EXECUTIVE SUMMARY

Oregon and surrounding states have aggressive economy-wide decarbonization and clean electricity policies. A consensus has emerged in recent technical literature that identifies core pathways required to achieve these policies, including continued investments in energy efficiency, electrifying end-uses in the transportation and building sectors, and developing a tremendous amount of new renewable generation. To achieve the mid-century policy goals of many states, including Oregon, these new clean energy resources will be built across a diverse region, with Oregon likely seeing tens of gigawatts of renewable projects within state borders.

Offshore Wind: An Overview

Offshore wind is a renewable energy technology being deployed in shallow waters across the world and is advancing into deeper waters by affixing wind turbine technology to floating platforms. This floating technology is necessary to develop offshore wind in the deep ocean waters along the southern Oregon and northern California coast, which have some of the strongest wind resources in the world. Technical modeling shows the potential to develop dozens of gigawatts of offshore wind in these areas, which could play a critical role in helping Oregon and the region achieve mid-century clean energy and decarbonization policies.

Floating Offshore Wind in Oregon: Potential Benefits

Immense Resource. Offshore wind is a significant resource that could help many states in the region meet their mid-century climate and clean energy goals, including Oregon.

Generation Resource Diversity. Offshore wind could play a critical role in helping the state achieve its clean energy goals, particularly because of its ability to complement other renewables during certain times of the year, like the winter months when solar is less available.

Offsets Land Use Impacts. Offshore wind could help the state's utilities deliver 100 percent clean and reliable power while offsetting the cumulative amount of land developed for new solar and onshore wind projects.

Power System Reliability. The addition of commercial-scale electricity generation projects offshore could improve the reliability of the state and regional grid.

Local Energy Resilience. The deployment of offshore wind projects could expand opportunities for additional community energy resilience projects along Oregon's coast.

Economic Development. The need for a skilled workforce to build and maintain floating offshore wind projects, and to develop supporting infrastructure and supply-chains, could support direct, indirect, and induced job development, especially in coastal communities where construction and maintenance activities would be based.

Floating Offshore Wind in Oregon: Potential Challenges

Concern About Effects to Coastal Communities, Existing Industries, the Environment, and Cultural Resources. A wide range of stakeholders have expressed concerns about potential adverse effects from offshore wind development and operations on existing ocean and land users (e.g., fishing, seafood, recreation and tourism industries, and military activities), coastal communities, the environment, and cultural resources, among others. Concerns extend into the siting and permitting processes not being adequate or timely to meaningfully address all potential adverse effects.

Siting and Permitting Conflicts and Complexity. There are complex siting and permitting challenges associated with locating large-scale wind projects in Oregon's deep ocean waters that involve lengthy processes to address. A complex system of federal, state, and local rules and regulations are in place to evaluate and address potential adverse effects on current ocean and land users, the marine environment, and cultural resources. Conflicts and trade-offs are yet unquantified.

Technology Readiness. While large-scale commercial projects are being planned, floating offshore wind has yet to be deployed at gigawatt scales. To deploy offshore wind in the deep ocean waters adjacent to Oregon, mature wind turbine technology must be paired with new types of floating platforms based on concepts that have successfully been used in the offshore oil and gas industry.

Port Infrastructure. Investing in substantial upgrades to a coastal deep-water port in Oregon is a prerequisite to unlocking the full economic development potential associated with deploying wind projects off Oregon's coast. The required upgrades may take several years but would improve the port's capability to manufacture floating platforms, integrate turbines into the platforms, and tow out larger turbines to their ocean locations.

Transmission Grid. Substantial upgrades to the onshore coastal electric transmission grid would likely be required to develop offshore wind at-scale due to current grid limitations.

Power Offtake Agreements. Attracting the capital investment necessary to upgrade port and grid infrastructure – and developing the offshore wind projects themselves – likely requires commitments to develop projects at the gigawatt-scale. This scale outstrips the near-term energy need of a single utility in most cases, and likely requires a consortium of buyers to collaborate on cooperative power offtake agreements—potentially including out-of-state utilities or large industrial customers.

Study and Report Structure

As directed in HB 3375 (2021), this report provides a summary of important information, key findings, and recommendations for future study and engagement related to the benefits and challenges of integrating up to 3 GW of floating offshore wind into Oregon's electric grid by 2030. The report reflects a synthesis of information by Oregon Department of Energy staff from their review of the existing literature, their broader understanding of the power sector and its long-term needs, their consultation with other state, regional, and national entities with relevant expertise, and from the direct feedback received from stakeholders throughout 2022. As part of this study, ODOE convened a diverse group of stakeholders to discuss these issues. The materials shared and full recordings of those meetings are available online.

Need for Further Study, Engagement, and Collaboration

There was broad support for more information and studies across many topics to fully understand and add clarity on the potential value and trade-offs of developing offshore wind in Oregon. A common theme emerged around an interest in increased regional and local collaboration to balance the potential benefits and challenges.

The complete 2022 Floating Offshore Wind Study is available online:
https://www.oregon.gov/energy/energy-oregon/Pages/fosw.aspx