STATE ENERGY PROJECT UPDATES

The primary purpose of the Biennial Energy Report is to inform local, state, regional, and federal energy policy development, energy planning, and energy investments, and to identify opportunities to further the state's energy policies.

Past editions of the Biennial Energy Report included deep-dive Policy Briefs on energy topics. Readers of our 2022 report will remember a multi-part Policy Brief on "Charting a Course for Oregon's Energy Future." In that piece, we discussed potential pathways and trade-offs for reaching Oregon's energy goals while looking at the different sectors: electricity, natural gas, and transportation. The work completed in that brief led to ODOE's report recommendation that Oregon would benefit from a statewide energy strategy.

Following that recommendation, the Oregon Legislature tasked ODOE with developing a new Oregon Energy Strategy. That work is well underway, and the agency will present a final report on the project in November 2025. This section of this report provides an update on the strategy so far. We hope Oregonians will get involved over the next year as we finalize this important work.

This section also provides a short introduction to a new Oregon Energy Security Plan, published by ODOE in September 2024. The plan identifies risks to electricity, liquid fuel, and natural gas/propane systems, and proposes ways to mitigate those risks.

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Oregon Energy Security Plan

In September 2024, the Oregon Department of Energy published the 2024 *Oregon Energy Security Plan*. The plan was developed in collaboration with the Oregon Public Utility Commission and other government and private sector partners, and with contractor support from CNA and Haley & Aldrich. The *Oregon Energy Security Plan* presents an overview of the state's energy infrastructure, quantifies the threats and hazards that could cause energy insecurity, and proposes mitigation measures that the state and its partners can implement to reduce risk.

The energy sector — including electricity, liquid fuels, and natural gas — is vital to the health, well-being, safety, economy, and way of life for Oregonians. Nearly all commerce and critical activities in the state rely on power and liquid fuels to operate and function. A disruption to Oregon's energy infrastructure can directly affect the security and resilience of other necessary systems, such as water or wastewater, health care, education, emergency response, and many others. The Energy Security Plan primarily analyzes natural hazards and human-made risks, including cyber-security and physical attacks on infrastructure. In a world facing increasing challenges from the consequences of climate change, including extreme weather events and wildfires, as well as risks from earthquakes and human-made threats from foreign and domestic terrorism, a state-wide, collaborative approach to assessing threats, reducing risk, and improving energy security is vital.

In 2024 alone, there have been multiple impacts to Oregon's energy systems. In January, Oregon was hammered by a severe winter storm, which included below-average temperatures, high winds, snow, and ice. Conditions lasted for a week or more in many areas, and the consequences to energy systems were extreme. More than 650,000 Oregon customers were without power, and ice-covered roads limited deliveries of liquid fuel. The cold affected the region's natural gas storage and distribution systems, nearly leading to restrictions on gas use and curtailment of power production. Oregon's major investor-owned utilities, smaller co-operative and locally owned electric utilities, and private energy companies had to respond to the effects of the storm in their service areas.

In July and August, central and eastern Oregon have experienced extreme wildfires and 'micro-burst' storm events. The wildfires have burned well over a million acres. As with the winter storms of January, the fires and storms have severely affected Oregon energy companies, including small electric utilities and large investor-owned utilities.

In both cases, natural hazards from extreme weather and wildfire have caused significant damage to Oregon and our energy systems, as well as extreme financial impacts to individuals, families, businesses, communities, and energy providers. Recovery is difficult; small co-operative utilities or locally owned utilities may not have the resources to recover in a timely manner without external support or raising rates on members and customers. A statewide coordinated effort at improving our energy security can help Oregon strengthen preparedness for the next hazard, better withstand the next impact, and reduce our recovery time.

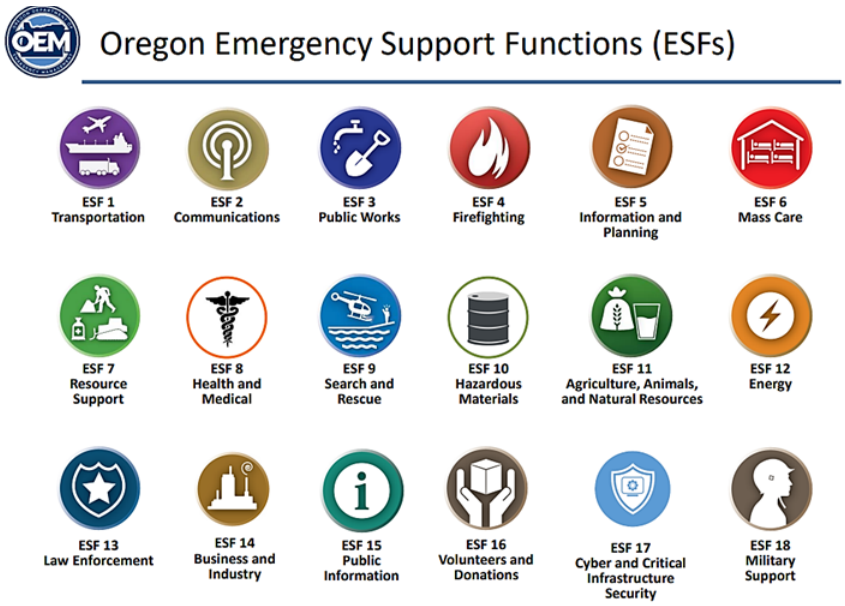
Legislative Requirements

The Oregon Energy Security Plan meets the requirements for a State Energy Security Plan as laid out in the 2021 federal Infrastructure Investment and Jobs Act and in Oregon's Senate Bill 1567 (2022), which in addition to meeting the federal requirements directs ODOE to evaluate strategies to increase geographic diversity of fuel storage throughout the state. The plan, including agency staff time and contractor support, was funded by the federal government through the U.S. Department of Energy's State Energy Program, with money allocated from the IIJA.

Structure and Synopsis

The Energy Security Plan is structured in two parts.

Figure 1: Oregon Emergency Support Functions (ESFs)



The first part provides a foundational overview of energy information and is comprised of Sections I-V. Section I defines energy security and provides an overview of energy security plan requirements, past Oregon energy security planning work, and the planning process for this document. Section II details the entities in Oregon responsible for various aspects of energy security planning, including Tribal Nations, federal agencies, state agencies, and local governments. Section III details Oregon's emergency response structure for energy emergencies. Section IV details the network of coordination among partners for energy security preparedness, response, and longer-term planning. Section V provides a comprehensive overview of energy generation in Oregon.

The second part of the plan, Sections VI-XI, captures more variable information that will be updated regularly. Section VI discusses energy consumption in Oregon. Section VII presents an assessment of threats to Oregon's energy infrastructure, and Section VIII provides a series of mitigation measures for those risks. Section IX provides the results of the fuel storage analysis to increase capacity and geographic diversity of liquid fuel storage across the state. Section X discusses recently completed energy security activities in Oregon and Section XI details upcoming activities and discusses opportunities for further study.

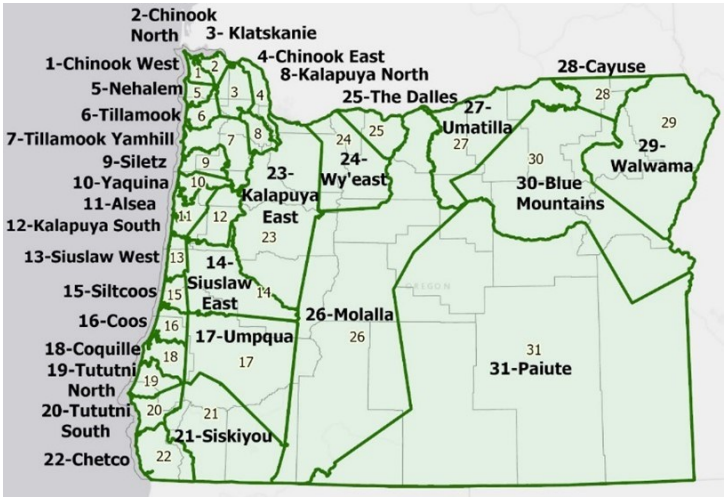
In developing the Oregon Energy Security Plan, ODOE and its team conducted an engagement process with Tribes, the public, utilities and energy companies, and other government agencies. A stakeholder engagement summary report is included as an appendix to the Energy Security Plan.

Key Findings

The risk assessment (Section VII) finds that of the natural, cyber, and physical hazards evaluated, the highest vulnerability to hazards is associated with a Cascadia Subduction Zone earthquake, wildfires, windstorms, and winter storms. Cascadia Subduction Zone earthquake vulnerabilities are highest in the western parts of Oregon, while the level of vulnerability to the other hazards is fairly consistent across the state's other regions. In terms of mitigation measures for these risks (Section VIII), redundancy, hardening, upgrading, and weatherizing are the most recommended physical measures to mitigate vulnerabilities. Other recommended operational measures include additional studies, coordination, and planning.

The fuel storage analysis (Section IX) evaluates fuel storage locations in each of the 31 identified "population islands" in Oregon. Population islands are areas predicted to become isolated from road access as a result of bridge and road failures after a Cascadia Subduction Zone Earthquake. This section also highlights next steps for increasing geographic diversity of fuel storage in the state.

Figure 2: Seismic Population Islands in Oregon



Section XI identifies key future studies and data gaps to address, including: an EV adoption and gasoline demand analysis; exploration of additional uses of rail for emergency fuel delivery; additional infrastructure data; and potential evaluation of climate change, extreme heat, and volcanic activity in the risk assessment.

ODOE will continue to review and update this Energy Security Plan, including collecting and analyzing additional data and considering new threats and risks that emerge to Oregon's energy systems.

Find more information and download the plan from ODOE's website: https://www.oregon.gov/energy/safety-resiliency/Pages/Energy-Security-Plan.aspx

Energy Strategy Update

The Oregon Department of Energy's 2022 Biennial Energy Report included a Policy Brief about charting a course for Oregon's energy future. The brief led to an overall report recommendation:

> *"The state would benefit from an energy strategy to align policy development, regulation, financial investment, and technical assistance in support of an intentional transition to a clean energy economy. This strategy could identify specific pathways to meet the state's policy goals that maintain affordability and reliability, strengthen the economy, and prioritize equity while balancing tradeoffs to maximize benefits and minimize harms. Ultimately, this strategy could be used to make informed decisions and motivate action."*

The Oregon Legislature agreed and directed ODOE, through House Bill 3630 (2023), to develop an Oregon Energy Strategy. The bill requires the strategy to evaluate pathways to meet state energy policy objectives. Focusing on the most affordable solutions, the Oregon Energy Strategy will identify multiple pathways the state could take to maintain a reliable energy system and achieve its anchor greenhouse gas objectives: an 80 percent reduction in greenhouse gas emissions across the economy by 2050; 100 percent clean electricity by 2040 for the state's biggest electric utilities; and a 90 percent reduction in greenhouse gas emissions for natural gas, liquid fuels, and propane by 2050.

ODOE has since embarked on development of the Oregon Energy Strategy. This data-driven process has focused on assessing different options to meet Oregon's energy and climate objectives. ODOE has reached out to Tribes and engaged with the public, data holders, and other state agencies to ensure the strategy is informed by Oregon-specific data and the real-world experiences of Oregonians, communities, businesses, and industry.

The energy strategy will evaluate the costs and benefits of different pathways and develop policy recommendations. Those could be legislative or policy actions, programs, funding, or recommendations on areas requiring further study.

In fall 2023, ODOE issued a project charter and held a public webinar to present the charter and agency plans to issue requests for proposals for consultants. Recognizing that robust data, analysis, and engagement are central to the project, ODOE contracted with both technical and facilitation experts to help develop the strategy.

Learn more about the Oregon Energy Strategy and access relevant materials on ODOE's website.

The Clean Energy Transitions Institute is providing technical expertise and analysis to the project. CETI provides independent research and analysis to inform clean energy policy development in the Pacific Northwest. The company partners with Evolved Energy Research, which has developed an energy pathways modeling approach that allows for testing different alternative futures to inform policy discussions. The modeling considers interactions across the economy to test key uncertainties and risks, and to help identify the costs and benefits of different energy choices.

Kearns & West is providing expert facilitation support. K&W specializes in fostering collaboration and strategic communications, helping groups of people and organizations engage in constructive and solutions-driven conversations that take into account and leverage the diverse backgrounds and expertise of all.

In the first few months of the project, ODOE focused on laying the groundwork for the energy strategy. ODOE formed an Interagency Steering Group to ensure the strategy would be aligned with peer agency rules, planning, and objectives.

With the technical, facilitator, and peer agency engagement in place, ODOE launched Phase 1 of the project. This phase focused on developing the energy pathways modeling.

To support this engagement and ensure that a diversity of backgrounds, perspectives, and expertise inform the strategy, ODOE established several consultative structures:

- **Interagency Steering Group**: Serves to ensure ongoing coordination between state agencies. Comprised of the following core Oregon agencies, and engagement with other agencies as needed: Department of Environmental Quality, Department of Land Conservation and Development, Department of Transportation, Public Utility Commission, Business Oregon, Department of State Lands, and Governor's Office.
- **Advisory Group**: Provides insights, advice, and recommendations to the Oregon Department of Energy throughout the process of developing the energy strategy. Comprised of individuals representing a diverse range of a) interests, expertise, and education; b) socioeconomic backgrounds; c) communities; and d) geographic areas of the state.
- **Working Groups**: Serve to inform development of the technical and policy analysis and recommendations for the energy strategy. Comprised of individuals with professional and lived expertise and experience that can help cover the range of topics that HB 3630 directs the strategy to include.
- **Tribal Consultation**: Government-to-Government consultation is an important element of the energy strategy and serves to ensure that tribal priorities, concerns, and interests inform its development. ODOE is conducting outreach to the nine federally recognized Tribes in Oregon throughout the development of the strategy, and engaging with organizations focused on Tribal priorities.
- **Listening Sessions**: Provide an avenue for ODOE to hear from the public on their views regarding important issues relating to the energy strategy during both the technical and policy phases of the project. Listening Sessions are open for anyone to join.
- **Webinars**: Focus on reporting progress at key inflection points in the development of the energy strategy.

During Phase 1, ODOE held four Advisory Group meetings, four Interagency Steering Group Meetings, 14 Working Group meetings, two Listening Sessions, and two webinars. ODOE issued formal letters to each of Oregon's nine federally recognized Tribes at the start of the Oregon Energy Strategy development process in fall 2023 and in spring 2024 prior to launching Phase 1 engagement. In

October 2024, ODOE issued one more letter to invite consultation with Tribes as ODOE lays the groundwork for policy discussions in early 2025.

ODOE's engagement has focused on identifying the most appropriate data sets to inform the model and prioritized gathering Oregon-specific data. The agency worked with the public and different consultative groups to develop modeling assumptions across the buildings, transportation, industry, fuels, and electricity sectors, incorporating considerations relating to environmental justice, equity, and land use.

A Reference Scenario is structured to represent an aggressive but achievable pathway to meeting the state's energy policy objectives, building on existing policies and programs, and on numerous studies that indicate that high levels of energy efficiency and electrification are essential to achieve high levels of greenhouse gas emissions reductions. It will serve as a central point of comparison with Alternative Scenarios that represent other pathways to meet the state's goals.

Building on the Reference Scenario, the Oregon Energy Strategy team undertook further engagement to identify these Alternative Scenarios. ODOE developed six different Alternative Scenarios based on feedback from meetings and written comments. These include scenarios where transmission and large-scale renewable energy development is constrained, where energy efficiency adoption and electrification of transportation and other end-uses occur more slowly, where utilities have less ability to manage loads, and where there is more availability of clean hydrogen.

CETI will be running the Reference and Alternative Scenarios through the end of 2024. In the meantime, ODOE is working with CETI to develop analytical tools to further evaluate the modeling results, including:

- Development of an energy wallet, illustrating energy costs across five representative Oregon households and how they may change over time as Oregon takes different pathways to meet clean energy goals.
- Evaluation of the effects of different pathways on air quality and public health.
- Collection of geospatial data to help further inform policy discussions by providing a deeper understanding of the potential effects of different pathways in different parts of Oregon.
- Analysis of the economic and employment effects of different pathways.

In early 2025, ODOE will launch Phase 2 engagement on the Oregon Energy Strategy with a webinar presenting the modeling results. Building on these, ODOE will facilitate additional conversations to inform development of policy recommendations that support advancement towards Oregon's energy policy objectives.

These conversations will be informed by broad engagement across communities with a diversity of interests to tease out the barriers, opportunities, and challenges in meeting our goals. The results of the modeling and additional analytical tools will help inform these discussions by providing insights into the costs and benefits of different pathways. Ultimately, the goal of the technical and policy analysis is to develop an energy strategy that helps Oregonians make intentional and informed decisions about the state's energy future.

The Oregon Energy Strategy will be presented to the Governor and Legislature by November 1, 2025. The report is expected to include a summary of the energy strategy and pathways to achieving the state's energy policy objectives; policy recommendations; and a description of the engagement process and how Oregonians' perspectives informed the strategy.