below 50 MWe in remote locations by transferring state permitting authority to the state legislature.

Financial Mechanisms (1 State, 1 Policy)

Virginia enacted legislation allowing advanced cost recovery for costs related to SMR facility siting.

Relevance to Washington State

Washington has previously undertaken efforts to identify feasible SMR sites.[41] To comply with CETA, existing carbon-emitting electricity-generating facilities in Washington may be decommissioned in the coming years. Public and private utilities have noted the possibility of converting these facilities to non-emitting electricity generation.

Interconnection

We did not identify any policies that address SMR-specific considerations regarding transmission interconnection. Organizations, including BPA and the Federal Energy Regulatory Commission (FERC), have noted the need for additional transmission capacity to meet increasing electricity supply and demand requirements.[42]

In the United States, access to transmission infrastructure is largely "fuel-agnostic," meaning that generating facilities are not explicitly prioritized based on their fuel source. However, a recent policy implemented in the Midwest illustrates how interconnection policy can inadvertently prioritize certain fuel sources.[43]

Relevance to Washington State

Washington State has undertaken activity related to transmission infrastructure development in recent years. This activity has been general and is not related to SMR facilities. A 2022 EFSEC report identified new potential transmission corridors and regulatory reforms that could expedite permitting and construction.[44] Legislation proposed during the 2025 Session would have established a state electric transmission authority to support the expansion and operation of the transmission system.[45]

[41] Golder Associates (2016).

[42] For further reading, see Federal Energy Regulatory Commission. (2024). *State of the markets report 2024* and Bonneville Power Administration. (2025, Oct 15). *BPA maintains transmission expansion momentum with 13 new proposed projects* [Press release].

[43] In July 2025, the Midwest Independent System Operator implemented an expedited interconnection review policy for shovel-ready projects. Analysis by the Council on Foreign Relations found that the eligibility requirements "favored larger incumbent utilities building primarily fossil fuel projects." As a result, while a majority of projects awaiting approval planned to use renewable energy, the majority of fast-tracked projects used carbon-emitting fuels. See Beams, M., & Recht, D. (2025). The U.S. interconnection challenge: Why renewables are stuck in line. *Council on Foreign Relations.*

[44] Washington Energy Facility Site Evaluation Council. (2022). *Transmission corridors work group final report.*

[45] Senate Bill 5466.

Inputs

Policies in this category are related to advanced nuclear fuels, workforce training programs, and advanced reactor technology research and development.

Information Gathering (3 States, 3 Policies)

We identified three studies related to advanced nuclear technology and workforce training. Idaho directed its Center for Advanced Energy Studies to collaborate with Idaho National Laboratory on advanced reactor technology. Oklahoma commissioned a study on the potential workforce demands of SMR facilities, as well as the ability of local supply chains to meet input demands. Ohio created an authority within the Department of Development to serve as an information resource regarding advanced reactors, fuel, and related technology.

Coordination (3 States, 3 Policies)

Two states have created advanced nuclear workforce development programs. Idaho directed the State Board of Education to develop advanced reactor manufacturing programs, acknowledging Idaho National Lab as an important partner. The Texas Workforce Commission established an advanced nuclear workforce development program aimed at meeting skilled labor demands in the state.

Relevance to Washington State

We did not identify any information gathering or coordination policies in Washington related to SMR inputs. A 2025 legislative proposal would have extended the timeline for nuclear companies to complete projects and qualify for the Targeted Urban Area Property Tax Exemption.[46]

Washington shares a number of features that other states have used to address SMR inputs, including the presence of a DOE research laboratory and an established nuclear fuel industry. As a result, policies relating to advanced nuclear workforce development and coordination between supply chain participants are relevant to Washington.

Permitting and Legal Requirements

Nuclear reactor permitting involves both federal and state oversight. The policies in this section relate to state-level legal requirements.

Information Gathering (3 States, 3 Policies)

Texas and Illinois are conducting studies on potential regulatory changes regarding SMRs. A policy in Arkansas requires public utilities to monitor developments in advanced nuclear technology.

Coordination (2 States, 2 Policies)

Two states have enacted policies that direct relevant state agencies to collaborate on potential regulatory changes. For example, Texas directed the governor's Advanced Nuclear Energy Office to collaborate with the state utility commission, while Virginia directed the state Department of Energy to collaborate with the Virginia Nuclear Energy Consortium.

[46] House Bill 1210.

Regulations (6 States, 10 Policies)

Regulatory reform regarding SMR permitting focuses on distinguishing SMRs from conventional reactors and bringing state policy in line with federal policy.

For example, Connecticut and Illinois created exemptions for SMRs from state prohibitions on new nuclear facilities. Connecticut and New Hampshire classified SMRs as clean or renewable energy facilities. Louisiana implemented a federal permitting parity program to expedite the SMR site development process. Wyoming created an expedited permitting process for SMR facilities that replace coal or natural gas power plants.

Relevance to Washington State

The largest recent permitting activity in Washington State was the creation of EFSEC as an independent state agency apart from the UTC.[47] This streamlined site permitting by consolidating authority into a single entity.

Under EFSEC's current permitting process, SMRs must meet the same requirements as conventional nuclear reactors. As a result, policies creating SMR-specific regulations and exemptions are relevant to Washington.

Power Purchase Agreements

Policies in this category relate to SMR integration with electricity markets.

Information Gathering (1 State, 1 Policy)

Connecticut directed the state Department of Energy and Environmental Protection to complete a study reviewing state processes regarding power purchase agreements involving SMR facilities.

Regulations (8 States, 9 Policies)

We identified two regulatory policy categories relating to how SMRs interact with electricity markets. The first is integrated resource plans (IRPs). Utilities publish IRPs to explain their "plans for how they will obtain future energy resources for their customers."[48] Utilities in eight states have included SMRs or other advanced nuclear power in their IRPs since 2022. Additionally, Arkansas passed a bill requiring public utilities to monitor SMR technology and incorporate it into their resource planning.

The second, as previously discussed, is classifying nuclear energy in such a way that it can qualify for renewable portfolio standards. Renewable portfolio standards are regulations that require utilities to source a certain proportion of their electricity from renewable or non-carbon-emitting sources. For example, Connecticut classified nuclear energy as "renewable," while New Hampshire classified it as "clean."

Relevance to Washington State

In Washington, renewable portfolio standards are codified in CETA. Under CETA, nuclear energy currently qualifies as a "non-emitting" fuel source, so the phase-out timeline for carbon-emitting electricity fuels does not apply to SMRs.[49]

[47] Engrossed Second Substitute House Bill 1812, Chapter 183, Laws of 2022.

[48] Washington Utilities and Transportation Commission. (2022). *Integrated resource plans (IRPs).*

[49] E2SSB 5116, Chapter 288, Laws of 2019.

In Washington State, investor-owned utilities are regulated by the UTC, while public utilities are regulated by their elected governing boards. Because Washington has a high proportion of public utility ownership, the UTC has less direct control over electricity market activities relating to SMRs than regulatory commissions in states with a higher proportion of private utility ownership.

Construction and Operation

Policies in this category relate to the construction and operation of SMR facilities.

Financial Mechanisms (6 States, 9 Policies)

All policies we identified relating to SMR construction and operation centered on providing financial support. These include electric utility rate adjustment policies, tax preferences, competitive grants and loans, and direct subsidies.

Rate Adjustment Policies. Arkansas, Virginia, and Indiana have enacted policies allowing utilities to petition state regulators to approve electricity rate adjustments to recover costs associated with SMR development. Wyoming enacted an exemption to limits on cost recovery for SMR facilities that replace coal-fired generation facilities.

Tax Preferences. Wyoming enacted a policy exempting advanced nuclear power plants from a tax on electricity generation, subject to the requirement that at least 80% of the uranium fuel used by the plant is sourced from U.S. mines. Indiana enacted a policy providing a state tax credit for SMR manufacturing expenses.

Competitive Grants and Loans. Wyoming enacted a policy that enables the Wyoming Energy Authority to offer matching funds for advanced energy projects that secure external funding, including advanced nuclear reactors. The fund distributed $10 million in 2023 to a microreactor demonstration project.[50]

Direct Subsidies. Michigan has provided $150 million in direct funding to reopen a decommissioned nuclear facility for future SMR construction. The funding is conditional on additional funding from the U.S. Department of Energy.

Relevance to Washington State

The policies in this category rely on financial mechanisms to facilitate SMR construction. These mechanisms are all relevant in the Washington State context to varying degrees.

Cost recovery can be approved directly by public utilities or by the UTC in the case of investor-owned utilities. A representative of an investor-owned utility indicated that the rate increases that would likely be required to recover the cost of a first-of-a-kind SMR would be prohibitively high.[51]

There are two electric utility-specific taxes in Washington. The first is a state privilege tax levied on electricity generation by public utility districts and Energy Northwest. The second is a public utility tax levied on all electric utilities.

[50] As this report was being finalized, the fund recommended granting $100 million in matching funds to an advanced nuclear fuel manufacturing project, though this decision has not been finalized. See Wyoming Energy Authority. (2025). *Public comment period opens for recommended large project energy matching funds.*

[51] Zbib et al. (2025).

Washington has also provided direct funding to an SMR project. The 2024 legislature allocated $25 million of Climate Commitment Account funds to support Energy Northwest's proposed SMR facility on the Washington Nuclear Project No. 1 site near Columbia Generating Station.[52]

Summary

The policy tools used to support SMR implementation vary based on what aspect of the site development process they target. Preliminary, siting, and input policies mostly center on information gathering and coordination. Policies targeting permitting and power purchase agreements focus on SMR-specific regulations. Policies directed at construction and operation rely exclusively on financial support.

Policies reflect the environmental, economic, and legal contexts of the states where they have been implemented. For example, states have taken advantage of existing resources like research laboratories, made SMRs compatible with state environmental regulations, and reduced barriers to SMRs integrating with electricity markets.

Exhibit 10 provides an overview of state SMR policies.

[52] Engrossed Substitute Senate Bill 5949, Chapter 375, Laws of 2024.

Exhibit 10

State Policies Supporting SMR Implementation

	Information gathering	Coordination	Regulation	Financial
Preliminary	*22 states, 31 policies* Feasibility studies	*18 states, 24 policies* Multi-state coalitions and coordination between state agencies	*1 state, 1 policy* Exploration of potential SMR-related regulations	*2 states, 2 policies* Financial support for utilities conducting SMR feasibility studies
Siting	*7 states, 7 policies* Site feasibility studies, including coal-to-SMR conversion sites	—	*3 states, 5 policies* Lower regulatory requirements for natural gas and coal conversions and SMRs below size thresholds	*1 state, 1 policy* Advanced cost recovery for costs related to facility siting
Interconnection	—	—	—	—
Inputs	*3 states, 3 policies* Studies regarding SMR workforce demands and advanced reactor technology	*3 states, 3 policies* Workforce development programs expanding advanced reactor education & training	—	—
Permits	*3 states, 3 policies* Studies on potential regulatory changes regarding SMRs	*2 states, 2 policies* Policies directing relevant state agencies to collaborate on SMR-specific regulatory changes	*6 states, 10 policies* Harmonizing state & federal regulations and classifying nuclear as clean energy	—
Power purchase agreements	*1 state, 1 policy* Study regarding state processes for power purchase agreements involving SMRs	—	*8 states, 9 policies* Inclusion of SMRs in integrated resource plans and renewable portfolio standards	—
Construction & operation	—	—	—	*6 states, 9 policies* Advanced cost recovery, tax preferences, competitive grants and loans, and subsidies

IV. Conclusion

Small modular reactors are an emerging nuclear energy technology. In recent years, policymakers have shown increased interest in SMRs as a potential way of expanding and decarbonizing electricity generation.

Small modular reactor site developers face several requirements before their operations can begin. Some are legal, including federal and state permitting. Others are physical, such as access to reactors, fuel, transmission infrastructure, and a trained workforce. Others are economic, like project financing and integration with electricity markets.

States have acted to address these requirements using a variety of policy tools, including information gathering, coordination, regulatory reforms, and financial support.

- Information gathering activities include studies on SMR feasibility, siting, inputs, and regulatory reforms.
- Coordination efforts include multi-state coalitions and collaboration between state agencies.
- Regulatory reforms include rules regarding SMR permitting and integration with electricity markets.
- Financial support includes cost recovery, tax preferences, competitive grants and loans, and direct subsidies.

A document including additional information on these policies is available.[53]

In Washington, efforts have reflected the state's existing resources, energy markets, and legal requirements. Feasibility studies have focused on potential coal-to-SMR conversions and on sites close to Columbia Generating Station. State and local permitting authority has been centralized in the Energy Facility Site Evaluation Council. Financial support has acknowledged emerging site operation models, including collaboration between advanced reactor manufacturers, utility consortia, and large companies with high electricity demand.

Additional policies that are relevant to the Washington context include interstate coalitions, nuclear workforce development programs, tax preferences, and SMR-specific regulations.

Ongoing challenges to SMR implementation include long federal permitting timelines, high construction costs, risks associated with first-of-a-kind technology, and a transmission system that features capacity constraints and long interconnection queues.

[53] WSIPP—State policies supporting the implementation of SMRs.

Appendices

State Policies Supporting the Implementation of Small Modular Reactor

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Appendix I. Background

In this appendix, we provide additional information on advanced nuclear projects in the United States and on Washington's electricity system.

Small Modular Reactor Projects in Washington State

We identified one planned small modular reactor project in Washington State. The project is being undertaken by Energy Northwest, a consortium of 29 municipal utilities and public utility districts in Washington. Energy Northwest plans to build between four and twelve high-temperature gas-cooled SMR units on the Hanford Site near Richland, Washington.[54] The project plans to use Xe-100 reactors manufactured by X-Energy, LLC (X-Energy), a company based in Rockville, Maryland. X-Energy is currently engaged in pre-application activities with the NRC regarding approval of its Xe-100 design.[55] Each SMR unit is planned to have a generating capacity of 80 MWe.

Energy Northwest has entered into an agreement with Amazon.com, Inc. (Amazon) under which Amazon provides financial support for the project in exchange for rights to purchase electricity from the project. Additional project funding has come from Energy Northwest, Puget Sound Energy, and the state Climate Commitment Act fund. The majority of project financing currently comes from U.S. Department of Energy loans.[56]

Operating Nuclear Power Plants and Advanced Nuclear Projects in the United States

Exhibit A1 presents a map of existing conventional nuclear power plants in the United States. Exhibit A2 presents a map of planned advanced nuclear power plants in the United States.

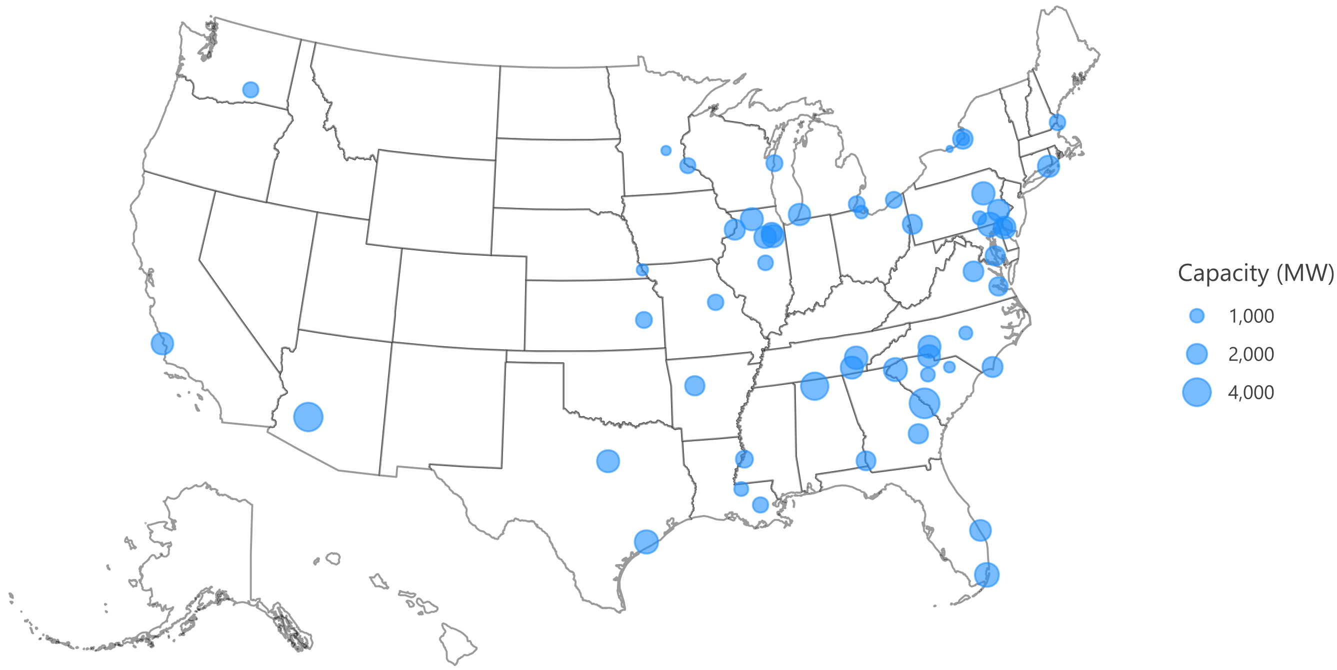
Washington State's Electricity System

Exhibit A3 presents a map of electricity-generating facilities in Washington. Exhibit A4 presents a map of electric transmission lines in Washington. Exhibit A5 presents a map of electric utility service areas in Washington.

[54] U.S. Nuclear Regulatory Commission. (2025). *Pre-application activities for advanced reactors*.
[55] Ibid.
[56] Zbib et al. (2025).

Exhibit A1

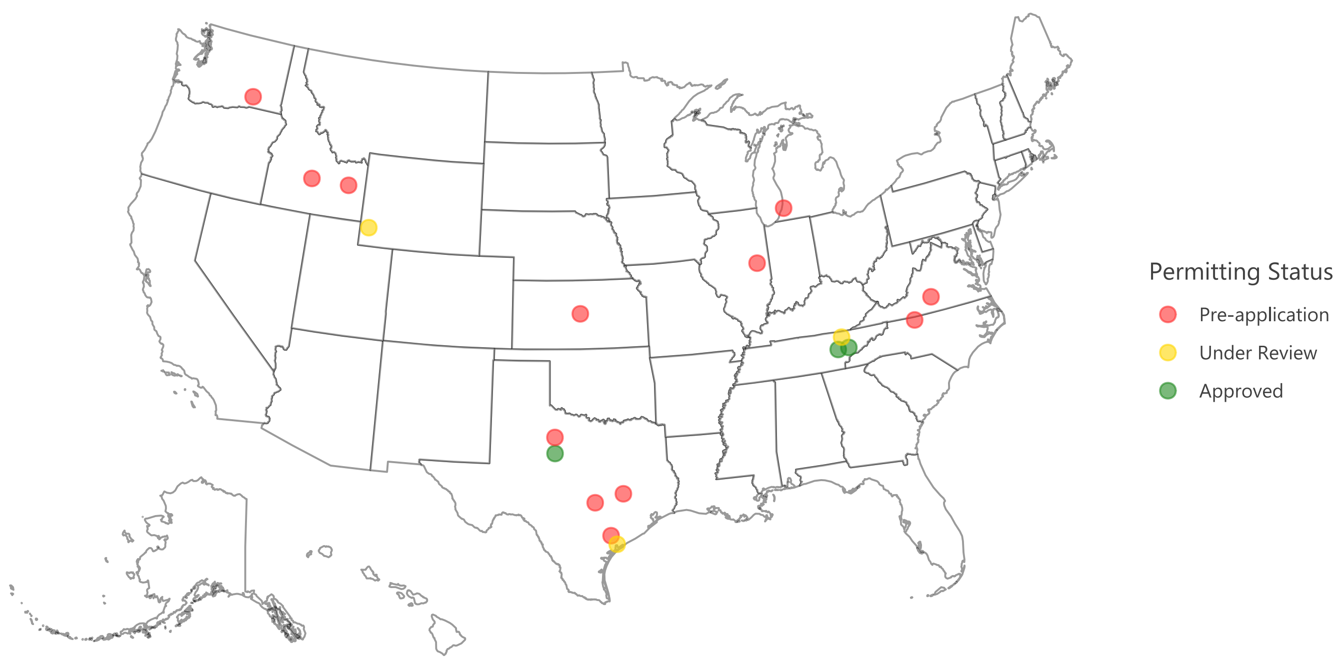
Existing Conventional Nuclear Power Plants in the United States



Note:
Data are from the U.S. Energy Information Administration's 2025 Q2 U.S. Energy Atlas.

Exhibit A2

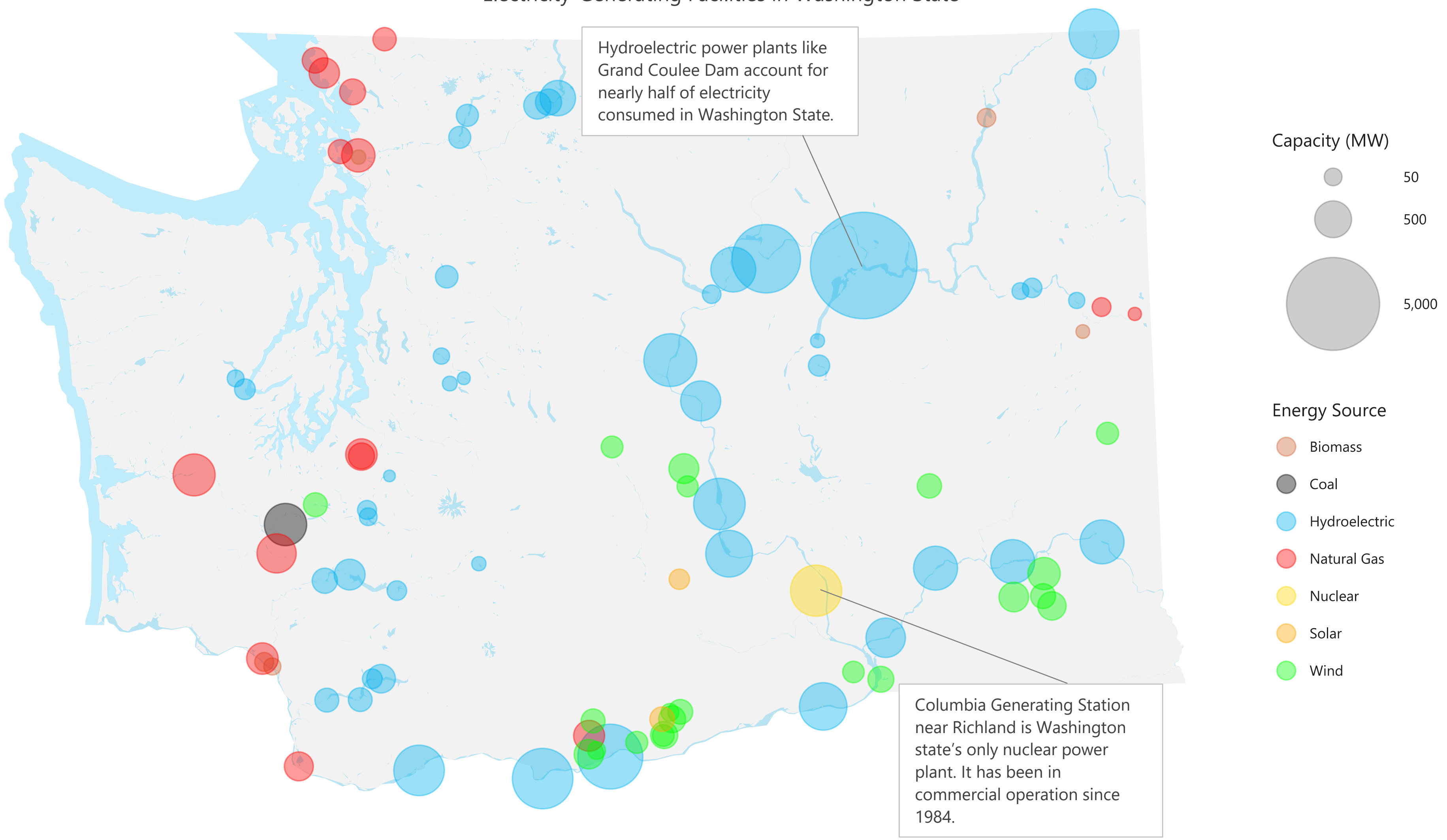
Planned Advanced Nuclear Power Plants in the United States



Note:
Permitting status is based on application activities with the U.S. Nuclear Regulatory Commission.

Exhibit A3

Electricity-Generating Facilities in Washington State



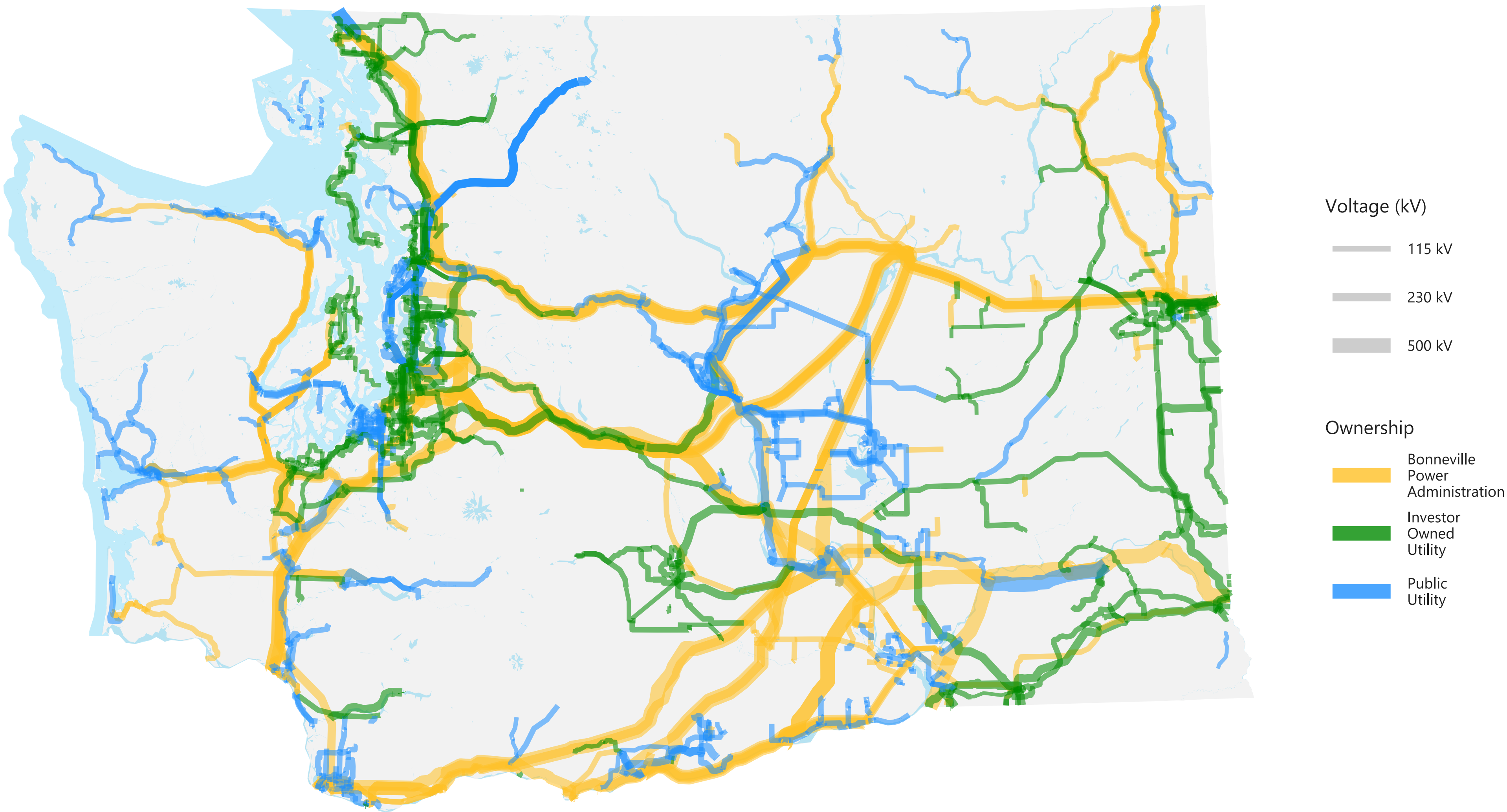
Notes:

Power plant data are from the U.S. Energy Information Administration's 2025 Q2 U.S. Energy Atlas and are based on plants' total generating capacity.

The map includes power plants with a capacity of at least 20 MWe. Four U.S. Army Corps of Engineers hydroelectric dam facilities on the Columbia River between Washington and Oregon (Bonneville, John Day, McNary, and The Dalles) are located in Oregon in EIA data but are included because their electricity is marketed by BPA and represents a substantial portion of Washington's electricity consumption.

Exhibit A4

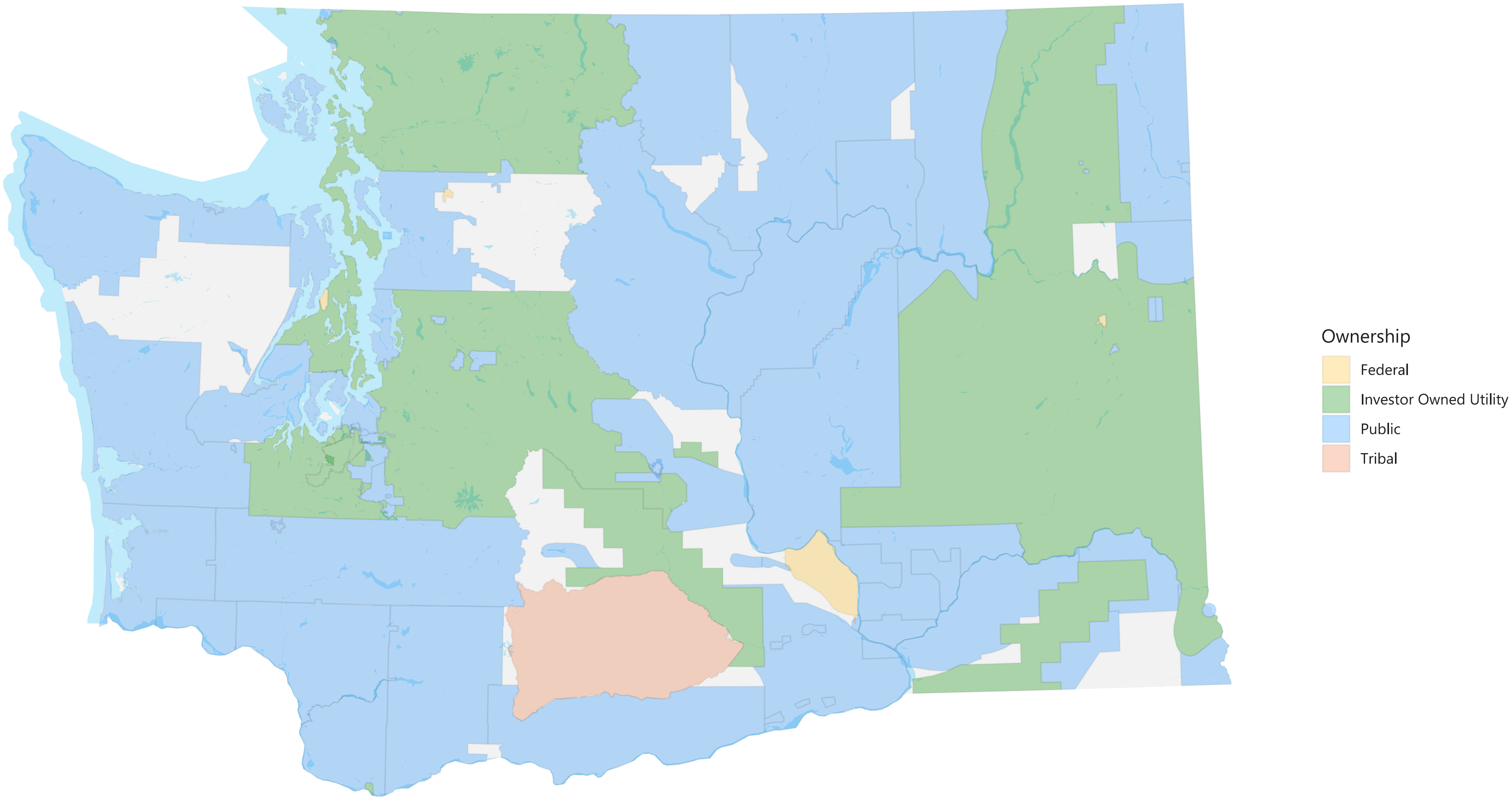
Electric Transmission Lines in Washington State



<u>Note</u>:
Transmission line data are from the U.S. Energy Information Administration's 2025 Q2 U.S. Energy Atlas.

Exhibit A5

Electric Utility Service Areas in Washington State



Notes:
Electric utility service areas based on Washington State Department of Ecology and Utilities and Transportation Commission, Bonneville Power Administration, and United States Department of Transportation data and are intended for illustrative purposes only.

Appendix II. Data

In this appendix, we provide additional information on the policies presented in Section III.

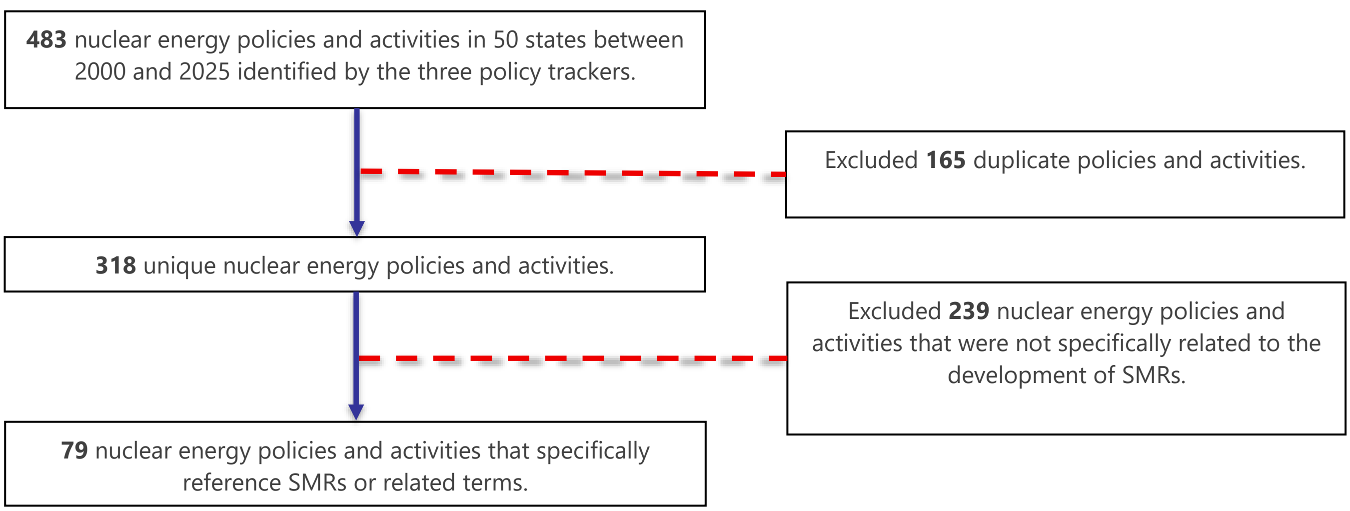
Identifying Policies

We identified three databases that monitor state-level energy policy, nuclear policy, and advanced nuclear policy. These were the National Conference of State Legislatures' State Energy Legislation database, the Nuclear Energy Institute's 2025 status report, and the National Association of Regulatory Utility Commissioners / National Association of State Energy Officials (NARUC-NASEO) Advanced Nuclear State Action Tracker.[57]

We collected policies from these sources on August 28, 2025. Policies were excluded if their descriptions did not include any of the following text strings: "SMR," "small," "modular," "micro," "advanced," "enrich," "assay," and "HALEU."[58] After identifying policies that included one or more of these search terms, we manually determined which site development requirements and policy tools each policy involved.

Exhibit A6 illustrates the number of policies and activities identified during our policy review. A file containing all 79 policies, their site development requirement and policy tool classifications, descriptions, and links to associated legislation is available.[59]

Exhibit A6
Nuclear Energy Activities Identified and Excluded During Policy Review



[57] NCSL (2025); NARUC-NASEO (2025); and NEI (2025).
[58] "Enrich," "assay," and "HALEU" are terms related to advanced nuclear fuel.
[59] WSIPP—State policies supporting the implementation of SMRs.

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