Oregon Floating Offshore Wind Energy Roadmap with Exit Ramps

CONSIDERATIONS

April 2024

Acknowledgments

This document is intended as "considerations" for the Governor's Office, Oregon state agencies, and other interested parties who will ultimately build the Oregon Floating Offshore Wind Energy Roadmap with Exit Ramps. It was authored collectively by a diverse group of interests listed in the roster in Table I, facilitated by Oregon Consensus, and funded with support from the Energy Foundation. Special thanks to advisors from Governor Kotek's office, state agencies, Oregon Sea Grant, and Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians who provided feedback on this document.

For more information, contact:

- Sofia Castellanos, Oregon Consensus, acastel2@pdx.edu
- Bobby Cochran, Oregon Consensus, jcochran@.pdx.edu
- Ranfis Giannettino Villatoro, Blue-Green Alliance, rvillatoro@bluegreenalliance.org
- Nicole Hughes, Renewable Northwest, nicole@renewablenw.org
- Heather Mann, Midwater Trawlers Cooperative, heathermunromann@gmail.com

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Copy editing and layout by Tess Malijenovsky, tessmalijenovsky@gmail.com.

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Executive Summary

From August 2023 to April 2024, an informal group representing varied perspectives on floating offshore wind energy (FOSW or FOSW energy) convened to discuss and deepen their understanding of the challenges and opportunities in FOSW development off Oregon's coast. The group recommended that the State of Oregon build a long-term, coast-wide strategy, or "Roadmap with Exit Ramps" ("Roadmap"), that can serve as the foundation for stakeholder engagement, articulate expectations of offshore wind energy development, and set forth processes to help ensure that the consideration of offshore wind energy is transparent, robust, and inclusive. In March, the Legislature passed HB 4080,[1] which directed the Oregon Department of Land Conservation and Development (DLCD) to develop the Roadmap.

The group then developed a series of considerations for the State of Oregon and other interested parties to take into account during the Roadmap's development. The Roadmap is envisioned as applying to:

- the full spatial extent of FOSW development for both state and federal waters off Oregon's coast, and the estuary and onshore infrastructure needed to support and transmit offshore wind energy;
- the entire life cycle of FOSW development, including planning, siting, development, operations, maintenance, and decommissioning; and
- a definition of Oregon's strategic role in the policy, research, and business of FOSW energy nationally and globally.

This document is intended as "considerations" for the state agencies and interested parties who will ultimately build the Roadmap for FOSW energy in Oregon. Section 3 identifies seven specific objectives the State should consider around impacts and benefits of FOSW energy development. Section 4 summarizes issues the group felt were universal principles, called "cross-cutting lenses," that should be applied to all Roadmap objectives, analyses, and desired outcomes. Section 5 outlines key factors for the successful development of the Roadmap and includes considerations for stakeholder participation and assumptions on the cost to develop a robust Roadmap.

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1 Relating to offshore wind energy development, HB 4080. (2024). Accessed at https://olis.oregonlegislature.gov/liz/2024R1/Measures/Overview/HB4080.

The Roadmap envisions successful development of floating offshore wind energy within Oregon's overall clean energy portfolio,[2] but not without careful consideration and potential "exit ramps."

The themes and recommendations in this document are intended to guide a public process to build a comprehensive Roadmap that is also aligned with various state planning efforts to meet clean energy goals and protect ocean and estuarine resources, such as the Territorial Sea Plan,[3] State Land Use Planning Goals 16, 17, 18, and 19,[4] and the developing Oregon Energy Strategy.[5] This document is also informed by other states' experiences, particularly Maine's Offshore Wind Roadmap[6] published in February 2023. Also, the group recognized that offshore wind energy development, in a particular location on Oregon's coast, may need an "exit ramp" where there is time to consider more information, avoid impacts, and optimize benefits.

The Roadmap would be crafted by the State of Oregon, in a timely manner, via meaningful engagement with Tribes and communities.

The group recommended the Roadmap be built by State agencies or the Governor's office with robust Government-to-Government consultation with federally recognized Tribes and opportunities for a wide diversity of community voices to engage. The group also wanted the Roadmap to be completed in time (e.g., in the next 14-24 months) to inform the Bureau of Ocean Energy Management (BOEM) processes.

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2 The term "clean energy" is used in reference to Oregon's policy mandates requiring retail electricity providers to eliminate greenhouse gas emissions associated with serving Oregon's retail electricity consumers by 2040. For the purposes of this document, "clean energy" includes electricity, including hydroelectricity, that is generated and potentially stored without emitting greenhouse gasses into the atmosphere. On the other hand, the term "renewable energy" is defined as energy from sources that are not depleted when utilized, such as wind or solar power, and refers to federal policy. This distinction aims to provide clarity and ensure that this document aligns with the specific policies and definitions set by Oregon and federal guidelines, respectively.

3 Oregon Department of Land Conservation and Development, Oregon Coastal Management Program. (2024). Territorial Sea Plan. Accessed at https://www.oregon.gov/lcd/OCMP/Pages/Territorial-Sea-Plan.aspx.

4 DLCD, 2024. See note 3.

5 Oregon Department of Energy. (2024). Oregon Energy Strategy. Accessed at https://www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx.

6 Maine Offshore Wind Roadmap. (2023). Accessed at https://www.maine.gov/energy/initiatives/offshorewind/roadmap.

The Roadmap would be holistic and comprehensive.

The group recommends the Roadmap include cross-cutting lenses (see Section 4) to shape decisions that are:

- connected to the regional and national context;
- equitable, transparent, and the product of meaningful engagement with affected communities;
- place-based, integrative, adaptive, and strategic; and
- open to exit ramps for a pause on projects.

The group also recommended the Roadmap include the following seven objectives (see Section 3) by integrating FOSW energy with a healthy ecosystem, thriving fishing communities, and coastal towns:

- achieve clean energy mandates;
- protect the environment, ocean ecosystem, and conserve birds, fish, and wildlife;
- protect cultural/archaeological resources, Tribal subsistence, culturally significant viewsheds, and other resources important for Tribes;
- support coastal communities and towns;
- protect existing seafood providers (processors and harvesters);
- create economic opportunity and foster domestic supply chain; and
- develop Oregon's offshore wind energy workforce.

The objectives, topics, and key questions for the Roadmap process to consider were developed by the following group members.

Table I. Informal Offshore Wind Energy Group Membership (alphabetical order by last name)

Members

First Name	Last Name	Affiliation
Ashley	Audycki	Rogue Climate
Joshua	Basofin	Climate Solutions
Mark	Brenner	Labor Education and Research Center, University of Oregon
Tara	Brock	Oceana

(continues on next page)

Members (cont.)

First Name	Last Name	Affiliation
Lorne	Bulling	Ironworkers 29 / Oregon State Building and Construction Trades
John	Burns	Port of Coos Bay
Robert	Camarillo	Oregon State Building and Construction Trades Council
Jena	Carter	The Nature Conservancy
Susan	Chambers	West Coast Seafood Processors Association
Alicia	Chapman	Willamette Technical Fabricators
Chris	Cooper	fisherman
Nick	Edwards	Shrimp Processors Marketing Cooperative (SPMC)
Brien	Flanagan	Schwabe
Ranfis	Giannettino Villatoro	Blue-Green Alliance
Jess	Grady-Benson	Rogue Climate
Richard	Heap	Port of Brookings
Nicole	Hughes	Renewable Northwest
Heather	Mann	Midwater Trawlers Cooperative
Scott	McMullen	Oregon Fishermen's Cable Committee
Katie	Morrice	energy expert
Tan	Perkins	Oregon AFL-CIO
Bryson	Robertson	Pacific Marine Energy Center, Oregon State University
Tim	Sippel	Worley Consulting
Graham	Trainor	Oregon AFL-CIO
Ann	Vileisis	Kalmiopsis Audubon Society
Hayley	Watson	Oregon State Building and Construction Trades Council
Robert	Westerman	IBEW 932 Electric Workers

Advisors

First Name	Last Name	Affiliation
Christopher	Frazier	Business Oregon
Scott	Groth	Oregon Department of Fish and Wildlife
Alexis	Hammer	Oregon Department of Land Conservation and Development
Mike	Harrington	Oregon Department of Fish and Wildlife
Jessica	Laberge	Regional Solutions
Andy	Lanier	Oregon Department of Land Conservation and Development
Karina	Nielsen	Oregon Sea Grant, Oregon State University
Karin	Power	Office of Governor Kotek
Ruchi	Sadhir	Oregon Department of Energy
Colin	Sears	Business Oregon
Jason	Sierman	Oregon Department of Energy

Facilitators

First Name	Last Name	Affiliation
Bobby	Cochran	Oregon Consensus
Sofia	Castellanos	Oregon Consensus
Bryce	Sprauer	Portland State University

Acronyms Used

AFL-CIO	American Federation of Labor and Congress of Industrial Organizations
BOEM	Bureau of Ocean Energy Management
BOLI	Oregon Bureau of Labor and Industry
CCLME	California Current Large Marine Ecosystem
CTCLUSI	Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
CZMA	Coastal Zone Management Act
DLCD	Oregon Department of Land Conservation and Development
DSL	Oregon Department of State Lands
FOSW	Floating Offshore Wind Energy
GLD	Geographic Location Description
GW	Gigawatts
HB	House Bill
IBEW	International Brotherhood of Electrical Workers
IOU	Investor-owned utilities
LCOE	Levelized Cost of Energy
MMC	Marine Mammal Commission
MSC	Marine Stewardship Council
MW	Megawatts
MWH	Megawatt hours
NCOSS	National Centers for Coastal and Ocean Science
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OAR	Oregon Administrative Rules
OCS	Outer Continental Shelf
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
OPAC	Ocean Policy Advisory Council
OPRD	Oregon Parks and Recreation Department
PUC	Oregon Public Utility Commission
SHPO	Oregon Heritage / State Historic Preservation Office
SPMC	Shrimp Processors Marketing Cooperative
US	United States of America
USFWS	U.S. Fish and Wildlife Service

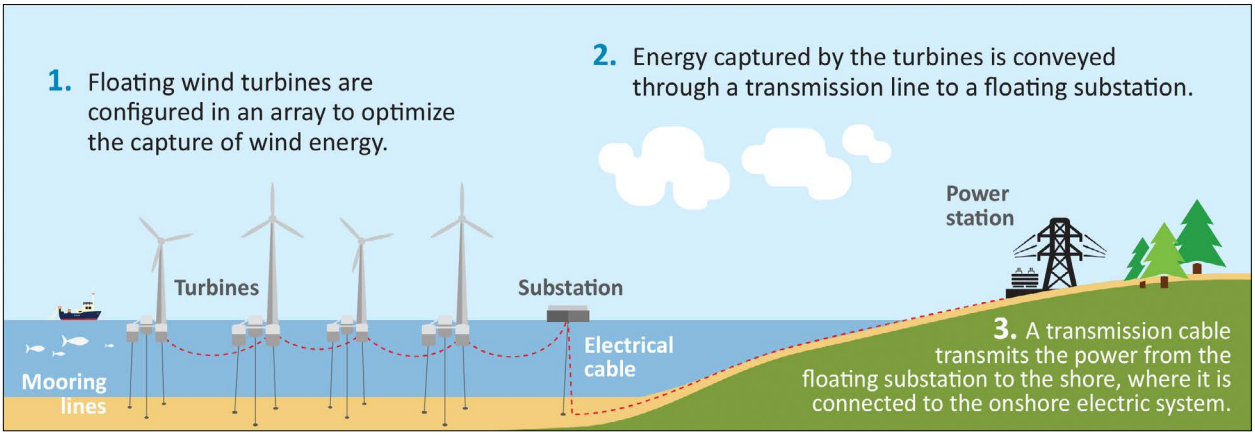
Section I

Why a Floating Offshore Wind Energy Roadmap with Exit Ramps for Oregon?

In 2024, the Oregon Legislature passed HB 4080,[7] which directed the Oregon Department of Land Conservation and Development to develop the Roadmap. In this context, a roadmap is a recognition that a balance, with more dialogue, is needed between current and future ocean uses and community needs. Globally, floating offshore wind energy (FOSW) is an emerging industry that could provide a significant source of new renewable energy. There is substantial wind energy development potential in state and federal waters off the coast of Oregon. However, there are equally important aspects of Oregon's oceans, ecosystems, and coastal communities that could be impacted, positively or negatively, by FOSW energy development—including the environment, fishing, Tribal cultural resources, and coastal economies. The ocean is a place people have long shared with each other as well as with birds, fish, and wildlife. The balance of uses, needs, and shared futures is part of why Oregon can benefit from the Roadmap, making the approach strategic and intentional.

Floating offshore wind energy infrastructure includes the turbines, moorings, substations, cables, and transmission infrastructure on sea and land across the entire lifecycle of FOSW development from planning and siting to construction and decommissioning (see Figure 1).

Figure 1. Infrastructure Associated with FOSW[8]



Climate change is an overarching challenge that has substantial effects. Addressing climate change requires both reducing greenhouse gas emissions and protecting the capacity of ecosystems and communities to adapt. There is tension between A) transitioning away from fossil fuel energy sources and B) understanding how we must adapt in the face of climate change, which is already stressing the ocean environment. A "Floating Offshore Wind Energy Roadmap with Exit Ramps" ("Roadmap") can help manage that tension and give Oregon a plan to continue its forward-thinking approach to addressing the climate crisis with a

7 Relating to offshore wind energy development, HB 4080. (2024). Accessed at https://olis.oregonlegislature.gov/liz/2024R1/Measures/Overview/HB4080.

8 Bureau of Ocean Energy Management. 2024. Oregon Offshore Renewable Energy BOEM-OREGON OFFSHORE WIND PLANNING EFFORTS. Accessed at https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/renewable-energy/BOEM-Oregon-Joint-Effort-Fact-Sheet_0.pdf.

comprehensive, long-range strategy for FOSW. The group explicitly envisioned that the Roadmap include "exit ramps" to ensure that the process did not pre-determine any outcome, in the case that information or conditions might warrant a pause or reconsideration in the process.

Table 1.A What is an "exit ramp"?

For the purposes of this document, and from the conversations and discussions from this group, an exit ramp refers to information, conditions, or feedback that warrant a pause or reconsideration in the decision-making process for planning, siting, investigating, constructing, and/or maintaining FOSW turbines, cables, landing sites, substations, energy storage, and transmission systems.

Those pauses and reconsiderations could be the result of uncertainty or significant negative impacts. There may be scenarios where the impacts from a particular location, alignment, or operation of a FOSW energy facility or associated infrastructure outweigh benefits. Under such scenarios permitting authorities may need to develop a decision-making process for how to proceed, or even whether the project should proceed. Such decision-making processes should be inclusive of broad input from community, Tribes, and other interests. (see Section 4.4 and the Appendix for more on Exit Ramps).

A roadmap development process is an opportunity for a diverse set of interests across the State of Oregon to establish a more transparent, equitable, and community-driven process for planning, siting, developing, and operating FOSW energy projects and their associated infrastructure. A roadmap development process is also an opportunity for Oregon to define its strategic role in the policy, research, and business of FOSW nationally and globally.

The advantages of a roadmap include:

- providing consistency and predictability for energy developers and government agencies in planning and developing FOSW energy;
- ensuring a better understanding of the local and regional impacts of FOSW energy, including technical, ecological, and socio-economic factors;
- incorporating existing and emerging research more fully into the decision-making process;
- implementing spatially optimized siting strategies that minimize potential conflicts and maximize compatibility with existing uses in marine ecosystems by drawing on the marine spatial planning experiences from other state initiatives;
- recommending methods to avoid negative impacts to the ocean ecosystem, environment, birds, fish, and wildlife, existing ocean users, Tribes, and coastal communities;

- proactively deploy the mitigation hierarchy to avoid, minimize, rectify, reduce or eliminate impacts over time, and compensate for remaining unavoidable impacts[9] to Tribes, communities, ocean users, and the ocean ecosystem, including birds, fish, wildlife, and their habitats;
- ensure that Oregon is positioned to benefit from the substantial economic opportunities that the FOSW energy market is creating for the rest of the country and world, and support the potential for coastal communities, Tribes, and other Oregon communities to experience significant benefits;
- balancing the many qualities that make the ocean off Oregon's coast special:
    - for birds, fish, wildlife, and their habitats (offshore and in estuaries), and for ocean processes;
    - for the Tribes, cultures, and communities that reside nearby and/or rely on the ocean for health, food, livelihoods, recreation, cultural practices, and economic development;
    - for the opportunity to generate renewable energy; and
    - for the opportunity to benefit local communities, create jobs, and economic inclusion for all.

Table 1.B Clarifying Oregon's strategic role in the FOSW sector

FOSW energy is a new and rapidly evolving industry. Much of this Roadmap Considerations document focuses on the planning, siting, and construction of FOSW energy facilities off the coast of Oregon. The Roadmap would also help the State of Oregon clarify a broader strategic position relative to:

- energy workforce development;
- research, innovation, and data collection and management;
- manufacturing and other local business promotion; and
- defining national policy and approaches to FOSW energy that are consistent with the values and principles held by Oregon communities and Tribes.

Ultimately, Oregon has an opportunity to promote open, transparent, proactive, and comprehensive dialogue around FOSW energy that represents all of Oregon's interests in state, Tribal, regional, and federal planning and decision-making.

9 Mitigation, 40 C.F.R § 1508.20. Accessed at https://www.govinfo.gov/content/pkg/CFR-2002-title40-vol28/pdf/CFR-2002-title40-vol28-sec1508-20.pdf.

1.1 How this document is organized

Section 2 provides context on the interest in FOSW energy and the federal, state, and local policies that apply to potential FOSW development. Sections 3, 4, and 5 summarize issues the group discussed and the group's consensus on considerations as the State of Oregon develops the Roadmap. Section 3 identifies seven specific objectives the State should consider around impacts and benefits of FOSW energy development. Section 4 summarizes issues the group felt were universal principles, called "cross-cutting lenses," that should be applied to all Roadmap objectives, analyses, and desired outcomes. Section 5 provides considerations for the successful development of the Roadmap and includes considerations for stakeholder participation and assumptions on the cost to develop a robust Roadmap.

Section II

The Oregon Context for Offshore Wind Energy Potential

The ocean off Oregon's coast has substantial offshore wind energy resources, with some of the highest annual average wind speeds in the country. This has led Oregon, along with other Pacific Coast states, to consider how FOSW energy development in federal waters can support the Biden-Harris Administration's goal of 30 gigawatts (GW), nationally, of offshore wind energy by 2030, and 15 GW of FOSW energy by 2035.[10] Furthermore, in 2021, the Oregon State Legislature passed Clean Energy Targets (HB 2021), which requires the investor-owned utilities and electricity service suppliers in the State of Oregon to supply 100% greenhouse gas free electricity by 2040.[11] And, in 2023, the Oregon Department of Energy (ODOE) began a two-and-a-half-year process to build a comprehensive Oregon Energy Strategy.[12] The Strategy will look at trends in state energy demand, and energy resource and technology choices as they relate to cost considerations, energy efficiency, feasibility, and availability. The Oregon Energy Strategy will include evaluating the role of FOSW as it relates to all of the potential pathways for the State to meet its energy policies.

In December 2010, in response to the then nascent offshore energy interest, Oregon's Governor Kulongoski requested a State-Federal task force to address the use of the ocean for renewable energy development. The Oregon Intergovernmental Renewable Energy Task Force was established by the Bureau of Ocean Energy Management (BOEM).[13] Under BOEM's rules, only full-time or permanent part-time officers of the federal government and elected officers of state, local, and Tribal governments (or their designated employees) were included on the task force. The task force provides coordination and engagement with respect to BOEM's consideration of potential renewable energy activities on the Outer Continental Shelf (OCS)[14] off the Oregon coast, including issuing offshore wind energy leases. However, members of the public, including affected communities and other interested parties, have had minimal opportunities for direct engagement.

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10 The White House. (September 15 2022). FACT SHEET: Biden-Harris Administration Announces New Actions to Expand U.S. Offshore Wind Energy. Accessed at https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/.

11 Relating to clean energy, HB 2021. (2021). Accessed at https://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB2021.

12 See ODOE, 2024. See note 5.

13 Bureau of Ocean Energy Management. (2024). BOEM Oregon Intergovernmental Renewable Energy Task Force. Accessed at https://www.boem.gov/renewable-energy/state-activities/boem-oregon-intergovernmental-renewable-energy-task-force.

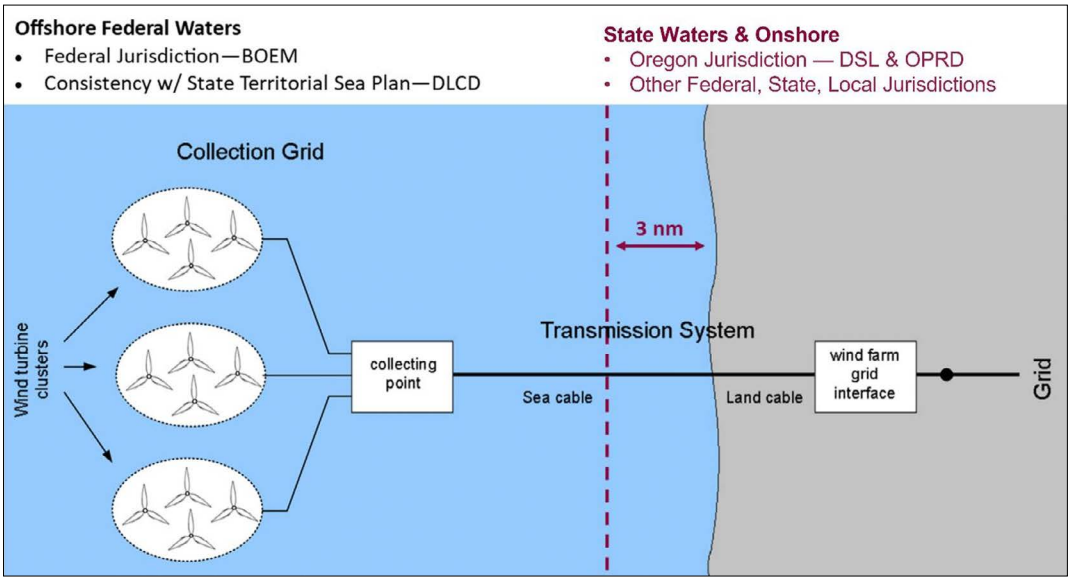
14 "The OCS is a jurisdictional area defined in the federal Outer Continental Shelf Lands Act of 1953 as all submerged lands lying seaward and outside the area of lands beneath navigable waters (state territorial seas), the subsoil and seabed of which appertain to the United States and are subject to its jurisdiction and control." Department of Land Conservation and Development. (2019). Territorial Sea Plan. Accessed at https://www.oregon.gov/lcd/OCMP/Documents/otsp_app-a.pdf.

In 2021, the Oregon Legislature passed HB 3375.[15] The law set a state goal to plan for the development of up to 3 gigawatts of FOSW energy projects within federal waters off the Oregon coast by 2030. It also directed ODOE to study and report on the benefits and challenges.[16] (See Section 3.1 for more on Oregon's projected electricity demand growth and the potential for meeting this demand through FOSW development.)

2.1 Oregon's enforceable policies and the regulatory framework for energy planning and siting (federal, state, and local)

Onshore energy development in Oregon is subject to local and state land use laws and ordinances. Energy development offshore falls either under the jurisdiction of the state or federal government. The State's jurisdiction over the ocean extends seaward three nautical miles (nm) from the coastline ("territorial sea"). The U.S. Exclusive Economic Zone extends beyond Oregon waters (3 nm from shore) out to 200 nm from shore and is regulated by the federal government (see Figure 2.1).[17]

Figure 2.1 Federal, state, and local jurisdictional authorities for planning, siting, and permitting[18]



15 Relating to offshore wind energy, HB 3375. (2021). Accessed at https://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB3375.

16 Oregon Department of Energy. (2022). Floating Offshore Wind Study: Benefits & Challenges for Oregon. Accessed at https://www.oregon.gov/energy/energy-oregon/Pages/fosw.aspx.

17 Bureau of Ocean Energy Management. (2024). Outer Continental Shelf Lands Act History. Accessed at https://www.boem.gov/oil-gas-energy/leasing/ocs-lands-act-history.

18 See ODOE, 2022, p.13. See note 16.

2.1.1 State agency oversight

Oregon state agencies play an important role ensuring that proposed FOSW energy development actions are consistent with state goals and requirements. These include goals around environmental protection, economic opportunity, consistent land uses, etc. A number of state agencies will review, comment on, and/or permit FOSW energy development actions. For example, DLCD implements statewide planning goals, Department of State Lands (DSL) permits actions that intersect waters of the state (e.g., estuaries, wetlands, and streams), Oregon Parks and Recreation Department (OPRD) permits actions that intersect state beaches and parks (e.g., cable landing sites and transmission), the Oregon State Historic Preservation Office (SHPO) reviews compliance with the requirements of the National Historic Preservation Act for protection of archaeological and cultural resources, and the Oregon Department of Fish and Wildlife (ODFW) is responsible for the management of fish, wildlife, and their habitats within Oregon's territorial sea and further, depending on species.

Coastal and ocean development oversight

Oregon's ocean planning by state agencies follows the policies and objectives of Statewide Planning Goal 19.[19] The Oregon Territorial Sea Plan provides the framework for state and federal agencies, as well as local governments and others, to manage ocean resources and activities through a comprehensive, coordinated, and balanced process.[20] In addition, the Oregon state legislature created an Oregon Ocean Policy Advisory Council (OPAC), whose members represent cities, counties, and ports, as well as recreation, fishing, and conservation interests.[21] OPAC also receives recommendations from a standing scientific and technical advisory committee.[22] OPAC advises the Governor, the State Land Board, state agencies, and local governments on ocean policy and resource management matters. Non-voting members of OPAC include representatives from state agencies.[23]

Onshore development oversight

Energy facilities sited onshore must comply with state and local siting laws and ordinances. Oregon Planning Goals 16, 17, and 18 are particularly relevant for onshoring facilities that

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19 State of Oregon Department of Land Conservation and Development. (2024). Goal 19 overview. Accessed at https://www.oregon.gov/lcd/OP/Pages/Goal-19.aspx.

20 Oregon Department of Land Conservation and Development, Oregon Coastal Management Program. (2024). Territorial Sea Plan. Accessed at https://www.oregon.gov/lcd/OCMP/Pages/Territorial-Sea-Plan.aspx.

21 Oregon Department of Land Conservation and Development. (2024). Ocean Policy Advisory Council. Accessed at https://www.oregon.gov/lcd/OCMP/Pages/OPAC.aspx.

22 Technical advisory committee; duties; members; vacancies; advisory committees; rules, ORS 196.451. Accessed at https://www.oregonlegislature.gov/bills_laws/ors/ors196.html.

23 Purpose of the Ocean Policy Advisory Council, ORS 196.443. Accessed at https://www.oregonlegislature.gov/bills_laws/ors/ors196.html.

may affect coastal resources, such as estuaries, coastlands, beaches, and dunes.[24] County comprehensive plans and zoning ordinances apply to any development on private lands. The Oregon Department of Energy's Energy Facility Siting Council[25] has jurisdiction over permitting transmission lines of 230 kilovolts or more that are more than 10 miles in length and that are to be constructed in more than one city or county in Oregon.

2.1.2 Federal agency oversight

The Federal government manages the OCS beginning three nautical miles off the coast. Several federal agencies have oversight and/or regulatory responsibility over the OCS, including the National Oceanic and Atmospheric Administration (NOAA), the Marine Mammal Commission, Department of Defense, the U.S. Fish and Wildlife Service, the U.S. Coast Guard, and a handful of other agencies. These agencies coordinate and/or oversee environmental, cultural resource, and other reviews during the FOSW planning and permitting process (e.g., the National Environmental Policy Act, Endangered Species Act, Coastal Zone Management Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, and National Historic Preservation Act).[26]

BOEM[27] is the siting and leasing agency for offshore energy projects, and the Bureau of Safety and Environmental Enforcement[28] develops and implements safety and environmental regulations and oversight of offshore energy projects after they are constructed.

2.1.3 Federal consistency review of offshore wind energy development: Coastal Zone Management Act and Oregon Department of Land Conservation and Development

The U.S. Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the National Coastal Zone Management Act (CZMA) in 1972. This act, administered by NOAA, provides for the management of the nation's coastal resources. One of the incentives for state participation in the CZMA is the federal consistency authority.[29] The authority includes a review process that coastal states with federally approved coastal programs

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24 See DLCD, 2024. See note 3.

25 Energy Facilities Siting Council. (2024). About the Council. Accessed at https://www.oregon.gov/energy/facilities-safety/facilities/Pages/About-the-Council.aspx.

26 NOAA Fisheries. (2024). Laws and Policies. Accessed at https://www.fisheries.noaa.gov/topic/laws-policies.

27 Bureau of Ocean Energy Management. (2024). Accessed at https://www.boem.gov/.

28 Bureau of Safety and Environmental Enforcement. (2024). Accessed at https://www.bsee.gov/about-bsee/renewable-energy.

29 Department of Land Conservation and Development, Oregon Coastal Management Program. (2024). About Federal Consistency. Accessed at https://ocmp.info/federalconsistency/.

undertake every time a federal activity is proposed in that state's coastal zone. DLCD has authority to review the BOEM permitting process within the Oregon Marine Renewable Energy Geographic Location Description (GLD) zones. This GLD zone is defined as three nautical miles from the shoreline and extending seaward to a boundary line along the outer continental shelf that approximates the 500 fathom[30] bathymetric contour.

2.2 Economic growth opportunities and resiliency

Floating offshore wind energy presents an economic growth opportunity for the coast, which has historically relied on industries such as fishing, forestry, and tourism. The economic opportunity also exists for other Oregon regions, which may be in a position to grow manufacturing or other supply chain businesses. A 2016 National Renewable Energy Laboratory study suggested FOSW energy off the Oregon coast could add between $6.8 and $10 billion to the state's economy.[31] Some critiques of this study suggest economic benefits of FOSW energy need to be balanced with potential tradeoffs between projecting new energy jobs and impacts on existing jobs. The State and some metro and coastal communities could benefit from additional jobs associated with development, construction, manufacturing, operations, and maintenance. There may also be opportunities to attract federal funding to support development of the local supply chain and workforce, grants for research and education, and state and federal partnerships for port development and other investments triggered by the creation of a FOSW energy industry. Additionally, associated improvements to transmission infrastructure and the opportunities to co-locate energy storage associated with FOSW could improve both power reliability for coastal communities and grid resilience.

Table 2.2 Power reliability and resilience[32]

"A reliable power system is designed to minimize power loss disruptions as a result of a sudden disturbance or unanticipated failures of system elements."

And, "Resilience is the ability of power systems to withstand — and rapidly restore power delivery to customers following — non-routine disruptions of severe impact or duration."

The current risks to power resilience on the coast are tied to relatively few east-west transmission lines over the Coast Range and over the Cascades. Some parts of Oregon's coast experience power reliability challenges.

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30 A fathom = 6 feet (1.83 meters); 500 fathoms = 3000 feet or 914 meters.

31 National Renewable Energy Laboratory. (2016). Floating Offshore Wind in Oregon: Potential for Jobs and Economic Impacts from Two Future Scenarios. Accessed at https://www.nrel.gov/docs/fy16osti/65421.pdf.

32 See ODOE, 2022, pp. 23-26. See note 16.

The opportunity for FOSW development to improve reliability and resilience is tied to A) associated transmission and storage facility improvements that would be required to connect FOSW to the grid, and B) the physical proximity of any generation source to its end use improves reliability and resilience.

2.3 Balancing current and new ocean uses

Oregon's offshore waters are incredibly productive, hosting an abundance of birds, fish, and wildlife (see Section 3.2). As such, existing uses of the ocean include fishing (see Section 3.5), maritime trade, scientific research, tourism, and recreation, which are key economic components of Oregon's coastal communities. Total Oregon marine commercial fishing and seafood processing sales were $730 million in 2020 supporting 11,651 jobs (excluding Tribal fishing). Total Oregon marine recreational fishing sales were $59 million in 2020 supporting 569 jobs.[33] Coastal recreation and tourism depend on scenic views, quality fishing opportunities, and wildlife viewing. Travel spending was estimated at $2.4 billion on the Oregon Coast in 2022, employing about 25,290 people.[34] Additionally, Oregon's federally recognized Tribes have utilized the ocean and coastal resources in Oregon since time immemorial (see Section 3.3). Today, Tribal members rely on the coast for its economic, religious, and cultural values and resources.

In introducing a new industry to the Oregon coast, the potential for conflicts exists where the new industry has potential to impact the environment or existing ocean users. The State must oversee a process of balancing existing economic and cultural values, with the potential for new investment and growth, and carefully identify solutions to avoid, minimize, and meaningfully mitigate the potential impacts on existing ocean processes and uses.

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33 National Marine Fisheries Service. (2023). Fisheries Economics of the United States 2020: Economics and Sociocultural Status and Trends Series. NOAA Technical Memorandum NMFS-F/SPO-236. pp. 52-53. Accessed at https://www.fisheries.noaa.gov/resource/document/fisheries-economics-united-states-2020-report; Knoder, E. (April 7, 2023). Oregon's Commercial Fishing in 2022. Oregon Employment Department. Accessed at https://www.qualityinfo.org/-/oregon-s-commercial-fishing-in-2022.

34 Dean Runyan Associates. (May 24, 2023). The Economic Impact of Travel in Oregon. Travel Oregon, p. 81. Accessed at https://industry.traveloregon.com/wp-content/uploads/2023/06/OR_2022_2023-05-24.pdf.

Section III

Oregon Floating Offshore Wind Energy Roadmap Objectives

The group identified seven objectives the Roadmap should strive to achieve. Those objectives recognize the need to balance existing and future uses as well as unavoidable uncertainties. The group extensively debated these objectives and offered them as a starting point to inform the discussion of the Roadmap for Oregon and potential future actions.

Each objective also includes A) the key topics to be considered by the Roadmap under each objective, and B) some key questions that may need to be answered as part of FOSW development. The group did not identify "who" should be responsible for answering each question but did recognize that the complexity of FOSW development would require joint efforts between government, Tribes, businesses, engineers, social and natural scientists, and communities to gather information and address questions.

3.1 Achieve clean energy mandates

Oregon is one of six western states with a 100% clean energy mandate. HB 2021 mandates that Oregon's investor-owned utilities (IOUs) reduce greenhouse gas emissions associated with electricity sold to Oregon consumers to 80% below baseline emissions levels by 2030, 90% below baseline emission levels by 2035, and 100% by 2040.[35] The winds off the Oregon coast are some of the strongest and most consistent in the world and could present an excellent opportunity for meeting the state's clean energy mandates.[36] Offshore wind turbines generate higher amounts of electricity than onshore turbines. This is due to their larger size as well as the higher and more consistent speed of winds off the coast. Approximately five onshore turbines would be needed to generate a similar amount of electricity as one offshore wind turbine. In addition to providing a unique resource to meet clean energy mandates, Oregon's FOSW can provide grid resiliency benefits and help reduce land use conflicts by avoiding the cumulative need for more onshore wind and solar development.[37]

Table 3.1 How much FOSW energy might be produced in Oregon?

Power generation capacity is measured in Gigawatts (GW) and Megawatts (MW). One GW is equivalent to 1,000 MW. The current BOEM Wind Energy Areas on the South Coast of Oregon, if developed, could produce approximately 2.49 GW of energy. For context, the maximum amount of electricity the Bonneville Hydropower Dam is technically capable

(continues on next page)

35 See HB 2021. See note 11. Oregon's offshore wind energy resource has a high capacity factor (CF) (40%-60%) compared to an average onshore CF of 30%-40%, and a relatively steady wind flow compared to the seasonal fluctuation of onshore resources.

36 See ODOE, 2022. See note 16.

37 See ODOE, 2022. See note 16.

of generating is 1.2 GW (1,200 MW). Energy usage is measured in Megawatt hours (MWh) and Kilowatt hours (KWh). One MWh is equivalent to 1,000 KWh. A residential home electricity bill measures KWh. Average residential consumption is around 900 KWh per month.[38] To calculate the approximate amount of MWh that FOSW energy could produce for customers in one year, use the following formula: 2,400 MW X .40 (capacity factor) X 8,760 (hours in a year), equalling 8,409,600 MWh/yr, or roughly enough electricity to power 840,000 homes.[39]

Utilities have predicted Oregon's energy demand will increase by over 20% over the next five years.[40] This increase in demand will result in challenges in meeting clean energy mandates and force the state to think critically about the costs to customers. Oregon's utilities will compare the cost of FOSW with other resources they can procure to meet mandates and load growth and will need to demonstrate to the Oregon Public Utilities Commission that they are meeting clean energy mandates with the "least-cost, least-risk" option available to them.[41] Each utility is required to submit an integrated resource plan that combines energy generation and demand reduction in ways that consider multiple future scenarios and price stability under those scenarios.

3.1.1 Key topics

With increasing power loads and the need to electrify vehicles and buildings, as part of a clean energy transition, the region, and particularly Oregon, needs new renewable resources to supplement land-based wind, solar, hydroelectric, and geothermal resources. FOSW energy is one available pathway to new renewable energy generation. The key topics to be addressed for this component of the Roadmap include:

- describing the current energy generation mix in Oregon;

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38 U.S. Energy Information Administration. (2024). FREQUENTLY ASKED QUESTIONS (FAQS). Accessed at https://www.eia.gov/tools/faqs/faq.php?id=97&t=3.

39 BOEM Final WEAs for Oregon. Accessed at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Oregon%20Area%20ID%20Memo.pdf.

40 Pacific Northwest Utilities Conference Committee. 2023. Northwest Regional Forecast of Power Loads and Resources. Accessed at https://www.pnucc.org/wp-content/uploads/2023-PNUCC-Northwest-Regional-Forecast-final.pdf.

41 A least-cost, least-risk approach is required by the Oregon PUC to evaluate a wide range of potential future scenarios and outcomes and identify a resource portfolio that will best ensure long term price stability under all potential outcomes. Oregon Public Utilities Commission. (2024). Integrated Resource Planning. Accessed at https://www.oregon.gov/puc/utilities/Pages/Energy-Planning.aspx. Different states have different regulatory requirements protecting ratepayers. Other states have different policies in place for protecting ratepayers.

- laying out various scenarios whereby FOSW can contribute to regional and/or Oregon clean energy mandates (scenarios are not prescriptive but rather a reasonable assessment of where energy generated by FOSW could go);
- laying out various scenarios for transmission interconnection into the grid;
- discussing possibilities for building energy resilience in coastal communities (e.g., energy offtake, microgrids, storage, grid optimization and hardening);
- discussing possibilities for co-location of additional renewable energy production and storage;
- addressing technical, financial, and logistical risks;
- understanding the intersection with the Oregon Energy Strategy currently in development, including the role of potential FOSW in Oregon's overall energy portfolio;
- strengthening supply chains and manufacturing, including the feasibility of making component parts available, at a reasonable cost, and on time;
- regularly updating FOSW cost projections, and identifying ways to protect against significant rate impacts; and
- providing a realistic assessment of how much power offtake will go to California or Washington, and how much will go to Oregon utilities. Assuming there will be a competitive procurement and that developers will market power across the West, states will compete for the energy resource.

3.1.2 Key questions to be framed under this objective

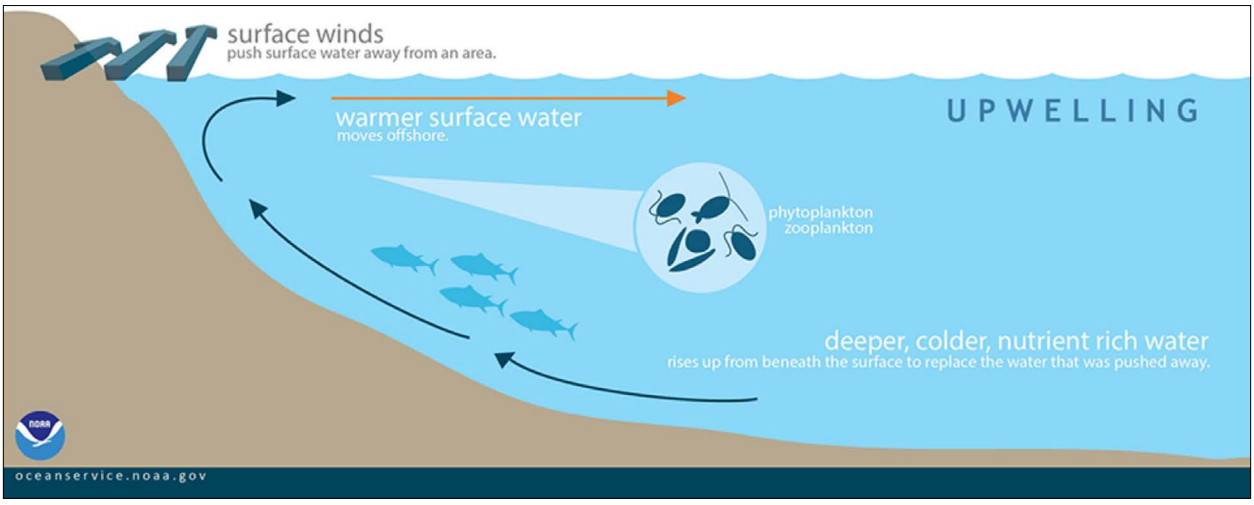
- How much does FOSW energy help Oregon and the region meet clean energy targets? This could be considered for regional clean energy targets as well as just for Oregon (i.e., HB 2021).
- Is it feasible to achieve clean energy targets without integrating FOSW energy into the energy mix? This could be considered for regional targets as well as just for Oregon (i.e., HB 2021).
- What financial incentives should Oregon consider to make FOSW a viable option within the clean energy market for the state?
- What potential impacts might exist for ratepayers?
- What additional transmission infrastructure is needed along the coast?
- Is there a viable market for FOSW, and who are the likely customers?
- If the State moves forward with FOSW, how can it simultaneously achieve additional goals beyond energy, such as protecting cultural/archaeological resources; recreation; conserving birds, fish, and wildlife; habitat preservation and enhancement; maintaining productive fisheries; and promoting biodiversity?

3.2 Protect the environment, ocean ecosystem, and conserve birds, fish, and wildlife

For purposes of this document, protecting the environment means conserving wildlife (e.g., birds, fish, invertebrates, marine mammals, etc.), their habitats (e.g., sand, reefs, corals, essential fish habitats, etc.), and the ocean processes that are fundamental to food webs and larger atmospheric cycles. Conservation means following a precautionary approach[42] and the mitigation hierarchy,[43] starting with its foremost principle of avoiding harm and then being well prepared to avoid, minimize, rectify, reduce or eliminate, and compensate for remaining unavoidable impacts over time.

This is important because Oregon's offshore waters host incredibly rich marine ecosystems that are part of the California Current Large Marine Ecosystem (CCLME)—one of the planet's four "eastern boundary upwelling systems" that comprise just 4% of the Earth's oceans but account for 20% of its productivity.[44] Birds, fish, and wildlife are drawn across the Pacific to forage in Oregon's productive waters as they transit the length of the CCLME. Some species of high concern include leatherback sea turtles, short tailed albatross, green sturgeon, Southern Resident killer whales, and humpback whales.

Figure 3.2 The processes that drive ocean upwelling[45]



42 National Oceanic and Atmospheric Administration. (2024). Precautionary Approach. Accessed at https://www.noaa.gov/precautionary-approach.

43 See 40 C.F.R § 1508.20. See note 9.

44 National Oceanic and Atmospheric Administration. (2024). Accessed at https://www.integratedecosystemassessment.noaa.gov/regions/california-current.

45 National Oceanic and Atmospheric Administration. (2024). What is upwelling? Accessed at https://oceanservice.noaa.gov/facts/upwelling.html.

The ocean is already facing a number of stressors that threaten its ecological future as well as existing industries that rely upon it (i.e., seafood). Many of these stressors are driven by climate change and its root causes[46] and include ocean acidification, hypoxia, and marine heat waves. There is also substantial uncertainty involved with developing the size and scale of proposed FOSW energy in areas of the ocean that have not had permanent structures of this size and complexity before.

There needs to be holistic planning, and consideration of cumulative impacts,[47] not just within a single proposed Wind Energy Area but encompassing all potential wind energy developments. Because the impacts of commercial scale FOSW energy might not be fully understood until the infrastructure is installed and the impacts occur, a precautionary approach is needed.

3.2.1 Key topics

To avoid, minimize, and mitigate impacts to the environment, the key topics to be addressed for this component of the Roadmap include:

- a systematic review of available literature on existing floating and fixed offshore wind energy projects and the identification of whether and how those studies are applicable to Oregon's ecology, as well as the balance of known concerns, potential impacts, and unknown aspects of FOSW in Oregon and the CCLME;
- how to make decisions—starting with planning and siting—that are ecosystem-based and consider both the cumulative impacts to the CCLME as well as the local bio-region. Conducting this work early will help ensure the precautionary principle and mitigation hierarchy can be applied;
- how to incorporate the precautionary principle into decisions, using the mitigation hierarchy, starting with its first principle of avoiding impacts;
- spatial analysis using robust data from all impacted species guilds (e.g., marine mammals, migratory birds, fishes, including those that play important ecosystem roles, such as invertebrates, forage fishes, and threatened and endangered species) and important habitat areas (e.g., important bird areas, essential fish habitats, coral forests, sponge gardens, rocky reefs, vents, mesoscale eddies, upwelling centers and refugia, biological hotspots);
- early identification of key data gaps, and utilization of best available science and Indigenous, Local, and Traditional Ecological Knowledge;

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46 NASA. (2024). The Causes of Climate Change. Accessed at https://science.nasa.gov/climate-change/causes/.

47 Council on Environmental Quality. (1997). Cumulative Effects. Accessed at https://ceq.doe.gov/publications/cumulative_effects.html; Oregon Department of Land Conservation. (2019). Oregon Territorial Sea Plan, PART FIVE: Use of the Territorial Sea for the Development of Renewable Energy Facilities or Other Related Structures, Equipment or Facilities, p. 8. Accessed at https://www.oregonocean.info/index.php/ocean-documents/planning/territorial-sea-plan2/part-5-marine-renewable-energy-facility-siting-2009-2013-2019/1897-tsp-part-5-final-text-and-appendix-a-2019/file.

- early modeling and monitoring of ocean processes that underlay ecosystem productivity to evaluate impacts and inform application of the mitigation hierarchy;
- early development of an adaptive management framework that can be applied during development, construction, operations, and decommissioning to incorporate new information and to mitigate impacts throughout the entire FOSW lifecyle;
- locating the footprint of the proposed FOSW installations, cables, and landing/substations, plus transmission infrastructure and associated port infrastructure in ways that minimize and avoid impacts to marine life, ocean processes that are crucial to support marine life, and terrestrial values of Oregon's shorelines, estuaries, forests, and other habitat zones. The rationale for minimizing impacts needs to be transparent and clear that the benefits outweigh costs;
- articulate where and how the environment is considered within federal, state, and local review timelines as well as permitting so it is clear to interested parties what opportunities exist to incorporate and influence the ecological considerations;
- plan mitigation for birds, fish, and wildlife early enough to ensure meaningful compensation for loss of habitat, displacement, and lethal impacts from collision and entanglement;
- identify design elements for projects that, if incorporated, can create positive benefits for the environment (e.g., FOSW installation anchor designs); and
- consider establishing an independent interdisciplinary science committee to provide independent synthesis of best available science and to identify knowledge gaps on relevant technical and scientific questions, including review and analysis of monitoring data and making recommendations for adaptive management.

3.2.2 Key questions to be framed under this objective

To responsibly site and develop FOSW energy, the Roadmap should be able to answer and/or define an approach to answer the following questions:

- Where are the sensitive habitat areas that could be excluded from leasing as part of a state site suitability analysis? What means of enduring protection may be available for these areas (e.g., state, federal, or other)?
- What additional studies are needed on the potential effects of FOSW energy leasing and construction on the timing, duration, strength, and location of upwelling processes important for maintaining healthy marine life?
- How can the best available data be used by federal and state agencies to conduct marine spatial planning along the entire CCLME?
- How can region-wide baseline data be collected and monitoring be conducted to understand the impacts of FOSW energy on marine life and the CCLME and to inform adaptive management?
- How are cumulative ecological impacts offshore and onshore being evaluated and addressed?

3.3 Protect cultural/archaeological resources, Tribal subsistence, culturally significant viewsheds, and other resources important for Tribes

Since time immemorial, the ocean ecosystem, marine resources, and viewsheds have held the utmost significance to the cultural identity and intergenerational transference of knowledge for many of the native people who live and travel along Oregon's coast. The ocean is a source of life and subsistence for Tribes, and the ocean represents creation for many Tribal people and holds underwater villages of several Tribes' relations.[48] Federal and state governments have an obligation to establish meaningful consultation and collaboration with Tribal governments in the development of federal and state policies that have tribal implications to strengthen the Government-to-Government relationships with Tribes.

The Roadmap should describe all necessary actions to ensure that invaluable natural and cultural resources are protected for federally-recognized Tribes (see Table 3.3 for more) and for Tribes whose usual and accustomed fishing grounds, waters, and lands lie along the Oregon coast (whether those Tribes currently reside in Oregon, California, or Washington).

Table 3.3 Cultural resources

According to the National Historic Preservation Institute, cultural resources are defined as follows: "Culturally valued aspects of the environment generally include historic properties, other culturally valued pieces of real property, cultural use of the biophysical environment, and such 'intangible' sociocultural attributes as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. These impacts are usually analyzed either as impacts on 'cultural resources,' or as 'social impacts,' or as both—but many such impacts actually fall into the cracks between the 'cultural resource' and 'social impact' categories as usually defined."[49]

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48 Confederated Tribes of the Coos, Lower Umpqua, Siuslaw Indians. (November 21, 2023). Tribe Passes Resolution Opposing Offshore Wind Energy Development, Citing Impacts to Fisheries, Cultural Resources, and Heritage. Accessed at https://ctclusi.org/281724-2/; Dobson, J. E. (2014). Aquaterra incognita: Lost land beneath the sea. Geographical Review, 104(2), pp. 123-138. Accessed at https://www.researchgate.net/publication/262492765_Aquaterra_Incognita_Lost_Land_Beneath_The_Sea; Wade, L. (2017). Most archaeologists think the first Americans arrived by boat. Now, they're beginning to prove it: Archaeologists are hunting on islands and under the waves for traces of the ancient mariners who likely settled the Americas. Science News. Accessed at https://www.science.org/content/article/most-archaeologists-think-first-americans-arrived-boat-now-they-re-beginning-prove-it; Minor, R., and Nelson, A. (2004). Artifacts from a Submerged Prehistoric Site on the Coos Bay Estuary, Southern Oregon Coast. Journal of California and Great Basin Anthropology, Vol. 24 (1), pp. 41- 52.

49 National Historic Preservation Institute. (2024). What are "cultural resources". Accessed at https://www.npi.org/what-are-cultural-resources.

3.3.1 Key topics

The Roadmap should address topics important to Tribes. Some of these topics include:

- protection of cultural and archaeological resources, including places of cultural, religious, and/or spiritual significance to Tribes. This includes ocean viewsheds of cultural, religious, and historical significance;
- protection of the ocean ecosystem, including birds, fish, and wildlife;
- protection of underwater villages and other cultural sites within the nearshore and estuary environments;
- protection of first foods and Tribal subsistence and commercial fishing;[50]
- protection of life and subsistence, social, and economic welfare for Tribal citizens;
- clear recognition of Tribes' sovereign status and rights, and clear expectations of federal and state trust responsibility for meaningful, consent-based, good-faith Tribal consultation and Government-to-Government relationships;
- co-management of lands, waters, coastline, and resources between federal, state, local, and Tribal governments;
- use of Indigenous, Local, and Traditional Ecological Knowledge to inform decisions; and
- ensuring any benefits of FOSW energy are received by and protected for Tribes through the development of Tribal Benefits Agreements.

3.3.2 Key questions to be framed under this objective

In order to responsibly site and develop FOSW energy, the Roadmap should be able to answer and/or define an approach to answer the following questions:

- Are impacts to cultural and archaeological resources (such as places of cultural, religious, and/or spiritual significance to Tribes) avoided, including in shoreline and estuary areas?
- What are the impacts to the ocean ecosystem, including birds, fish, and wildlife (see Section 3.2 for more)?
- What are the environmental and cultural/archaeological resource impacts associated with port infrastructure, channel improvements (e.g., Coos Bay), and transmission infrastructure?
- Will there be tangible benefits to Tribes and their members? Are there Tribal Benefits Agreements in place?
- What impacts will occur to Tribal commercial and subsistence activities?

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50 First foods are the traditional and ceremonial foods of Tribes (e.g., water, fish, big game, roots, and berries). A number of Oregon Tribes have agreements with the State for subsistence and ceremonial hunting, fishing, trapping, and gathering. Oregon Department of Fish and Wildlife. (2024). ODFW Tribal Relations. Accessed at https://dfw.state.or.us/tribal_relations/.

- How will Tribal governments be included in decision-making?How will consultation with Tribes occur as the process proceeds (see Table 4.2 for more considerations on Government-to-Government consultation)?
- How can the State of Oregon and BOEM collaborate to address Tribal concerns throughout the process?

3.4 Support coastal communities and towns

Any FOSW energy development should create opportunities and benefits that build on the existing strengths of coastal communities. Supporting communities means taking the time to understand existing socioeconomic context and to find solutions that do not overtax local resources and that do not tear apart the community culture and economy. It means not pre-supposing that what is good for other communities is also a benefit for Oregon's small coastal towns. It means communicating forthrightly about potential impacts as well as benefits. It means ensuring that coastal communities have the opportunity for agency and input on decisions that shape their future. It means recognizing the need to communicate in ways that coastal communities can have meaningful input. In essence, coastal communities need to be partners in shaping if and how FOSW energy will be incorporated into the existing community fabric.

3.4.1. Key topics

By actively engaging coastal communities, and centering decisions about FOSW energy in the views of Oregon's diverse communities, this Roadmap aims to not only minimize any negative impacts of FOSW energy but also maximize community participation in the benefits offered by FOSW energy. Transparent communication and inclusivity are key, ensuring communities are involved from the ground up in FOSW energy development. This approach can address community concerns and foster a sense of ownership and shared benefits, paving the way for a collaborative and positive future.

The cross-cutting lenses (Section 4) of the Roadmap Considerations focuses more on the processes for engaging communities in decisions. This section focuses more on protecting and enhancing the elements of coastal communities that promote their vitality, resilience, and all that has drawn people to call the coast home since time immemorial. The Roadmap should address topics important to coastal communities. Some of these topics include:

- how to make sure decisions are community-based;
- how to ensure accountability so promises made to communities are kept (e.g., how to enforce community benefit agreements and other commitments);
- identify the potential benefits for and impacts on coastal communities both during development associated with port and transmission infrastructure and into the future during operations and decommissioning;

- identify ways to minimize the risks and optimize the benefits of FOSW energy to the wide variety of coastal communities, including those defined by place (e.g., rural towns and mid-sized cities), livelihoods (e.g., fishermen, small businesses), and culture (e.g., Tribes);
- how to support local government comprehensive planning in a way that is more transparent and consistent with the multiple uses of the oceans, estuaries, and coastal lands (e.g., estuary plans, county long-range plans, and community-wide visions); and
- consider how FOSW development could change coastal community access to electricity (both Bonneville Power Administration-sourced and other sources); how coastal energy resilience may change; how rates may change; and how to ensure that coastal communities will continue to have access to reliable and affordable energy?

3.4.2 Key questions to be framed under this objective

- What level of influence and decision-making power does the community have, particularly in defining future Call Areas and Wind Energy Areas, but also at other stages of FOSW energy development?
- How can Oregon establish a community-involved process and overcome challenges from the federal FOSW energy leasing process not being initiated that way?
- How can Oregon facilitate effective community visioning, so communities can articulate their views on pathways for incorporating new ocean and land uses in the future they see?
- What tools are essential for the public to make informed decisions, including understanding and accessing models with the right variables covering the entire coast?
- How can Oregon assure transparent and holistic assessment and communication about tradeoffs in communities that may shoulder the burdens of energy development?
- Where are opportunities for community involvement, and what specific decisions can the community actively participate in making?

3.5 Protect existing seafood providers (processors and harvesters)

Recreational and commercial fishermen, subsistence fishermen, seafood processors, portside services, and other seafood industry businesses form the heart of many coastal communities, and the Roadmap needs to find ways to maintain the economy, culture, and character of the Oregon coastal fishing communities. Together, these entities alongside state and federal agencies, have focused for decades on the long-term sustainability of Oregon fisheries.

Management actions have been taken to limit impacts on habitat and sensitive species[51] and to regulate harvests.[52] Additionally, four of Oregon's fisheries (US West Coast groundfish for 18 species, Pacific hake, US West Coast pink shrimp, and North Pacific albacore tuna) are certified sustainable by the Marine Stewardship Council (MSC),[53] and the Oregon Dungeness crab fishery is seeking MSC recertification.[54] The National Seafood Strategy released by National Marine Fisheries Service (NMFS) in 2023 outlines the objectives and approaches to ensuring the long-term health, viability, and climate resiliency of the nation's sustainable seafood production, which underscores the importance of the Roadmap to the seafood industry.[55] As Oregon considers incorporating FOSW energy on the ocean and into coastal communities, the Roadmap needs to make sure that the seafood industry, and all its related businesses, can continue to serve as an economic backbone of these communities.

Fishing and seafood industry jobs are intergenerational jobs that require niche skill sets, with career opportunities that are distinct from FOSW energy related jobs. The Oregon Coast has a thriving tourism industry, but having a vibrant seafood industry with fresh caught seafood is a key part of the draw to the Oregon coast.

3.5.1 Key topics

The Roadmap needs to comprehensively avoid, minimize, and mitigate impacts to commercial, recreational, and subsistence fishing and the coastal communities that rely on fishing and seafood processing for economic stability. To help accomplish this goal, the Roadmap should, at a minimum, include these components:

- a thorough understanding of how Oregon's recreational, subsistence, and commercial fishing industries operate up and down the coast (e.g., updated maps of fishing grounds, monitoring sites used for fisheries management, contribution to local economies, etc.);
- consider FOSW areas in deeper water (i.e., deeper than 1,300m). Areas in deeper water

51 NOAA Fisheries. (2024). West Coast Groundfish: Management. Accessed at https://www.fisheries.noaa.gov/species/west-coast-groundfish/management.

52 NOAA Fisheries. (2024). West Coast Groundfish Trawl Catch Share Program. Accessed at https://www.fisheries.noaa.gov/west-coast/sustainable-fisheries/west-coast-groundfish-trawl-catch-share-program.

53 Marine Stewardship Council. (2024). Track a Fishery. Accessed at https://fisheries.msc.org/en/fisheries/@@search#fndtn-map-tab.

54 Fisheries Improvement Project. (2024). Progress Tracking Database & Tools: US Oregon Dungeness crab - pot/trap. Accessed at https://fisheryprogress.org/fip-profile/us-oregon-dungeness-crab-pottrap-0.

55 NOAA Fisheries. (2024). NOAA Fisheries Releases National Seafood Strategy. Accessed at https://www.fisheries.noaa.gov/feature-story/noaa-fisheries-releases-national-seafood-strategy.

are being considered in the Central Atlantic[56] and off the California coast;[57]

- better clarity on how the FOSW turbines, platforms, anchors, and cables will be placed and function in order to better understand potential guidance to avoid, minimize, and finally mitigate any potential impacts to fishing;
- clarity on how interruptions to annual NMFS fisheries surveys will result in greater uncertainty in stock assessments, which impact the amounts of fish that can be caught on an annual basis; and
- opportunities to invest proactively in the long-term environmental and economic sustainability of seafood processors and harvesters (e.g., ways to increase the dollar value of commercial landings; investing in seafood processors wastewater treatment; ways to increase the local processing, storage, distribution, and consumption so that local seafood is used locally; and ways to increase seafood marketing and provide information that improves occupational stability).

3.5.2 Key questions to be framed under this objective

- What cultural preservation strategies can be integrated into FOSW development to ensure the continued significance of the seafood industry to coastal community identities?
- How can FOSW development be integrated with existing fishing and resource management practices to promote a sustainable coastal ecosystem?
- If FOSW energy development includes new endangered species take authorizations, how will that affect take authorizations for the fishing industry? (e.g., The hook and line fisheries would exceed their incidental take permit with the injury or death of more than one short-tailed albatross;[58] If a new industry takes them as well, will fishing close as prescribed?)

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56 BOEM identified four draft Wind Energy Areas located between 2,500 and 2,600 meter depths, but multiple constraints were identified during the initial National Centers for Coastal and Ocean Science (NCCOS) evaluation. In the Bureau of Ocean Energy Management. (2024). Central Atlantic: History. Accessed at https://www.boem.gov/renewable-energy/state-activities/central-atlantic.

57 AB 525 Offshore Wind Strategic Plan set an intention to explore suitable sea space for FOSW energy areas where, "average wind speed greater than 7 meters per second, average water depth of 2,600 meters or less, ocean bottom slope of 10 percent or less, and a minimum distance of 20 miles from shore." in Jones, M., Bartridge, J., and Walker, L. (2024). Assembly Bill 525 Offshore Wind Strategic Plan. California Energy Commission. Publication Number: CEC-700-2023-009- V1-D. pp 18. Accessed at https://efiling.energy.ca.gov/GetDocument.aspx?.

58 US Fish and Wildlife Service. (2017). Biological Opinion Regarding the Effects of the Continued Operation of the Pacific Coast Groundfish Fishery as Governed by the Pacific Coast Groundfish Fishery Management Plan and Implementing Regulations at 50 CFR Part 660 by the National Marine Fisheries Service on: California Least Tern (Sterna antillaruin browni), Southern Sea Otter (Enhydra lutris nereis), Bull trout (Salvelinus cojifluentus), Marbled Murrelet (Brachyramphus marmoratus), and Short-tailed Albatross (Phoebastria albatrus). FWS Reference Number O1EOFWOO-2017-F-03 16. Accessed at https://www.pcouncil.org/documents/2017/11/agenda-item-f-7-attachment-1-2.pdf/.

- How will FOSW energy development affect the models developed to understand the connection between the CCLME and sustainability of the Dungeness crab and pink shrimp fisheries?
- Are there any considerations for shellfish and kelp/seaweed aquaculture that FOSW energy decisions should consider, including potential for co-location with wind energy infrastructure?
- How could climate change-driven changes in fish species distributions alter considerations for FOSW energy development?
- How can robust communication and collaboration plans be developed to build trust and address concerns between fishing communities and other parties interested in FOSW energy?
- How will FOSW energy development in Oregon, California, and Washington directly, indirectly, and cumulatively affect the seafood industry in terms of catch volumes, fishing grounds access, navigation, port access, and onshoring catch for processing?
- What strategies or measures could be implemented to mitigate any negative impacts of FOSW energy on fishing communities?
- What additional data are needed to better understand the interactions between FOSW energy projects and fishing activities, and how can continuous monitoring be ensured?

3.6 Create economic opportunity and foster domestic supply chain

Oregonians should benefit to the greatest extent possible from the economic opportunities associated with FOSW development and generation, including opportunities from manufacturing components and vessels, providing maintenance and operations offshore, portside services, and supporting power and utility operations onshore. Oregon should also thoughtfully plan for the additional investments in infrastructure, housing, and social services that will be required in Oregon's coastal communities to support a new FOSW energy industry.

3.6.1 Key topics

Locally manufactured components and vessels, vibrant ports, and other local components of FOSW energy development and maintenance are important to A) reducing regional economic inequality in the state and supporting equitable economic opportunities, and B) creating new employment opportunities for Oregon's exceptionally diverse manufacturing, logistics, maritime, and other workforces. To help accomplish this goal, the Roadmap should, at a minimum, include these components:

- determine the additional state and local government investments needed so that local industries can scale to meet the potential, significant demand for FOSW, both in Oregon and along the Pacific coast;

- opportunities for the State to prioritize Oregon manufacturing (e.g., incentives, requirements to Buy American, exemptions for foreign manufacturing if no domestic alternatives available);
- opportunities to further reduce total emissions from energy production, improve national security, ensure quality standards, reduce supply chain disruptions, and reduce lead times through local supply chains;
- ways to improve the limited capacity for domestic manufacturing of wind turbine components and floating platforms, as well as for the specialized vessels needed for development, maintenance, and operations for the proposed FOSW lease areas; and
- the role of Oregon ports in the construction, installation, and maintenance of floating offshore wind energy. There are ports in California and Washington that may be more suitable and that are already making investments to service portions of FOSW industry needs. Oregon ports may need additional funding and infrastructure improvements to be suitable for servicing FOSW energy, and a regional strategy may be required.

3.6.2 Key questions to be framed under this objective

- What policies will be most effective for promoting Oregon manufacturing and port development vis-à-vis FOSW?
- How does FOSW, and renewable energy development more generally, fit with the State's overall economic development strategy?
- How can Oregon leverage existing federal commitments to FOSW and renewable energy to capitalize on Oregon's favorable wind energy resources?
- What complementary investments (e.g. infrastructure, housing, social services) will be needed to support the expanded economic activity in Oregon's coastal communities likely to result from FOSW development?
- What are the current Oregon port capabilities, needs, and desires related to servicing FOSW energy's various stages (e.g., construction, shipbuilding, deployment, operations, and fleet maintenance)? And what is already known?[59] Some of the information needed includes:
    - nominal dredged bottom depth;
    - width of channel;
    - bar crossing probability;

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59 BOEM. (2022). Port of Coos Bay Port Infrastructure Assessment for Offshore Wind Development. Accessed at https://www.boem.gov/sites/default/files/documents/renewable-energy/studies/BOEM-2022-073.pdf. ; Mott McDonald. (2022). Coos Bay Offshore Wind Port Infrastructure Study. Accessed at https://simplybluegroup.com/wp-content/uploads/2022/03/Coos-Bay-Offshore-Port-Infrastructure-Study-Final-Technical-Report.pdf; Shields, M., Cooperman, A., Kreider, M., Oteri, F., Hemez, Z., Gill, L., Sharma, A., Fan, K., Musial, W., Trwobridge, M., Knipe, A., and Lim, J. (2023). The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the United States. Northwest Renewable Energy Lab. (2023). Accessed at https://www.nrel.gov/wind/west-coast-ports.html.

- mooring capacity for transient and berthed vessels;
- size of the turning basin(s);
- fueling capability and fuel storage capacity;
- capacity of lifting and loading equipment, including evaluation of cranes, gantries and hoists, loading dock size, weight capacity, and accessibility for large trucks;
- port-owned acreage available for construction of FOSW turbine platform components and for storage of supplies necessary for operation and maintenance;
- accessibility of the port for receiving supplies, parts, and equipment by highway or rail; and
- airspace needed and mitigation for conflict with extant airport flight paths (size/height of turbines).

3.7 Develop Oregon's offshore wind energy workforce: Creating good jobs and lasting community benefits

Achieving Oregon's clean energy mandates requires a skilled and trained statewide workforce, ready to meet the full spectrum of needs in this rapidly growing sector. This is particularly true in the FOSW energy industry, where Oregon workers will potentially be involved in everything from the manufacturing, fabrication, and installation of platforms, turbines, transmission lines, and other components, as well as their repair, maintenance, decommissioning, and replacement.

Along with achieving Oregon's climate goals, the State has a responsibility to set standards for these historic public investments and ensure the economic benefits are broadly shared across Oregon. This requires a comprehensive plan for developing and supporting the clean energy workforce, including the infrastructure, housing, and social services in Oregon's coastal communities that this future workforce will require. This step is critical to ensuring that the transition to clean energy creates good jobs and lasting community benefits, particularly for Oregon's most impacted communities.

3.7.1 Key topics

The Roadmap should address the full range of critical workforce development issues, including:

- how to build Oregon's clean energy workforce development strategy around the well-established registered apprenticeship model, especially the joint labor-management[60] apprenticeship programs, which are the gold standard in the construction industry;

60 US Department of Labor. (2024). Labor-Management Partnership Program. Accessed at https://www.dol.gov/agencies/olms/olms-labor-management-partnership.

- the use of policy tools such as Project Labor Agreements,[61] labor peace agreements, and Community Benefits Agreements to set job quality and workforce utilization standards for FOSW energy investments and related grid improvements. Key standards include prevailing wage requirements, employer-provided healthcare and retirement benefits, concrete apprenticeship utilization and equity and inclusion requirements, and a requirement that contractors are registered training agents with the Oregon Bureau of Labor and Industries' (BOLI) apprenticeship division;
- promote local hiring requirements,[62] "first look" options, and other strategies to create jobs for existing residents in Oregon's coastal communities, in tandem with proactive efforts to recruit workers into the renewable energy sector from historically marginalized and/or underserved communities across the state;
- leverage existing state standards, such as building codes, to ensure a highly skilled and trained workforce in the FOSW industry;
- clarify the role of BOLI in enforcing labor standards in the renewable energy sector and expand the agency's capacity to track utilization requirements and enforce standards in the FOSW energy industry; and
- expand the State's workforce development strategy to include comprehensive planning and targeted public investments to provide the infrastructure, local housing (affordable and workforce housing), and social services needed in communities where the future FOSW energy workforce will operate.

3.7.2 Key questions to be framed under this objective

In order to responsibly site and develop FOSW energy, a comprehensive Roadmap should answer the following questions:

- How will state statute be used to reinforce/backstop current federal policy regarding renewable energy investments, including FOSW energy?
- How can Oregon align existing state workforce development strategies around the well-established apprenticeship model, especially the joint labor-management apprenticeship programs that are the gold standard in the construction industry?
- How can Oregon expand existing apprenticeship programs, along with other workforce development strategies, into Oregon's Coastal communities?
- How will Oregon support local hiring and "first look" options around renewable energy investments, and how does Oregon extend this into other areas, such as supply chain development?

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61 US Department of Labor. (2024). Project Labor Agreement Resource Guide. Accessed at https://www.dol.gov/general/good-jobs/project-labor-agreement-resource-guide.

62 Georgetown Climate Center. (2024). Equitable Adaptation Legal & Policy Toolkit. Accessed at https://www.georgetownclimate.org/adaptation/toolkits/equitable-adaptation-toolkit/local-hiring-requirements-or-incentives.html.

- Who will monitor and enforce labor standards requirements for FOSW and other renewable energy investments across the state?
- How can FOSW provide opportunities for small businesses that might have difficul meeting bonding requirements or other barriers to supporting FOSW?
- How can Oregon expand current workforce development efforts to include comprehensive planning and complementary public investments to meet the infrastructure, housing, and social service needs in communities where the future energy workforce will operate?
- How does BOLI intersect or collaborate with the Department of Labor and Bureau Safety and Environmental Enforcement to protect workers?

Section IV

Cross-Cutting Lenses for Decisions on Floating Offshore Wind Energy in Oregon

The Roadmap should reflect a holistic, integrated, equitable, and inclusive approach to make decisions about FOSW energy in Oregon and serve as a guide to future decision-making. The Roadmap should also help strategically position the State to realize opportunities for new energy sources, jobs, and economic opportunity. In this section, several "cross-cutting lenses" are described that apply to the wide range of FOSW energy development stages as well as the potential community and environmental impacts and benefits.

Those lenses include:

- recognition that Oregon's decisions on FOSW energy need to be connected to actions in neighboring states and the nation, and that FOSW energy is a new industry that brings unique opportunities and challenges;
- a commitment to making decisions that are equitable, transparent, coordinated regionally, based on sound information, and the product of meaningful engagement with affected communities and Tribes;
- recognition that complex policy issues require a decision-making process that is integrative, place-based, adaptive, and strategic; and
- recognition that information, conditions, or feedback may warrant a pause or reconsideration in the decision-making process for planning, investigating, constructing, and/or maintaining FOSW turbines, cables, landing sites, substations, energy storage, and transmission systems.

Table 4 Defining key terms for the cross-cutting lenses

The group identified several characteristics that could shape better decisions around FOSW energy. Some of those characteristics are defined here:

Regional: Considering the national context for FOSW and the opportunities and challenges of working with neighboring states.

Equitable: "Acknowledges that not all people, or all communities, are starting from the same place due to historic and current systems of oppression. Equity is the effort to provide different levels of support based on an individual's or group's needs in order to achieve fairness in outcomes. Equity actionably empowers communities most impacted by systemic oppression and requires the redistribution of resources, power, and opportunity to those communities."[63]

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63 State of Oregon. (2021). Diversity, Equity, and Inclusion Action Plan: A Roadmap to Racial Equity and Belonging. Accessed at https://www.oregon.gov/das/Docs/DEI_Action_Plan_2021.pdf.

Transparent: Ensures those affected by a decision understand the process used to make a decision as well as the results of that decision-making process.[64]

Sound information: Includes natural and social science, Indigenous, Local, and Traditional Ecological Knowledge, industry-specific technical expertise, and the lived generational experiences of people working on and studying the oceans.

Meaningful engagement: "Providing timely opportunities for members of the public to share information or concerns and participate in decision-making processes; fully considering public input provided as part of decision-making processes; providing technical assistance, tools, and resources to assist in facilitating meaningful and informed public participation, whenever practicable and appropriate; seeking out and encouraging the involvement of persons and communities potentially affected by Federal activities by: ensuring that agencies offer or provide information on a Federal activity in a manner that provides meaningful access to individuals with limited English proficiency and is accessible to individuals with disabilities; providing notice of and engaging in outreach to communities or groups of people who are potentially affected and who are not regular participants in Federal decision-making; and addressing, to the extent practicable and appropriate, other barriers to participation that individuals may face."[65]

Integrated: Means considering A) the full potential spatial extent of FOSW development from federal and state waters, to estuaries and shoreline, onto land, B) the full life cycle of FOSW development from planning and construction, to operations and maintenance, to decommissioning, and C) the full range of potential benefits and impacts to people and ecosystems on Oregon's coast and beyond.

Place-based: "Orients knowledge, decisions, and actions around the specific context of a place in a way that recognizes and strengthens the connection between people and place and empowers people to work together to achieve a shared vision of that place."[66] It also orients decisions to the unique needs and characteristics of a particular geographic location.

Adaptive: Means adjusting management and decisions by learning from iterative monitoring and assessment of prior decisions, outcomes, and changing conditions to improve future practices and outcomes. It orients decisions toward a systemic approach to decision-making that aims for continual improvement over time.

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64 International City Managers Association. (2024). Transparent Governance and Anti-Corruption. Accessed at https://icma.org/page/transparent-governance-anti-corruption.

65 US Environmental Protection Agency. (2024). Learn About Environmental Justice. Accessed at https://www.epa.gov/environmentaljustice/learn-about-environmental-justice#definitions.

66 Oregon Water Resources Department. (2024). Place-based Integrated Water Resources Planning. Accessed at https://www.oregon.gov/owrd/programs/planning/placebasedplanning/pages/default.aspx.

Strategic: Making intentional decisions and innovating in ways that allow the State of Oregon as well as Oregon communities and businesses to achieve the outcomes they envision for FOSW energy development.

4.1 Connect Oregon's decisions into the regional and national context

Floating offshore wind energy is a relatively new, global industrial sector that is evolving quickly–both in terms of technology, policy, and strategic goals of nations and local communities. There is rapidly evolving information and policy relative to best practices, avoiding and mitigating impacts, and ongoing monitoring of impacts and benefits. FOSW leasing activity is occurring on the Atlantic Coast, Gulf of Mexico, and Pacific Coast. Different states are positioning themselves as leaders in different parts of the FOSW energy supply chain. How Oregon, California, and Washington do or do not make decisions together has significant effects on how the CCLME and fisheries are managed, how energy markets and transmission investments evolve, and how Tribes and communities are connected to the decisions that matter to them. The Roadmap should consider how Oregon fits into these regional and national contexts and chart out different scenarios that depict varying levels of involvement–the Roadmap is not just about "our own backyard."

This could take a number of paths: For example, one where Oregon moves forward with building FOSW generation infrastructure off the Oregon coast, or one where Oregon focuses on actions to support the Pacific Coast FOSW energy supply chain. Likewise, it is possible for Oregon to take an active role in leading both the development of FOSW energy infrastructure and the associated development of supply chains and local workforce. It will be critical for Oregon to collaborate with neighboring states and Tribes on potential FOSW development. Some of the following topics to discuss with other states could include:

- future scenario planning for FOSW energy development locally and regionally that considers: regulatory decisions; community support in Oregon; economic realities for the FOSW industry; and national and state clean energy mandates;
- collaboration and cooperation with neighboring states and Tribes on FOSW energy development;
- collaboration and cooperation with neighboring states and Tribes and national interests, to protect the CCLME and sustain fisheries;
- regional cooperation for research and innovation;
- the role of Oregon FOSW in relation to the region's energy markets; and

- the potential role and interests of Tribes in having an equity interest of FOSW energy facilities and related supply-chain businesses.[67]

In order to understand how Oregon fits into the regional and national context for FOSW energy, the Roadmap should be able to answer and/or define an approach to answer the following questions:

- How can Oregon ensure that FOSW development off its coast maximizes the benefits and minimizes impacts to the Oregon Coast?
- How does Oregon fit into the federal goals of achieving 30 GW of offshore wind energy by 2030 as well as 15 GW of FOSW energy by 2035?
- How should Oregon collaborate with other states around offshore wind energy development, including supply chain and workforce development needs, in ways that benefit Oregon?
- How can Pacific Coast states cooperate in research and assessment to understand the cumulative benefits and impacts of potential FOSW development to the region?
- What is unique about planning for a new US industrial sector, and how can Oregon support that domestic industry in a responsible way?
- What state and federal funding could be leveraged to support the State?

4.2 Make decisions that are equitable, transparent, coordinated regionally, based on sound information, and the product of meaningful engagement with affected communities and Tribes

The Roadmap should be inclusive of and equitably balance the interests and rights of all affected parties, especially engaging Tribes, local government, non-governmental organizations, and community members. The process for developing the Roadmap, along with any final recommendations, should be transparent to all affected parties. Meaningful engagement with all affected parties should be defined by two-way communication that allows for information and ideas to be shared with a broad range of constituencies, knowledge holders, and rights holders (see Table 4.2 for more considerations with respect to engaging with Tribes). These include (but are not limited to) the following parties:

- government agencies: federal, state, and local representatives involved in permitting, regulation, and policy;

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67 The Yurok Tribe. (January 25, 2024). Yurok Tribe Hosts First-Ever Tribal Offshore Wind Summit. Accessed at https://www.yuroktribe.org/post/yurok-tribe-hosts-first-ever-tribal-offshore-wind-summit; The Yurok Tribe, (February 1, 2024). 2024 Tribal Offshore Wind Summit Press Conference. Accessed at https://www.youtube.com/watch?v=2JKWvUb7Y7M.

- Tribal governments and representatives;
- renewable energy developers and advocates;
- fishing communities and industries (commercial and recreational fishermen, processors, and other maritime industries and businesses);
- labor organizations;
- environmental and conservation organizations (Non-Governmental Organizations (NGOs) dedicated to protecting specific species of birds, fish, and wildlife or potentially impacted marine ecosystems and habitats, and NGOs focused on marine health and climate change);
- climate and environmental justice organizations;
- underrepresented and disadvantaged groups (community leaders who do not often participate in decision-making, are not represented by organizations, and/or have been historically burdened by decisions, such as youth, people of diverse racial and ethnic identities, immigrants, people with disabilities, rural residents, and low income people);
- local communities (residents, small businesses, and community organizations in coastal areas);
- innovators and researchers (environmental, climate, and social scientists, ocean engineers, and entrepreneurs contributing expertise to a robust engineering, environment, and social research and development ecosystem);
- community planners (professionals specializing in coastal and community planning, adaptation, and development);
- climate organizations (groups focused on reducing greenhouse gas emissions and climate change adaptation strategies);
- business and industry;
- energy ratepayer advocacy organizations; and
- coastal local elected officials (county, city, port, and state representatives with jurisdiction over potential project areas).

Table 4.2 Meaningful engagement with Tribes

The State of Oregon's approach to Government-to-Government consultations with Tribes is guided by state statute and other policy,[68] and includes Oregon's nine federally recognized Tribes.[69] There are federally recognized Tribes in California and Washington

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68 Relationship with State Agencies and Indian Tribes, ORS 182.162-.168. Accessed at https://www.oregonlegislature.gov/bills_laws/ors/ors182.html.

69 Legislative Commission on Indian Services. (2024). Accessed at https://www.oregonlegislature.gov/cis/.

with interests in Oregon FOSW energy development, and there are non-federally recognized Tribes in Oregon, California, and Washington interested in FOSW energy. The West Coast Ocean Alliance's Tribal Caucus[70] and the Affiliated Tribes of Northwest Indians[71] provide potential forums for inter-Tribal coordination and connections to Tribes in Washington and California.

This group recognized the importance of early and meaningful Government-to-Government consultation with Oregon's federally recognized Tribes and ways to engage the views and knowledge of non-federally recognized Tribes and Tribes in Washington and California. Several Tribes have expressed concern that the current FOSW planning and siting processes led by BOEM do not include meaningful engagement, and Tribes have more broadly expressed concern with FOSW development.[72]

A recent Presidential Memorandum set some standards for Tribal consultation, including:

"Throughout a consultation, the head of each agency, or appropriate representatives, shall recognize and respect Tribal self-government and sovereignty; identify and consider Tribal treaty rights, reserved rights, and other rights; respect and elevate Indigenous Knowledge, including cultural norms and practices relevant to such consultations; and meet the responsibilities that arise from the unique legal relationship between the Federal Government and Tribal governments. The head of each agency should ensure that agency representatives with appropriate expertise and, to the extent practicable, decision-making authority regarding the proposed policy are present at the Nation-to-Nation consultation. The head of each agency should consider conducting the consultation in a manner that prioritizes participation of official Tribal government leaders." Consultation also, "requires that information obtained from Tribes be given meaningful consideration, and agencies should strive for consensus with Tribes or a mutually desired outcome."[73]

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70 West Coast Ocean Alliance Tribal Caucus. (2024). Accessed at https://www.westcoastoceanalliance.org/tribal-caucus#:~:text=The%20West%20Coast%20Ocean%20Tribal,twenty%20Tribal%20Nations%20are%20members.

71 Affiliated Tribes of Northwest Indians Natural Resources and Lands Committee. (2024). Accessed at https://atnitribes.org/committees/natural-resources-land-commit/.

72 See CTCLUSI, 2023. See note 48; Andrews, J.C. (March 8, 2024). Yurok Tribe, Tolowa Dee-ni' Nation Formally Oppose Offshore Wind Energy Projects. Lost Coast Outpost. Accessed at https://wildrivers.lostcoastoutpost.com/2024/mar/8/yurok-tribe-tolowa-dee-ni-nation-formally-oppose-o/.

73 The White House. (November 30, 2022). Memorandum on Uniform Standards for Tribal Consultation. Accessed at https://www.whitehouse.gov/briefing-room/presidential-actions/2022/11/30/memorandum-on-uniform-standards-for-tribal-consultation/#:~:text=Throughout%20a%20consultation%2C%20the%20head,cultural%20norms%20and%20practices%20relevant.

The process of developing the Roadmap should be led by the State of Oregon and it should ensure people have access to, and understand, the credible information they need to inform and support their opinions and decisions. Elements for an inclusive, community-centered process for FOSW development include but are not limited to:

- committing to be data-driven and transparent:
    - including all interested parties in data management processes, that includes data collection, access, sharing, usage, identification of data gaps, and resolving issues related to data quality and accuracy. The aim is to collect and analyze data in a manner that fully incorporates the data and benefits all interested parties/communities;
    - interrupting and addressing misinformation;
    - user-friendly tools and mechanisms for accessing, exploring, and understanding relevant data;
    - ensuring the accuracy, validity, completeness, consistency, and relevance of information and data used and shared to inform understanding and decision-making;[74]
- understanding that uncertainties will remain and cannot all be eliminated;
- applying a definition of equity (see Table 4) that is consistent with related state and federal initiatives;
- align federal and state goals;
- create more accessible opportunities for communities to be involved, over time, in ways that cultivate mutual respect (e.g., in multiple engagement formats and languages);
- include voices from the entire Oregon coast across generations from youth to elders;
- consult meaningfully with federally recognized Tribes and cultivate long-term relationships;
- support community visioning and planning processes; and
- provide ongoing and accessible community education that:
- helps individuals and communities understand the technical elements of FOSW development and weigh the potential benefits and impacts;
- provides regular updates on new data, findings, and case studies as they emerge; and
- creates space for community members to bring questions without judgment.

To understand how to define an equitable and inclusive approach to decision-making, the Roadmap should address the following questions:

- How does the Roadmap define equity, align with existing equity frameworks at the state and federal levels, and ensure equity across all decisions?

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74 For example, see NOAA guidelines: NOAA. (November 1, 2021). Information Quality Guidelines. Accessed at https://www.noaa.gov/organization/information-technology/policy-oversight/information-quality/information-quality-guidelines.

- How can coastal communities and Tribes influence outcomes related to FOSW? Where and when are the potential, and most influential, places for communities and Tribes to be engaged, and how can they ensure their feedback is meaningfully addressed?
- Given that there will be different interests and positions, what processes can be used to identify common ground or resolve differences?
- What information related to FOSW development off Oregon's coast do the most impacted community members and Tribes prioritize?
- What spaces, forms of education, and information sources would instill the most trust from community members, Tribes, and other interested parties across the spectrum of opposition and support?

4.3 Make decisions that are place-based, integrated, adaptive, and strategic

As Oregon considers future development of FOSW energy, it will be important for the State to make decisions that are place-based, integrated, adaptive, and strategic. It will be important for decision-making to be integrated throughout each stage of FOSW energy production (planning, siting, construction, operations, maintenance, and decommissioning) as well as balance the multiple spaces (from federal waters to cable landings and substations to transmission) and interests (from existing to new ocean users) involved. The Roadmap should also include definitions of Oregon's strategic role in the policy, research, and business of FOSW energy nationally and globally.

Multiple perspectives should be considered and competing interests evaluated to inform a more holistic process and outcome. Likewise, as any potential process unfolds, being adaptive and incorporating lessons learned will be critical to reducing potential harms and to elevate the best available science and Indigenous, Local, and Traditional Ecological Knowledge to inform decision-making. It is also important that decisions account for the potential economic and social benefits that would result from participating in the global offshore wind energy sector, especially if Oregon could establish itself as a hub for R&D and innovation, building on Oregon's existing academic, manufacturing, and technological leadership.

The Roadmap should describe how decision-making can be place-based, integrated, adaptive, and strategic. Some of the following topics should be addressed:

Place-based

- Siting criteria for turbines, cables, cable landings, substations, and transmission to identify areas with the least conflict and the greatest offshore wind energy resources;
- how to build a mitigation strategy that is A) specific to Oregon needs, places, and statutes, and B) consistent with federal rules around mitigation hierarchies to avoid, minimize, rectify, reduce, or eliminate impacts over time, and compensate for remaining unavoidable impacts;

- how to avoid impacts to cultural and archaeological resources, including places of cultural, religious, and/or spiritual significance to Tribes;
- how to articulate the importance of birds, fish, and wildlife to local places and economies;
- seafloor mapping to understand the environment that will be impacted;
- ensure the use of best available science and Indigenous, Local, and Traditional Ecological Knowledge, at the appropriate scale, and identify and address information gaps; and
- characterize community benefits and impacts.

Integrated

- Ensure processes are integrated:
    - Where are there overlays between state and federal laws?;
    - how are duplicative processes being avoided?;
    - are there any gaps in coverage in the alignment of state and federal laws?;
    - how is the alignment and coordination managed between state/local timelines and decision points?;
    - where do these timelines and decision points overlay with the BOEM timeline and decisions?;
- leverage information from existing projects across the region and globally to inform planning; and
- analyze potential opportunities and impacts through the full life cycle of FOSW from planning to construction to decommissioning.

Adaptive

- Use decision trees to inform adaptive management;
- update projections, models, and decision support tools as new data is developed (e.g., FOSW energy costs, environmental information, etc.);
- use alternative futures scenario planning to strengthen decision-making;
- understanding existing monitoring technologies to evaluate potential environmental impacts and learn where limitations might exist;
- be responsive and adaptive as new findings and monitoring technologies emerge;
- how to decommissioning projects and think ahead toward clean-up and reclaiming sites and materials; and
- monitor and assess decisions and outcomes, and apply what is being learned to improve future decisions and practices.

Strategic

- Promote innovation and Oregon's position as a clean energy or climate technology innovation hub (e.g., demonstration projects, innovation supports, and research);
- how to strengthen Oregon's policy framework so that the State has greater clarity on potential future FOSW scenarios for the state as well as greater influence on federal processes and decisions; and
- how to advance and support ongoing monitoring technologies to better understand environmental impacts, background changes, and inform adaptive management.

In order to define a place-based, integrated, adaptive, and strategic approach to decision-making, the Roadmap should be able to answer and/or define an approach to answer the following questions:

- What does a long-term strategic approach to FOSW look like in Oregon?
- How does the State balance the potential state and/or regional benefits of FOSW while addressing the more locally focused impacts. How will the Roadmap account for divergent place-based benefits and impacts?
- How can the State of Oregon ensure sound adaptive management principles are implemented that rely on the best available science and Indigenous, Local, and Traditional Ecological Knowledge? Does Oregon have the opportunity to mitigate, accelerate, or stop FOSW development if decisions are not integrated, place-based, adaptive, and strategic? What are the levers that the State of Oregon has for changing direction during the development process (protecting endangered species, etc.)?
- To determine the benefits and impact of FOSW, what analytical methodologies are needed? What are the agreed-upon data metrics and measurement methods? Should Oregon consider investing in deeper analytical tools and methods needed to further evaluate impacts and benefits?

4.4 How to apply "exit ramps"

An exit ramp refers to information, conditions, or feedback that warrant a pause or reconsideration in the decision-making process for planning, investigating, constructing, and/or maintaining FOSW turbines, cables, landing sites, substations, energy storage, and transmission systems (see Table 4.4 for potential exit ramps). For any exit ramp, the State of Oregon might create a clear process for gathering additional information or input, requesting adequate time for Oregon agencies and the public to engage in federal processes, and/or delaying action. It is important to recognize that even if the State of Oregon sees the need for an exit ramp, the federal processes may not reflect or respond to these concerns (e.g., BOEM makes the final decisions on siting in federal waters). There may be scenarios where the impacts of a FOSW energy facility or associated infrastructure outweighs benefits. Under such scenarios the permitting authorities may need to develop a process for decision-making on how to proceed, or even if the project should proceed. Such decision-making processes should be inclusive of broad input from community, Tribes, and other interests.

Table 4.4 What are some issues that might involve an "exit ramp" during Oregon's decision-making?

The group identified some issues that could warrant a pause or reconsideration of FOSW development in Oregon, including but not limited to:

- significant/unacceptable impacts to the ocean ecosystem, birds, fish, wildlife, or disruption of ocean processes that underlay ecosystem productivity;
- failure to adequately consult with federally recognized Tribes;
- significant/unacceptable impacts to Tribal commercial and subsistence activities and/or viewsheds, including places of cultural, archeological, religious, and/or spiritual significance;
- significant/unacceptable loss of species-specific fishing grounds for recreational or commercial purposes (e.g., the only grounds on the Oregon coast where one species of fish congregates), or losses of fishing fleets from a specific port or region on which seafood processors and the fishing community depend;
- missing assurances that benefits to coastal communities outweigh adverse impacts;
- absence of enforceable agreements to set job quality and workforce utilization standards, or to ensure that workers receive the benefits of the FOSW energy projects that they manufacture, construct, and operate; and
- missing a reliable way to monitor for ongoing impacts and benefits.

In addition, the group talked about factors that would change the viability of a FOSW industry in Oregon warranting a pause or reconsideration, including but not limited to:

- a barrier or issue that emerges during pre-construction that makes it infeasible or impossible to accomplish project objectives (e.g., cost of development, funding, supply chain, workforce, maintenance and operations, or technological feasibility); and
- a barrier or issue that emerges during construction or operation (e.g., cost to ratepayers, technology performance, monitoring data) that measurably changes the balance between project benefits and project impacts.

The group recognized there are a multitude of laws, regulations, and enforceable policies that govern siting and construction of an energy facility, and that the Roadmap would not have the authority to directly change those. The strength of the Roadmap is to provide clarity on the processes the State of Oregon will follow when an alarming uncertainty or impact arises. The Roadmap may also identify opportunities for state or local agencies to create enforceable or other policies.

Section V

How to build the Roadmap with Exit Ramps

The aim of the Roadmap is to inform the Governor's office, the Oregon state legislature, Secretary of State, Labor Commissioner, State Treasurer, and state agencies, such as Oregon Department of Energy, Department of Land Conservation Development, Oregon Department of Fish and Wildlife, Oregon Department of State Lands, Oregon Parks and Recreation Department, and Oregon Department of Environmental Quality, of diverse interests and concerns related to FOSW energy development off Oregon's coast. Although focused on informing state agencies and guiding state-level decision-making, the Roadmap could also inform federal agencies, other decision makers, and Oregonians more broadly.

Ideally, the Roadmap would be developed by the State of Oregon's relevant agencies or the Governor's office in a way that facilitates transparency, inclusion, and input from a set of diverse parties and subject matter experts. The development of the Roadmap should include, but not be limited to, a wide range of participants (see Section 4.2 for a list of potential interested parties).

5.1 Process considerations for building the Roadmap

A process to engage interested parties in a meaningful partnership could include:

- formation of an advisory council/taskforce/workgroup to state agencies or the Governor's office made up of representatives from interested groups;
- facilitating discussions and listening sessions on key issues;
- conducting and sharing technical or other research and analyses needed to support Roadmap recommendations and elements;
- promoting transparency and shared understanding by providing information to the public on the federal decision-making process, the State's involvement through the consistency determination, clean energy and other benefits, potential impacts, and appropriate application of the mitigation hierarchy; and
- synthesizing and incorporating results from research, analyses, and engagement with interested parties into iterative drafts of Roadmap documents.

5.2 What are possible outputs of the Roadmap?

This document cannot prescribe specific outputs, but some possible outputs could include: a set of Oregon FOSW goals, objectives, principles and guidelines, an Oregon-specific mitigation approach consistent with federal and state requirements, marine spatial plans and site suitability analyses, technical and other analyses, decision support tools, and/or Community and Tribal Benefit Agreement guidelines. It could also include additional guidance to State leaders on the kinds of information, conditions, or feedback that warrant a pause or reconsideration in the decision-making process for planning, investigating, constructing, and/or maintaining FOSW turbines, cables, landing sites, substations, energy storage, and transmission systems.
In addition, the Roadmap process could include actionable next steps for implementation, such as legislation, rulemaking and other agency actions, plan amendments, and/or a guidance to Oregon state agencies for engaging with federal agencies. The Roadmap will also likely identify a list of gaps and research needs.

The group also hoped the Roadmap process could create a repository of key information on FOSW energy that has been vetted for information quality and accuracy, represents a diversity of viewpoints, and is curated in a way that is accessible to the variety of people who care about FOSW energy development.

5.3 How could an Oregon Floating Offshore Wind Energy Roadmap with Exit Ramps inform policy?

The Roadmap will articulate the vision, expectations, and processes necessary for responsible FOSW energy development to be considered in Oregon. In building the Roadmap, the State of Oregon will serve as the lead yet will solicit robust input from agencies, Tribes, diverse Oregon interests, academia, impacted communities, and others. It is anticipated the process of building the Roadmap will result in new information and identify numerous gaps and needs. Examples of needs and gaps could include research, outreach and education, spatial planning, regulations, infrastructure, and more. Implementation of the Roadmap will likely require additional funding, time, and partnerships. In addition to the State of Oregon's use of the Roadmap, it is the hope of this group that BOEM will adopt and/or partner in implementing the actions in the Roadmap, along with many other entities.

At the very least, the Roadmap could inform any state-federal consistency review where FOSW energy is being explored in federal waters off the Oregon coast. That federal consistency review guidance could include robust and early Tribal consultation, consider elements of responsible development, avoid or mitigate harms and impacts, and consider potential exit ramps for FOSW development.

Additionally, the Roadmap could inform other state and local policies and/or processes, such as siting, permitting, mitigation, energy procurement and purchasing, transmission interconnection, encouraging local manufacturing, supply chain, port development, workforce planning, and other factors and enforceable policies that could impact Oregon's approach to FOSW development.

5.4 How much might the Roadmap cost?

The initial cost to develop the Roadmap could range between $2.5 million to $4 million. It is possible that additional costs will be identified as Roadmap development proceeds and stakeholder needs are better understood. Given the magnitude of the potential for FOSW energy, and the interest from many parties in improving community engagement and processes, the group proposed multiple funding streams to fund the Roadmap costs for a duration of 18 to 24 months. The group encouraged state leaders and the Oregon Congressional delegation to collaborate and secure funding from sources such as the U.S. Economic Development Administration that funded Maine's Offshore Wind Roadmap,[75] NOAA, U.S. Department of Energy, U.S. Environmental Protection Agency, Department of Interior, or other federal grant sources. Below are additional sources of potential funding:

- state appropriation, grant (Business Oregon, DLCD), etc.;
- federal appropriation, grant, etc.; and
- private/public.

75 See Maine Offshore Wind Roadmap, 2023. See note 6.

Appendix A: Summary of Deliberations from Oregon Consensus

The group that authored the Roadmap Considerations document began its work on August 11, 2023 in response to a letter from Governor Kotek and the Oregon Congressional delegation to BOEM to pause its leasing processes to give more time for meaningful engagement with Oregon communities. The group was convened by Heather Mann (Midwater Trawlers), Nicole Hughes (Renewable Northwest), and Ranfis Giannettino Villatoro (Blue-Green Alliance) with a wide diversity of interests around FOSW represented. The group has convened informally, creating a forum for exchanging opinions, information, and facts through a collaborative approach that was and remains equitable and inclusive of a diversity of viewpoints on FOSW energy development.

In September 2023, Oregon Consensus joined the group to facilitate conversations. Oregon Consensus is Oregon's policy conflict resolution service that provides third-party facilitation and process support. Funding to offset the cost of Oregon Consensus' participation was provided to Oregon Consensus by the Energy Foundation, upon approval of the entire group. September also saw the group's attention turn toward the idea of an Oregon "Roadmap".

The group reached consensus on the overall contents of this document. There are parts of the document that feel more or less comfortable to different members of the group for different reasons, but everyone agreed the document represents the diversity of perspectives in the group and is a fair representation of their viewpoints on what the Roadmap should consider.

Oregon Consensus held a consensus vote, and of the 25 voting group members:

- 18 fully supported the decision to publish this document;
- 6 generally supported the decision to publish, with some concerns; and
- 1 had serious concerns, those concerns could not be addressed in this document, and they would not block the decision to publish.

This summary tries to capture some of the debates and key conversations the group had between August 2023 and April 2024. The boxes "For further conversation" are intended to highlight areas where the group had important debates, and where further conversation is likely needed as the Oregon Floating Offshore Wind Energy Roadmap with Exit Ramps gets developed.

In August, the group set some of its formative assumptions:

The group IS...

- The group explored opportunities and impacts of FOSW energy along the entire Oregon coast.
- This scope includes federal and state waters; and
- It includes associated estuaries and terrestrial areas affected by FOSW (e.g., onshore cables, substations, transmission lines, assembly, domestic supply chain, port development, and vessel traffic).
- The group is focused on long-term planning and recognizes the group's conversations could influence the ongoing conversations around the current Wind Energy Areas.
- The group will be mindful of all stages of FOSW energy development (Planning, Siting, Exploration, Construction, and Operations) and understands that the issues with each stage, whether in federal or state waters, may be different; and some of those issues need to be discussed now, others next, and others in the future.
- The Governor's office is an important connection and source of information for this group.
- State agencies are important subject matter experts that should be invited as needed for particular conversations but not required to be there if not necessary. When state agencies participate in meetings, the group wants them to be able to participate fully.
- This group is seeking areas of shared learning and consensus where possible.

The group IS NOT...

- This group is not a decision-making body and is not a sanctioned task force or authoritative body.
- This group is not addressing the current FOSW proposals or current Wind Energy Areas directly.
- Participation in the group alone does not constitute any position for or against FOSW.

In August, the group also defined its role as follows:

1. Serve as a learning forum to increase understanding and awareness of FOSW energy issues.

Toward this end, the group could take a number of actions such as, host dialogues, tours, or work sessions on specific topics where questions can be asked and explored in a safe environment. There may be a need to invite subject matter experts into the dialogue based on particular topics. These actions would focus on creating joint understanding and awareness among members of the working group that they could share with their broader communities and partners.

2. Develop a set of actions the State of Oregon and others could take to prepare the State of Oregon to proactively plan for and consider FOSW energy in federal and state waters off Oregon.

Toward this end, the group could take a number of actions such as:

- Identify and agree upon high-level fundamental principles to guide FOSW energy planning,siting, exploration, construction, operation, maintenance, and decommissioning (e.g. transparent, inclusive, adequate funding/capacity, strong science, etc.);
- Explore the idea of a roadmap that proactively lays out what is needed to engage all interested parties in informing decisions on FOSW energy:
    - Decide if a roadmap is important for Oregon and, if so, what are its key elements (e.g. an outline).
    - Identify what it will take to create a roadmap, who should do it, articulate benefits/worries, funding and capacity needs, etc.
    - Create a proposal for a roadmap around areas of consensus.
    - Advocate that the Governor's office and others in leadership (e.g. legislature, OPAC, etc.) support the development of a roadmap and provide adequate capacity and funding towards its implementation (Note: This group will not implement the Roadmap but instead seek leadership, attention, and funding to support its implementation).
    - Explore if there are aspects of the proposed Roadmap that this group is interested in further exploring regardless of whether a formal process commences.
- Advocate for funding and capacity for state agencies so they can adequately staff and plan for FOSW energy holistically and engage interested parties robustly; and
- Support policy in the state legislature and/or federal agencies and Congress.

Table A.1 For further conversation: What is the scope of the Roadmap and what is an "Exit Ramp"?

Early on, the group was interested in A) understanding and discussing the interests of FOSW for a wide variety of parties around a collaborative table, B) clearer guidelines for how FOSW energy could be developed off Oregon's coast, and C) clarity that constructing FOSW energy facilities is not a "done deal".

For some, the word "Roadmap" connoted a linear pathway toward a predetermined outcome (i.e., constructing FOSW energy facilities). The group clarified, strongly, that a "Roadmap" did not predetermine any decision. The group added the term "with Exit

(continues on next page)

Ramps" explicitly to address this concern. The term "Exit Ramp" held different meanings for different members of the group throughout the process. The shared definition of an exit ramp is defined in Section 4.4: "An exit ramp refers to information, conditions, or feedback that warrant a pause or reconsideration in the decision-making process for planning, investigating, constructing, and/or maintaining FOSW turbines, cables, landing sites, substations, energy storage, and transmission systems (see Table 4.4 for potential 'Exit Ramps')."

The group also had an evolving conversation about the scope of the group and the scope of a roadmap. In August, the group clarified its role in talking about future FOSW Call Areas and development, not the Coos Bay and Brookings Wind Energy Areas finalized in February 2024. The group still feels the scope of the Roadmap is A) for the entire ocean off Oregon's coast, in both federal and state waters, and B) for the entire lifecycle of FOSW from planning, siting, exploration, construction, operations and maintenance to eventual decommissioning.

Many in the group now also feel that the Roadmap should and can inform the State of Oregon's actions related to the current Coos Bay and Brookings Wind Energy Areas. Some feel the Roadmap might inform leasing decisions while others feel the Roadmap will inform decisions after leasing as exploration and construction permitting begin.

In October, the group refined its charter describing how it intends to work together and welcomed guests from Maine to talk about their Roadmap process. The group also reached consensus recommending that Oregon develop a "Roadmap with Exit Ramps." The group also sought to add group members to expand perspectives, and those new members were invited to join in November.

In November, the group focused on brainstorming the topics, questions, and cross-cutting lenses that should be included in the Roadmap. Some of the issues discussed at the November meetings included the following:

- There are cross-cutting lenses that apply across all seven objectives. The group wanted to promote a holistic, integrated approach, recognizing that FOSW is an emerging industry.
- Equity and jobs are important. There needs to be a balance between creating new kinds of jobs and protecting existing livelihoods that rely on the ocean and coastal communities–especially in fishing communities. The group reiterated the need to include missing voices in a meaningful way.
- The group wanted to find ways to encourage innovation and resilience.
- Affordability and cost of electricity were important themes to the group.

- The group recognized that the cumulative effects of FOSW development along the Pacific Coast were important, and that there are significant unknowns. There needs to be a way to understand risks and learn from experiences in other states.
- Decisions should be shaped by the best possible information.

In December and January, the group's attention turned to A) writing the Roadmap Considerations document, and B) discussing the purpose of the Oregon Legislature-introduced HB 4080. As the group wrote the Roadmap Considerations document, some important discussions emerged but were not fully resolved.

Throughout the group's time, several efforts were made to engage the voices of Tribes in crafting the Roadmap Considerations document. The Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians (CTCLUSI) participated in the group for a time and then had limited capacity to attend meetings. CTCLUSI Tribes did provide comments on the iterations of the document. In February, Governor Kotek's office extended an invitation to discuss the Roadmap to all nine federally recognized Oregon Tribes, and Oregon Consensus extended invitations for feedback to Tribes in Washington and California, the Affiliated Tribes of Northwest Indians, and the West Coast Ocean Alliance Tribal Caucus.

Table A.2 For further conversation: What is the right balance between protecting against impacts and creating new opportunities?

Group members all acknowledged the importance of both A) protecting the environment, resources important to Tribes, seafood providers, and coastal communities, and B) achieving clean energy mandates and creating economic opportunities. The group also acknowledged that achieving all of the goals in the Roadmap Considerations document Sections 3 and 4 to their full extent will be challenging.

The group debated the overall tone of the Roadmap Considerations document, striving for a balance of being hopeful about the potential opportunities presented by FOSW energy, and being cautious about the potential impacts of developing FOSW energy. The group also discussed how to present concerns of impacts and claims of benefit where there is remaining uncertainty about the extent of those impacts and benefits.

In the end, the group felt it was important for the Roadmap Considerations document to be inclusive of the diverse voices and viewpoints represented in the group, leaving the negotiation around the "right" answers to questions to the broader and public dialogue that would occur during development of the Roadmap itself.

Table A.3 For further conversation: How are difficult decisions about trade-offs made?

The group recognized that FOSW energy development may involve trade-offs. The group did not deliberate extensively about how to avoid trade-offs or how to make difficult decisions where trade-offs were unavoidable.

As the Roadmap is developed, there will need to be ways to evaluate impacts and benefits to the environment, ocean ecosystem, existing ocean users, communities, businesses, etc. Those considerations and ultimate decisions will need to be guided by the four cross-cutting lenses articulated in Section 4 of the Roadmap Considerations document.