

1. What does HB 4046 do:

Through a balanced, technical and objective analysis of available information on advanced nuclear, the HB 4046 study will provide Oregonians with an understanding of:

- What “advanced nuclear reactors” are and how they work.
- The feasibility of constructing advanced nuclear reactors in Oregon, including considerations related to timing; costs; safety, human health and the environment; government and industry support; use cases for co-location and co-generation; financing; and the long-term outlook for advanced nuclear deployment in the U.S.
- The impacts of nuclear energy on economic growth and workforce development.
- Nuclear waste management.
- The existing statutory and regulatory landscape for nuclear in Oregon.

2. Why does the study specifically address impacts on economic and workforce growth?

Oregon is facing a historic challenge to build out a new and diverse fleet of energy generation sources to meet our climate goals while also providing reliable and affordable power to our communities and our businesses. This creates a historic opportunity to develop resources in Oregon, with Oregonian experts and skilled labor, in a way that expands living-wage job opportunities and expands opportunities for growth in other high-energy use sectors.

Nationally, the nuclear energy workforce is the most unionized workforce in the energy sector, providing significant high-wage jobs not just in the construction but in the careful maintenance and ultimate decommissioning of nuclear facilities. Here in Oregon, we already host a broad workforce of skilled laborers with experience working on nuclear facilities through their work on the Columbia Generating Station just north of us near Richland, WA, and other projects in the region.

Oregon State University boasts one of the top nuclear science and engineering programs in the country with over 450 enrolled students training to be the nuclear experts of the future.

Oregon-grown NuScale energy, based in Corvallis, has developed a model of advanced nuclear reactor known as a small modular reactor, or SMR, that was the first reactor of its kind to receive regulatory design approval from the U.S. Nuclear Regulatory Commission.

Certain advanced nuclear reactors are being pursued for use as co-located and co-generation facilities to provide both electricity and high-temperature heat for industrial processes, creating potential for nuclear to support decarbonized industrial economic development in Oregon.

These examples show that nuclear generation in Oregon could have a real, lasting and positive impact on expanding and supporting our skilled workforce and supporting Oregon businesses.

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However, nuclear energy generation also represents a high-risk, capital-intensive investment with uncertain returns, and therefore could also present significant economic and workforce tradeoffs. For this reason, the study focuses on “impacts” so that policy makers and the public can receive balanced information on actual economic and workforce benefits and detriments.

3. Is nuclear really “clean?”

Nuclear energy generation does not emit greenhouse gasses. Nuclear is considered a clean resource for meeting Oregon’s clean energy goals under House Bill 2021. The Oregon Energy Strategy discusses advanced nuclear alongside long-duration storage, enhanced geothermal, floating offshore wind and marine energy as an “emerging technology” to be explored for providing high-capacity resources to complement hydro and variable renewables in meeting Oregon’s energy goals and electricity needs.

The similarly climate-minded and Democratically-led state of New York has significantly embraced advanced nuclear as a key component of their strategy energy policy, with a [nuclear initiative](#) led by the New York Power Authority to “to deliver firm, zero-emission power that complements renewable generation, strengthens grid reliability, prioritizes affordability and advances an energy policy of abundance that prioritizes energy independence and supply chain security.”

The state of Colorado recently updated their statutory definitions of “clean energy resource” to include nuclear for meeting their 2050 clean energy targets.

4. What about the waste (also known as spent nuclear fuel)?

The study will take a robust look at nuclear waste management from US generation sources both past and present and include as up-to-date information as possible, within the timing of the report, on the regulatory status of nuclear waste management, including advances in opportunities for recycling, reprocessing, and consolidated interim storage.

The study also acknowledges that while it is critical for Oregonians to understand the existing state and federal legal pathways for management of spent nuclear fuel, it is also critical for Oregonians to understand how those pathways are or may be changing. For that reason, the study explicitly requires information on “any pending or proposed changes to existing pathways through legislation, regulation, policy directive or litigation.”

5. What about public health and the environment?

HB 4046 with the -2 Amendment explicitly directs the department to study the risks and benefits of nuclear energy generation for human health and the environment, including any potential impacts for “environmental justice communities as defined in ORS 469A.400 (5).”

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ORS 469A.400 (5) defines environmental justice communities to include: “communities of color, communities experiencing lower incomes, tribal communities, rural communities, coastal communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards, including seniors, youth and persons with disabilities.”

6. What about the costs and financing for nuclear reactors?

The study will look at costs and financing from two perspectives:

First, the life cycle costs of developing nuclear energy projects will be evaluated against other energy sources utilizing a levelized cost of electricity methodology (LCOE). This method will provide an apples-to-apples consideration of costs that considers not just the initial development costs but also the cost of energy produced over the life of energy projects.

Second, the study will address up-to-date information on opportunities that are being pursued around the country for financing, ownership models, financial risk exposures and potential ratepayer impacts.

While nuclear does present significant upfront costs similar to development of any other large and complicated industrial facility, the study will provide Oregonians with a better understanding of how these costs compare over time with other energy sources and how financing mechanisms being explored for advanced nuclear could build on the lessons of the past and appropriately protect public entities and ratepayers.

7. Why doesn't the study specifically call out lessons learned from the Washington Public Power Supply System (WPPSS) bond failure?

Much of the perceptions around the cost of nuclear energy in Oregon are influenced by past experiences in Washington during the initial deployment of the United States nuclear energy industry in the 1970's and 80's. The WPPSS experience was incredibly significant and absolutely should and will inform decision-making in the future, but also should not be considered in a vacuum. This study is intended to take a comprehensive approach to describing cost considerations that also draws on the lessons learned in regions across the country, which could include how nuclear generation in Washington is currently contributing to ratepayer impacts in the Pacific Northwest now, 43 years after WPPSS.

8. What about public participation?

HB 4046 with the -2 Amendment strikes an appropriate balance between providing opportunities for public engagement while maintaining focus on producing a balanced, objective, technical expert analysis, by requiring ODOE to see public input and provide opportunities for public comment during the development of the report.

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The intent of HB 4046 is to provide policy makers and the public with a shared, up-to-date, objective and technical understanding of advanced nuclear to enhance the policy discussion about nuclear going forward, not to be a policy document unto itself. The level of public participation required by HB 4046 will be vital to helping inform the technical experts regarding what is most important to Oregonians to consider, while keeping such participation at an appropriate level to accomplish legislative intent.

9. How does the bill work to respect the sovereign rights of Oregon’s nine federally recognized Indian tribes and to include their perspectives?

HB 4046 specifically directs the Department to engage with all nine federally recognized Tribes in Oregon in developing the study. This engagement must include direct written contact with the tribal government of each Tribe, and an agreed upon reasonable amount of time for tribal governments to respond and provide input.

As determined through tribal engagement, the study and report must explicitly consider impacts of and opportunities for nuclear energy development in Oregon with relation to tribes, on and off-reservation treaty-reserved rights, first foods and cultural resources.

10. This bill directs the Oregon Department of Energy to seek outside funding to do this work. How will the integrity of the study be maintained given that directive?

The Oregon Legislature established the Oregon Department of Energy in 1975, at a time not dissimilar from today. The Pacific Northwest was facing similar energy resource challenges, and largely in the context of conversations around nuclear, the Oregon legislature determined that the state not only needed an agency like EFSC to oversee the siting of large energy facilities, but also an independent agency—ODOE—to support research on alternative energy and educate Oregonians about energy issues and conservation. Seeking and appropriately utilizing grants and other non-state support to facilitate its work is not an unusual exercise for this agency. ODOE is well-suited to ensure analytical independence through control of the HB 4046 study methodology in line with the careful directives for the study as presented in the HB 4046 -2 amendment, as well as through taking the lead in research team selection and oversight.

Nonetheless, the -2 amendment specifies that each time ODOE secures any moneys or assistance for purposes of completing the study, ODOE must to report to the legislature and post publicly online a description of the source of the money or assistance, the anticipated use of the money or assistance, and a disclosure of any potential conflicts of interest.

The -2 amendment also directs the final study to explicitly include “a full description of the sources of all moneys or assistance utilized to complete the study, all sources of information utilized in completing the study and a disclosure of any potential conflicts of interest.”