



Offshore Wind Energy Roadmap Community Meeting

Jeff Burright, Offshore Wind Roadmap Coordinator

May 14, 2025

Meeting Agenda:

- Informational Presentation on the Oregon Offshore Wind Energy Roadmap
- Clarifying Q&A Session
- Interactive Opportunity
- Adjourn





Purpose of My Presentation

- Where are we with offshore wind in Oregon?
- What is the Oregon Offshore Wind Energy Roadmap and why are we making one?
- What could offshore wind look like in Oregon?
- Where are we now with the Offshore Wind Roadmap?
- What would you like to say to us and each other about offshore wind and Oregon's Roadmap in development?



THE OREGON COASTAL MANAGEMENT PROGRAM







Policies & Plans

Federal Consistency Authority

Networked Program

- Coastal Goals,
- Territorial Sea Plan
- Estuary Planning
- Hazard Planning

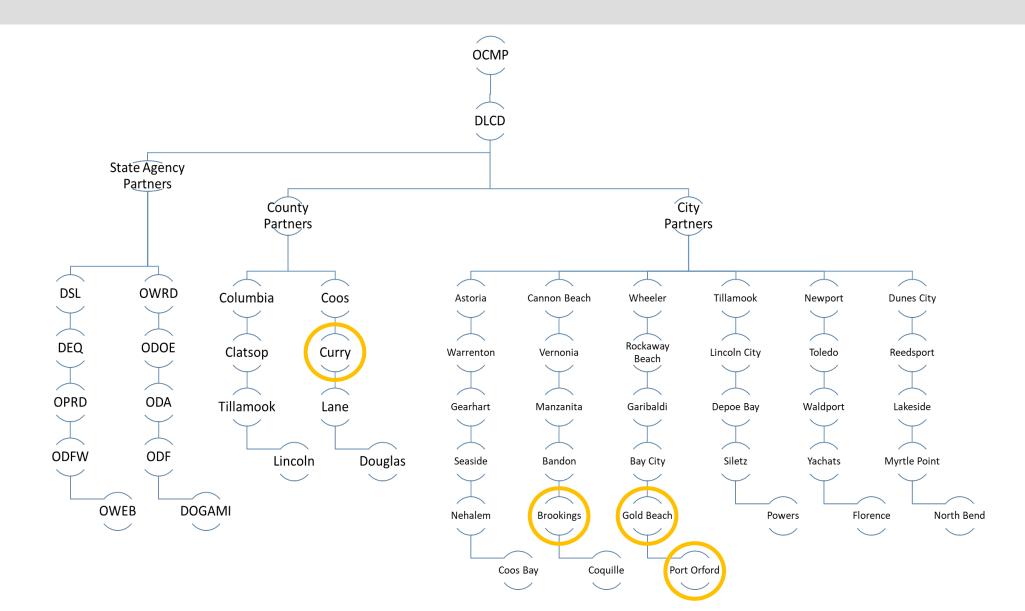
 Allows application of state policies to federal activities. • A network of state and local partners that help implement the Program.



Housed within the Department of Land Conservation and Development (DLCD)



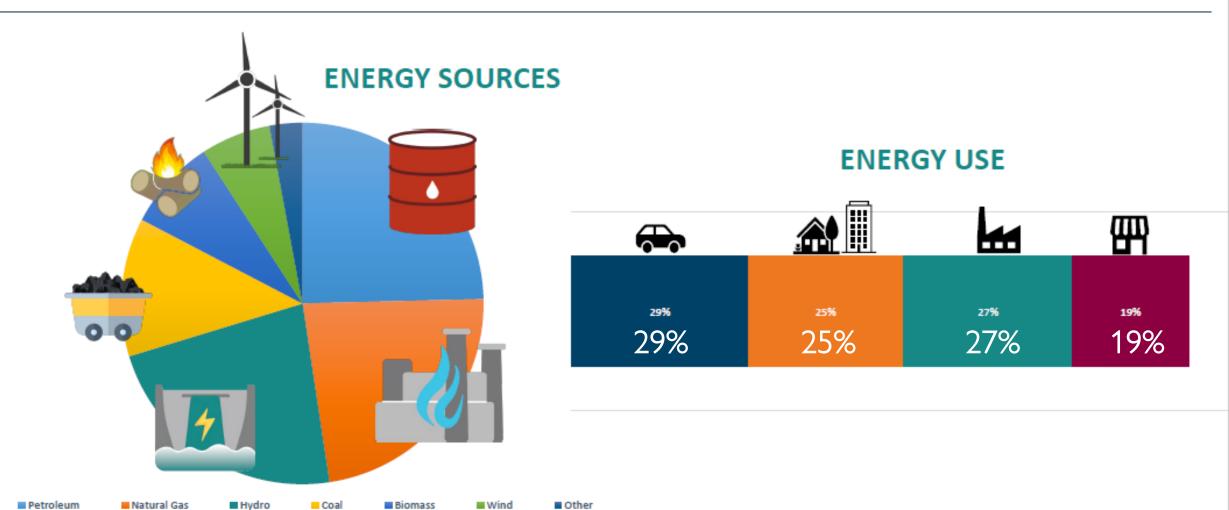
What is the Oregon Coastal Management Program?



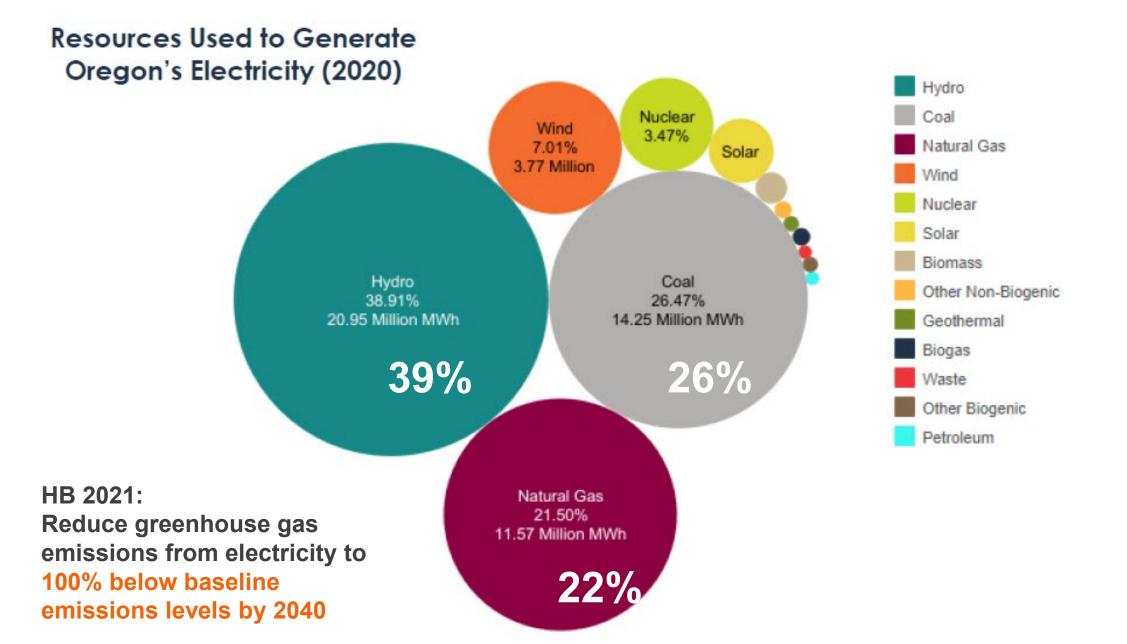


Where are we with Offshore Wind in Oregon?

OREGON'S ENERGY LANDSCAPE



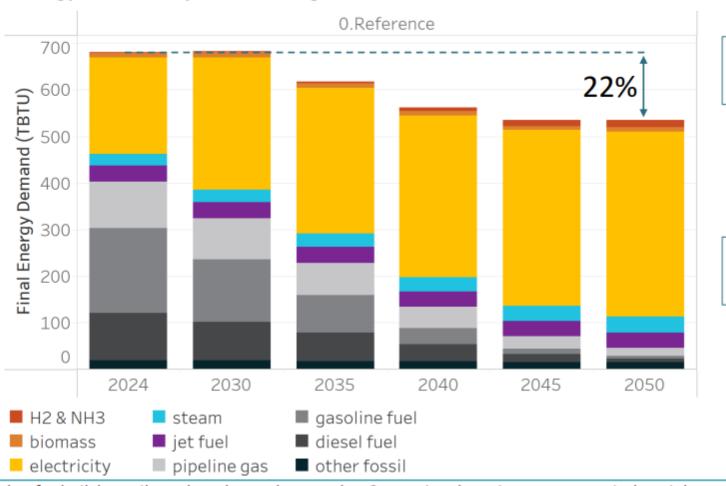




Demand for Fossil Energy Decreases, Demand for Electricity Increases

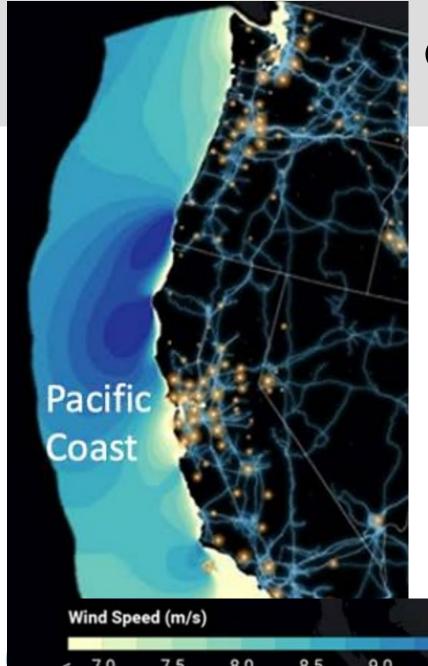






Total energy demand decreases by 22%

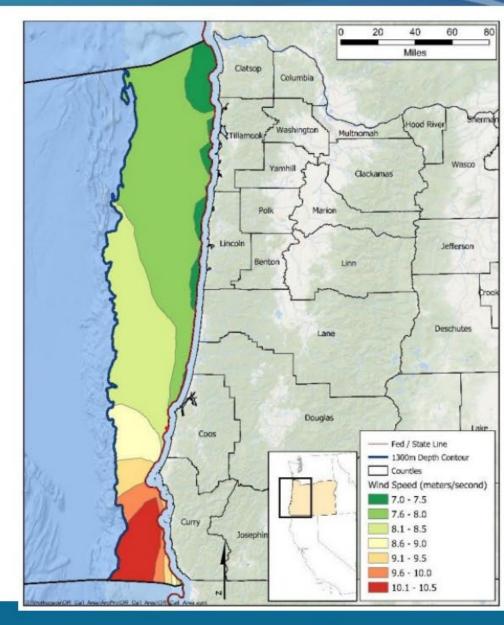
Electricity demand doubles



Oregon's World-class Wind Resource

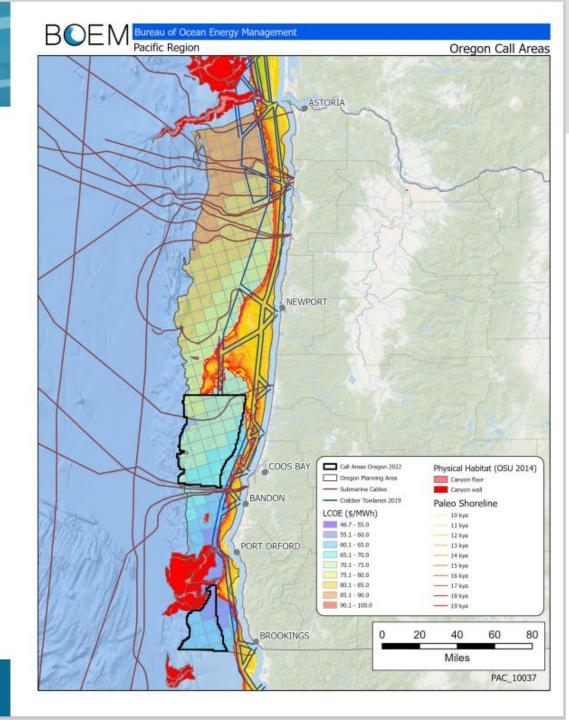
- Winds higher than 15 mph average (7 m/s) are viable for offshore wind energy production
- Winds offshore are more consistent and predictable than onshore, which is good for the grid.
- Wind patterns are a good match to PNW seasonal energy demand
- Steep shelf = deeper water = floating platforms

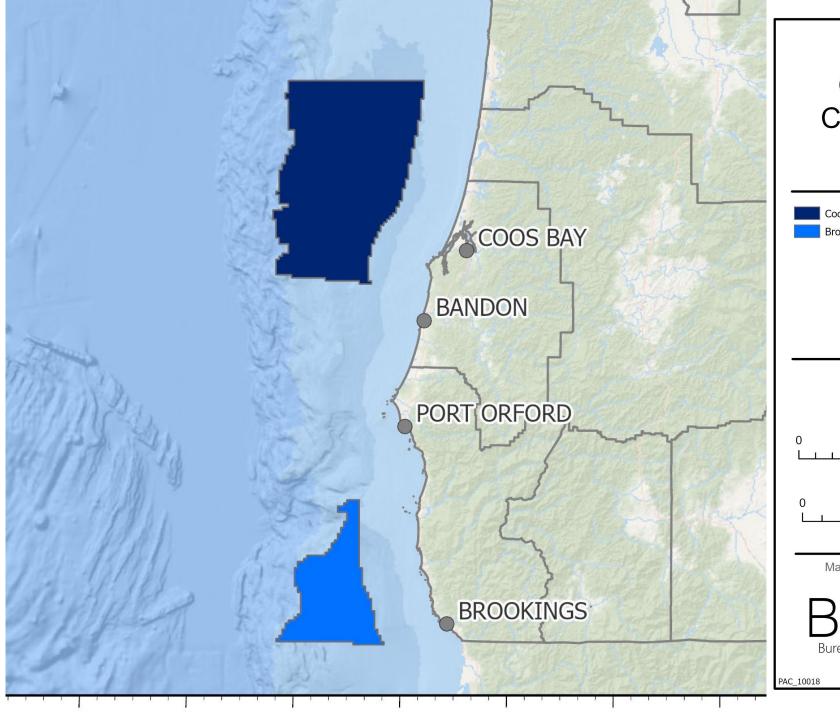
- Planning Area Entire Oregon OCS, where offshore wind is technically viable
 - o 3 nautical miles − 1,300 meters
 - Average wind speeds ≥ 7 meters/second (13.6 knots)
- 1,300 Meter Depth
 - Technical and economically viable commercial development
 - World's deepest floating offshore wind facilities currently at 300 meters



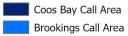
Call Area Background

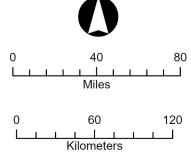
- 12 nautical miles (13.8 miles)
- 1,300 meter depth contour (4,300 ft)
- Wind Speed
- Levelized Cost of Energy (LCOE) (\$/MWh)
- Paleo Shorelines
- Undersea Canyons
- Crabber Tug Tow Lanes
- Undersea Cables











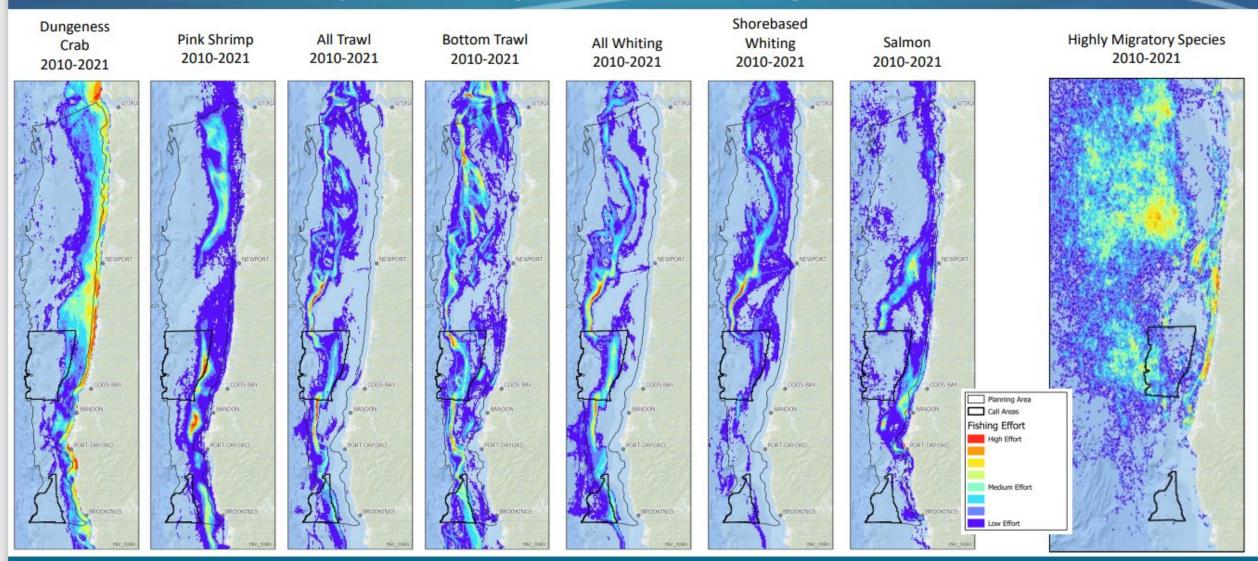
Map Date: 04/22/2022

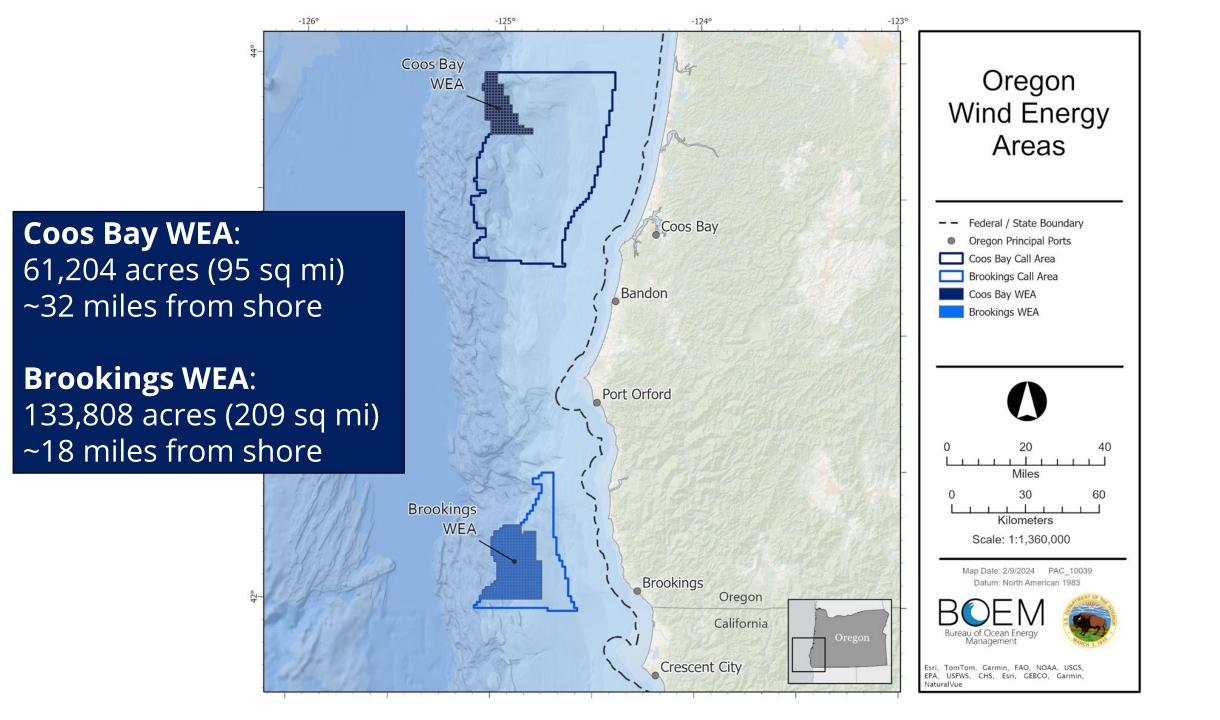




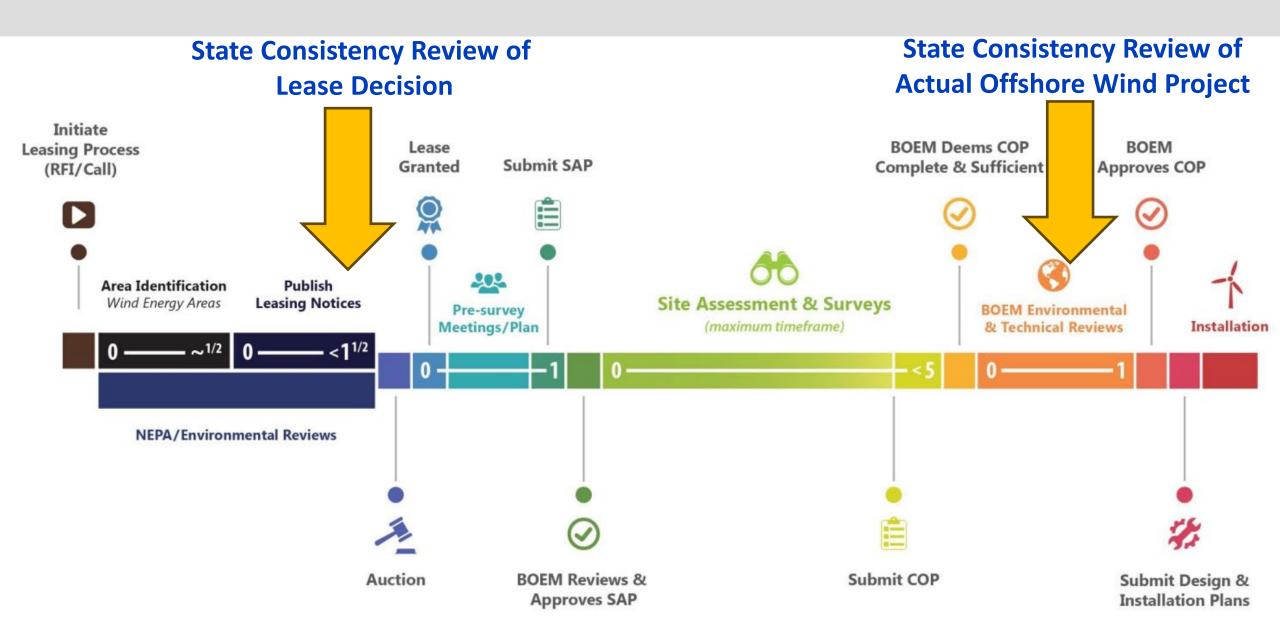
Commercial Fishing: Vessel Monitoring System (VMS)

(June 15-17, 2022, Newport, Coos Bay, Gold Beach meetings)





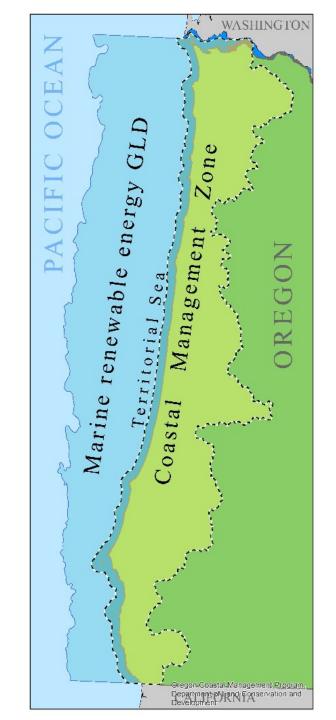
BOEM Offshore Wind Process



Where does Federal Consistency Apply?

- Entire coastal zone
- Any projects that have reasonably foreseeable impacts to coastal resources
- Federally approved Geographic Location Descriptions (GLD)
 - Oregon has one specific to Marine Renewable Energy activities
- Federally owned lands in some cases









What Coastal Effects are Subject to State Review?

Review is required when there are reasonably foreseeable effects, including indirect and cumulative effects

Key Coastal Uses and Resource areas: cultural, natural, economic, recreational, and aesthetic

Review Outcomes

Concurrence

Action as proposed is consistent with state enforceable policies.

Concurrence with Conditions

Requires agreement with federal agency responsible for action State cannot enforce under CZMA.

Objection

Requires reason based on enforceable policies or insufficient information Project cannot move forward absent an appeal to the Secretary of Commerce.





As Southern Oregon opposition to offshore wind mounts, energy developers opt not to bid

Oregon Capital Chronicle

Southern Oregon tribes sue feds over offshore wind energy plans

BOEM postpones first Oregon offshore

wind auction due to lack of interest

The agency identified five eligible bidders but only received interest from one.



BOEM Postpones Oregon Offshore Wind Energy Auction

(I) UTILITY **DIVE**

09/27/2024 Washington, DC



Oregon's offshore lease sale canceled as bidders back out, governor raises concerns



By Monica Samayoa (OPB)

Sept. 27, 2024 10:03 a.m. Updated: Sept. 27, 2024 2:07 p.m.



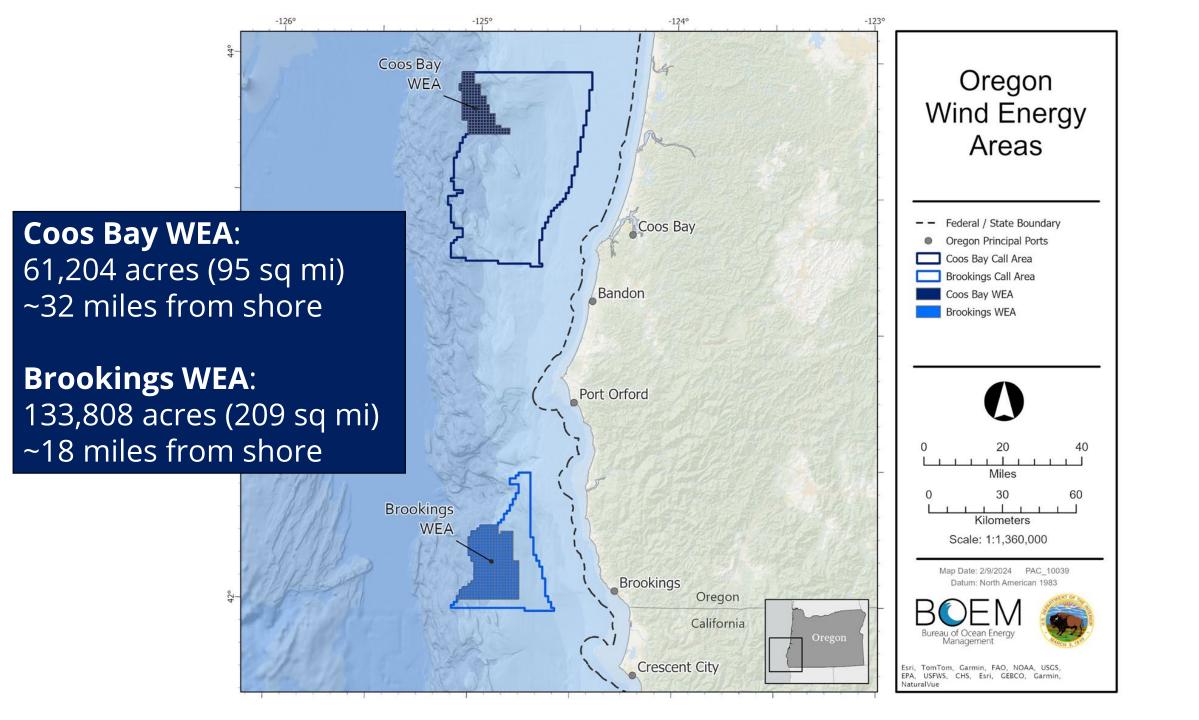
SCIENCE & ENVIRONMENT

Offshore wind looked like a sure thing for Oregon — until it wasn't. What went wrong?



Oregon opponents block offshore wind auction





"In Oregon, we are working towards clean electricity, 100% clean electricity, by 2040. That means what we're doing now, we have to do more of, and we need to put new options on the table. And that means offshore floating wind as a possibility.

This is an opportunity. It's also a challenge. But we have to try."

-Governor Tina Kotek

Source: <u>Climate solutions: 2 kinds of ocean energy inch forward off the Oregon coast |</u>
<u>AP News, September 23, 2024</u>





Offshore Wind in California

- California goal of 25 GW offshore wind by 2045 (25,000 megawatts or ~1,700 15-MW turbines)
 - Enough to power around 5 million to 11 million homes at 50% operational efficiency
- Five lease areas sold off California in 2022 for \$757 million
- The five lease areas can support up to 4.6 GW
 - Enough to power 1-2 million homes
- 21 GW worth of sea space left to go
- Effects of Federal Administration uncertain





Federal Administration Action on Offshore Wind



R PRESIDENTIAL ACTIONS

Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government's Leasing and Permitting Practices for Wind Projects



The White House

January 20, 2025

What is the Offshore Wind Roadmap, and why is Oregon making one?

Enrolled

House Bill 4080

Sponsored by Representatives GRAYBER, GOMBERG; Representatives ANDERSEN, BOWMAN, DEXTER, EVANS, FAHEY, GAMBA, HELM, HOLVEY, HUDSON, KROPF, LEVY E, LIVELY, MARSH, NGUYEN D, NGUYEN H, NOSSE, PHAM K, TRAN, WALTERS, WRIGHT, Senators CAMPOS, DEMBROW, FREDERICK, GELSER BLOUIN, GOLDEN, PATTERSON, TAYLOR (Presession filed.)

- Includes labor standards applicable to offshore wind projects
- DLCD to lead Offshore Wind Roadmap Engagement Effort
- DLCD to Evaluate Oregon Enforceable Policies for Offshore Wind and Make Recommendations



Roadmap Requirements in HB 4080

Roadmap shall define standards to be considered in the processes related to Offshore Wind development and approval.

Standards must support:

- Effective Stakeholder Engagement
- Local and regional coastal communities
- Creation of economic opportunities and sustainment of existing local and regional economies;
- Creation of an offshore wind workforce that is trained, housed, and equitable
- Protection of tribal cultural and archaeological resources, culturally significant viewsheds, and other interests of Tribes
- Protection of the environment and marine species
- Achievement of state energy and climate policy objectives



Phase 1: Community
Engagement, Policy
Assessment

Phase 2: Roadmap drafting

2023 Informal Offshore Wind Work Group

Roadmap Development

The Offshore Wind Roadmap:

- Contains policy needs and recommends standards
- Identifies strategic challenges, opportunities, and actions
- Is informed by broad engagement
- In parallel, DLCD assesses
 Enforceable Policy gaps and
 recommends update processes
- Does not make formal decisions or policies

Roadmap Implementation

Actions may include but not limited to:

Formal Policymaking (e.g., rules, plans, codes, statutes)

Creates Enforceable Policies subject to NOAA approval

Offshore Wind Research Agenda

Strategic Supply Chain Investments

Key Community Conversations

Marine Spatial Planning

Potential future Offshore
Wind project reaches
federal permitting phase
and new policies apply to
Federal Consistency review



Roadmap Roundtable Logistics

- Monthly full-day Roundtable meetings from Nov/24 June/25
 - Hybrid options available
 - Meetings recorded and posted on the DLCD YouTube page
- Working groups (virtual) are topic-specific
- Questions, recommendations, and feedback: <u>dlcd.OSWRoadmap@DLCD.Oregon.gov</u>
- Meeting information and packets emailed to members and posted on the DLCD Roadmap website



Oregon Offshore Wind Energy Roadmap

Climate Change

Comprehensive Plan Updates

Farm and Forest

Housing Program

Measure 49

Natural Hazards

Natural Resources and Renewable Energy

OREGON COASTAL MANAGEMENT PROGRAM

Coastal Zone Management

Coastal Partners

Federal Consistency

Coastal Services

Policies and Plans

Participate

OCMP Enforceable Policies

Offshore Wind Energy Leasing



Kincardine Floating Offshore Wind Energy Project, Aberdeen Scotland

For more information contact Jeff Burright, Offshore Wind Roadmap Coordinator at jeff.d.burright@dlcd.oregon.gov or 503-991-8479.

Sign up to receive notices and updates from DLCD on Offshore Wind

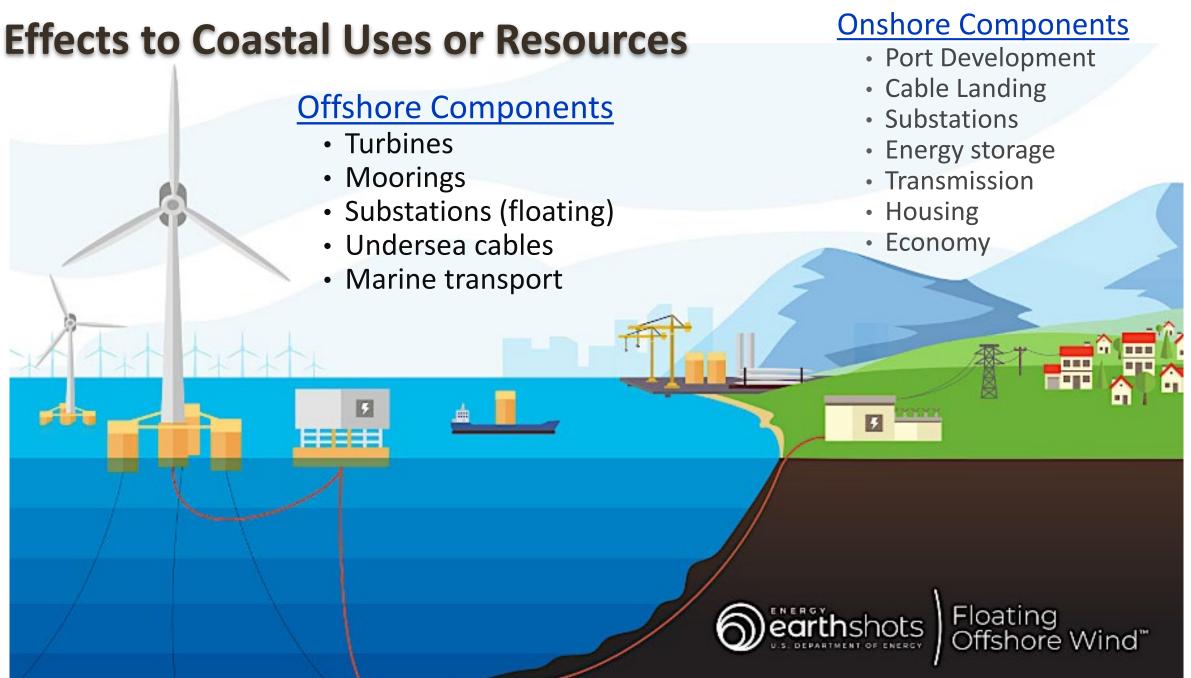
Link to most recent Offshore Wind Roadmap Roundtable Roster

Meetings

Meeting	Date & Time	Materials
Offshore Wind Energy Roadmap Roundtable Meeting #1	November 1, 2024	Meeting Agenda



What could offshore wind in Oregon look like?



Source: US Department of Energy, Floating Offshore V

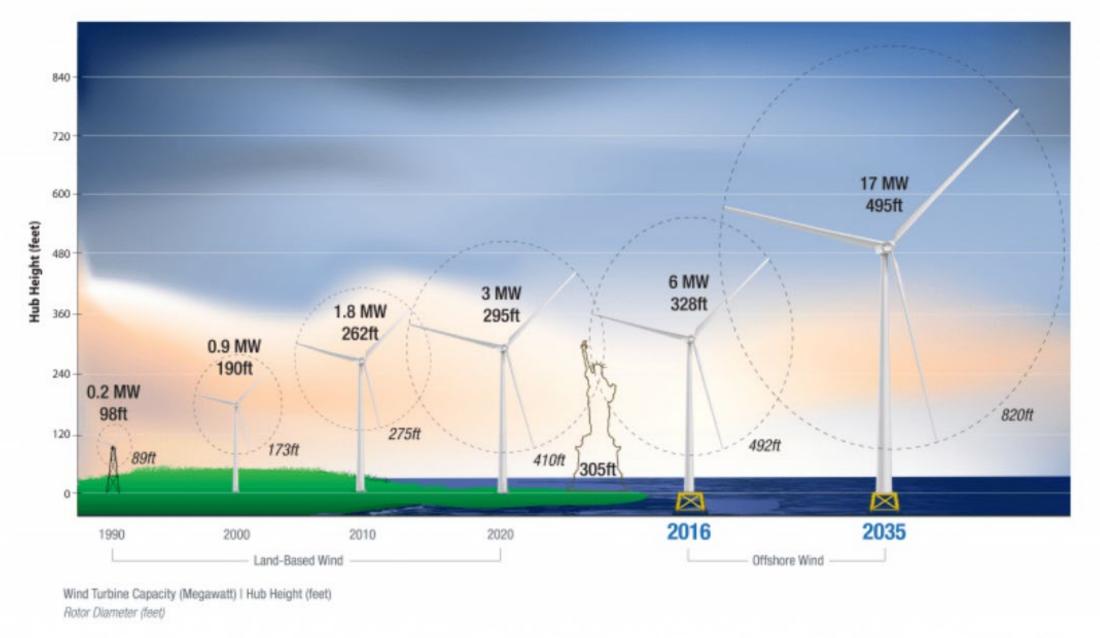


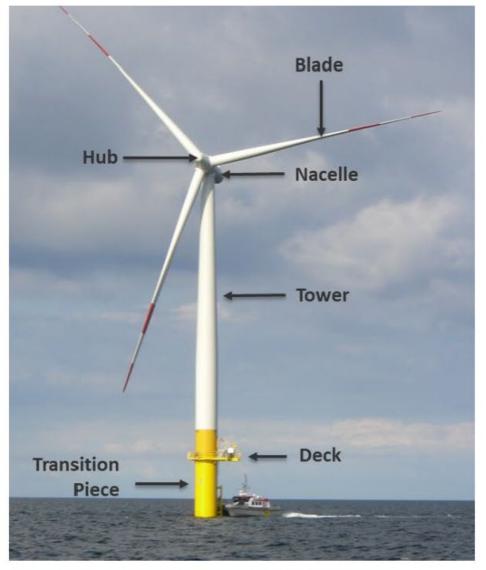


Figure 4. Land-based wind turbines of different heights are shown alongside offshore wind turbines of different heights and the Statue of Liberty for reference. Figure from U.S. Department of Energy

Above-Water Parts of an Offshore Wind Turbine

Offshore wind turbines differ from their land-based counterparts in several ways:

- Can be much larger because turbine parts don't need to fit on highways. In 2020, the average capacity of land-based turbines was 2.75 MW, while the average offshore turbine was 7.5 MW.
- Have more complex support structures
- Are designed to withstand the harsher marine environment (corrosion, stronger hurricanes over water as compared with after landfall)



The Siemens 2.3-MW offshore wind turbine in the Baltic Sea, Germany. *Photo by Walt Musial (NREL)*

Underwater View

Cable extends

- Waves and wind create turbine movement
- The mooring system controls the "watch circle"

• Protection of the electric cables requires tight offset limits.

Upwind line lifts off seabed

Wind induces platform offset

Downwind line drops

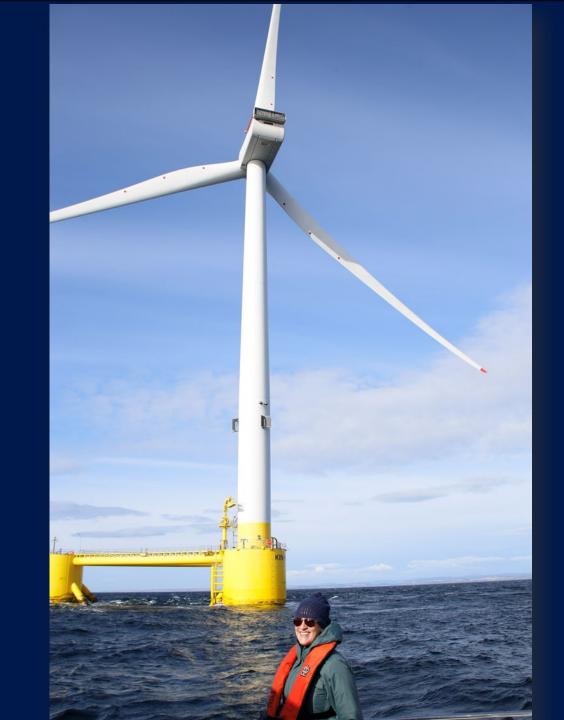
Watch circle

(platform's offset envelope)

Line drags along seabed











Why is there interest in offshore wind energy?

- Decarbonization
- Strong wind speeds
 - Highest wind speeds are often offshore.
 - Higher wind speeds produce more power.
- Complements other renewables
- Large scale
- Location to load
- Workforce and economic development
 - Opportunities for environmental justice, industrial revitalization, domestic manufacturing

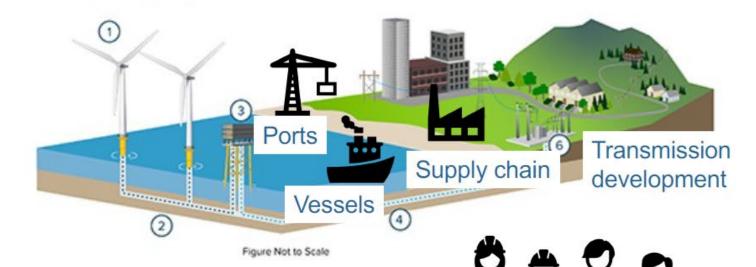
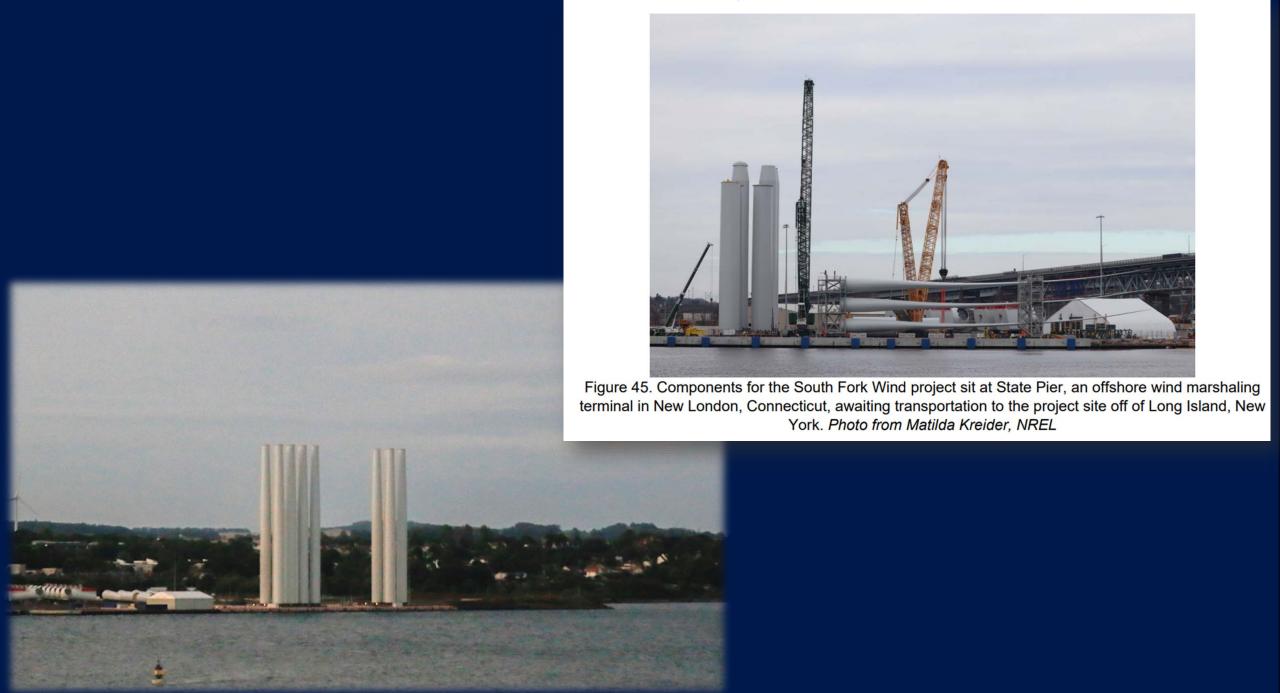




Figure 15. An offshore substation under construction in the Vineyard Wind 1 project off of Massachusetts.

Photo by Joe DelNero, NREL 90966

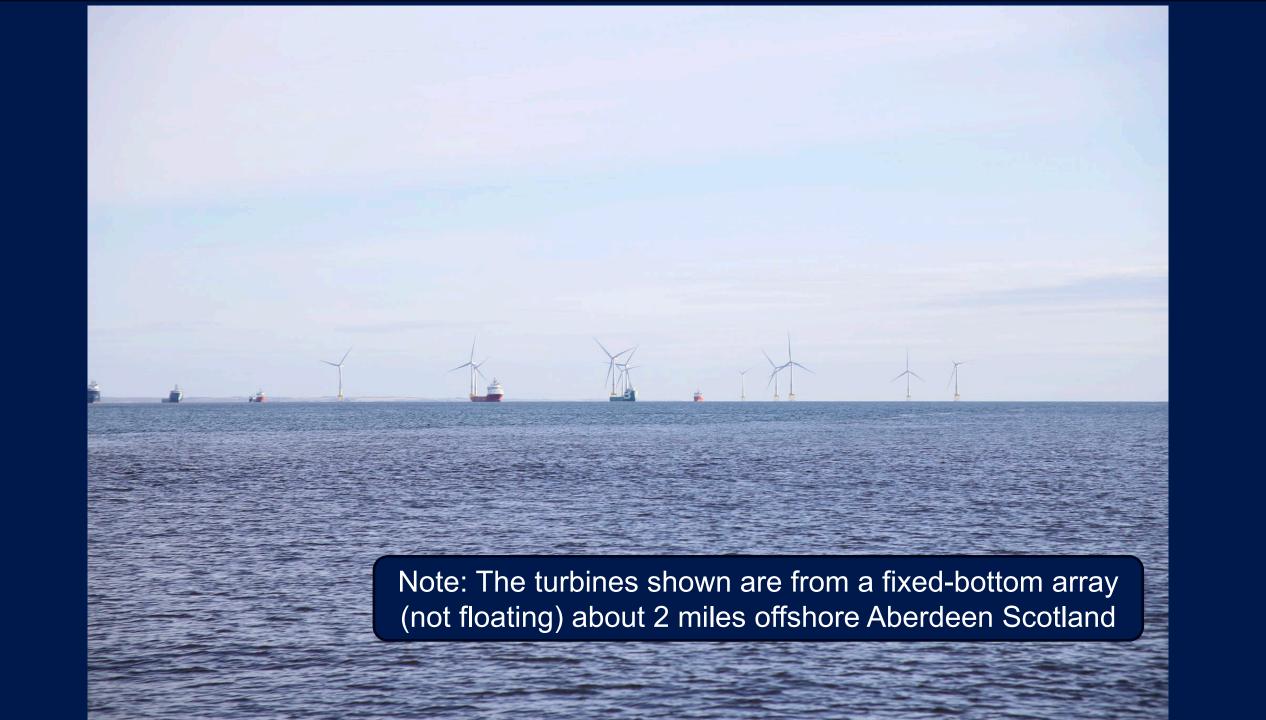
edda wind 😕





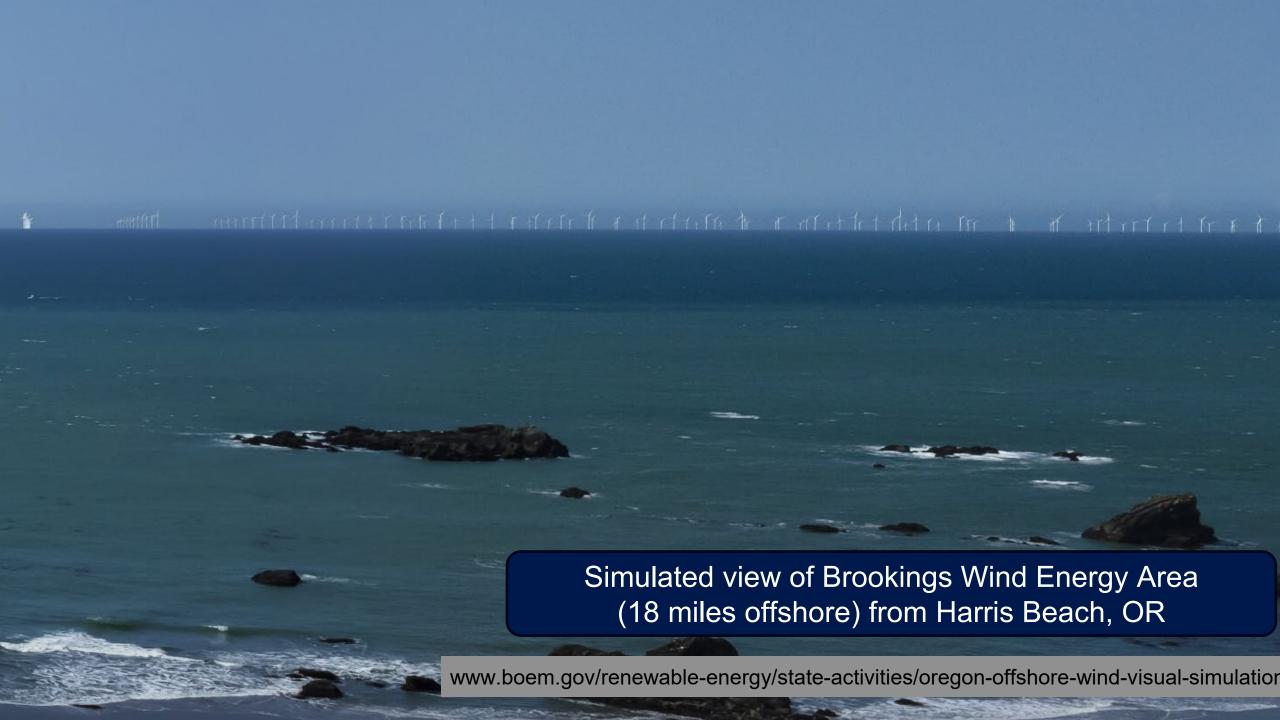


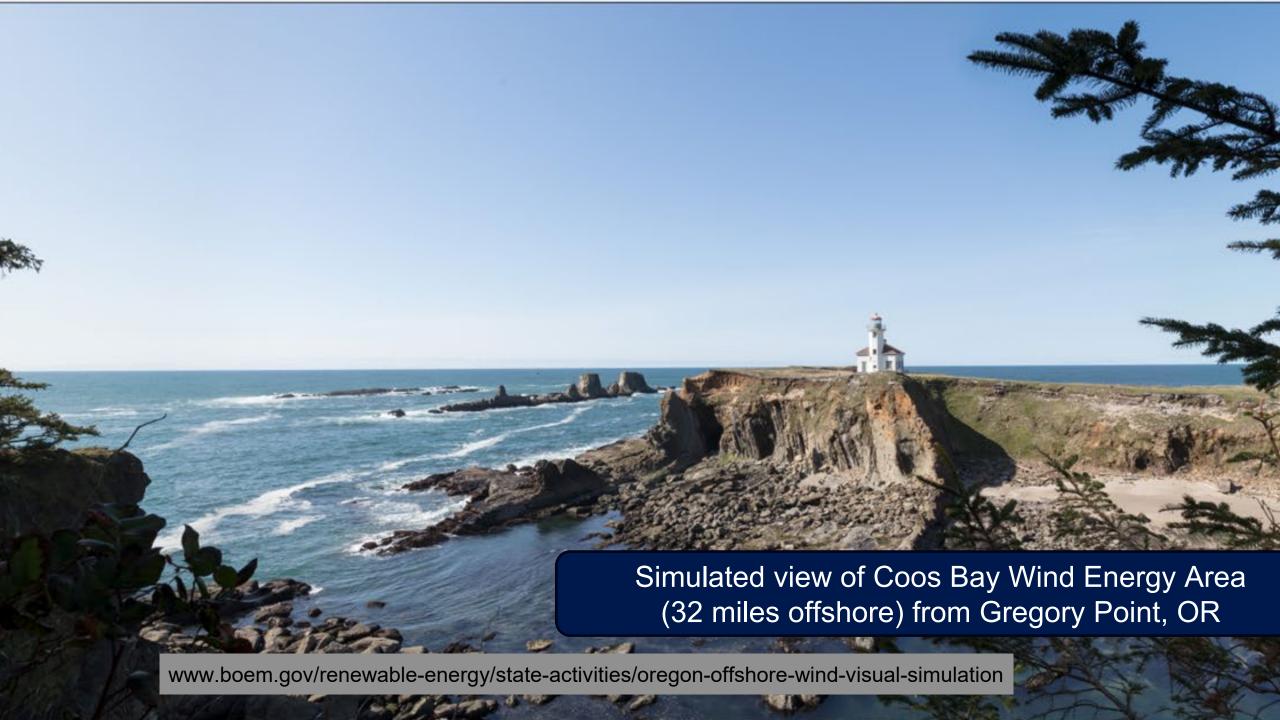
12 of 17 | CORRECTS TO CLARIFY LOCATION - Construction is seen at the facility near Newport, Ore., where the power generated by the wave energy test site will be "conditioned" for possible use on the local grid, Friday, Aug. 23, 2024. (AP Photo/Craig Mitchelldyer)













https://www.boem.gov/renewable-energy/state-activities/oregon-offshore-wind-visual-simulation

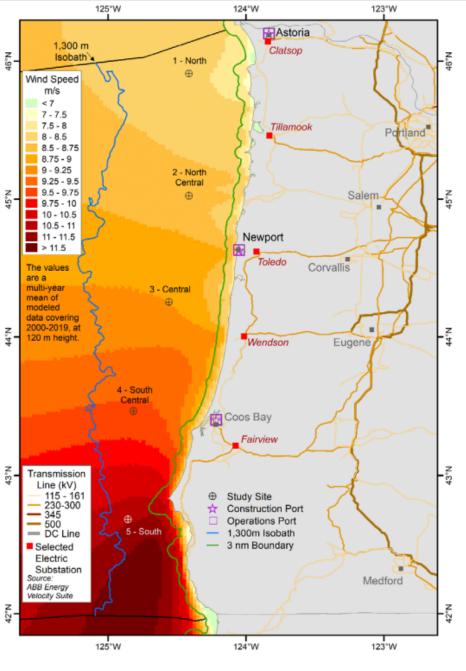


Figure ES- 1. Map of the trans-coastal transmission lines, which connect the offshore wind interconnection points to the 500-kV line connecting Medford, Eugene, and Portland (the I-5 corridor in the Willamette Valley).

How much offshore wind?

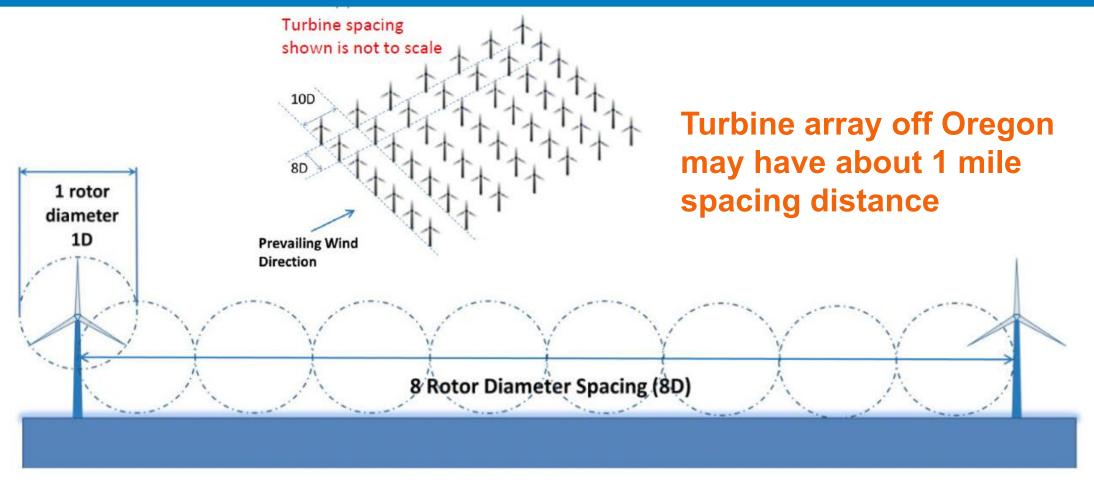
Oregon House Bill 3375 created a <u>planning goal</u> for up to 3 GW of floating wind by 2030 but does not include a mandate.

Key Takeaways:

- All areas offshore Oregon have viable wind speeds for offshore wind.
- The coast has five transmission paths to the valley
- The current coast grid can accept
 2.6 GW of new generation, which would meet ~84-89% of coast demand

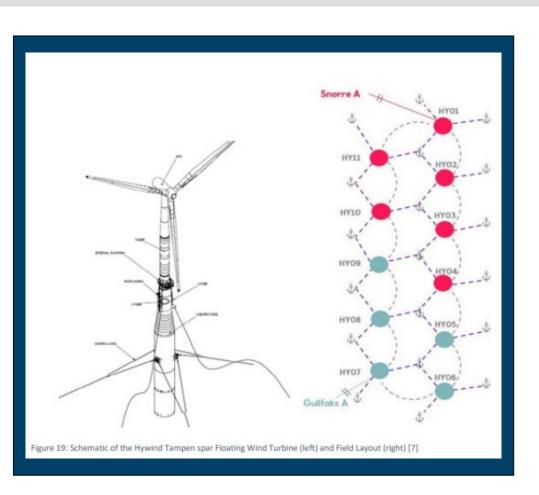
George Hagerman, NREL 2023

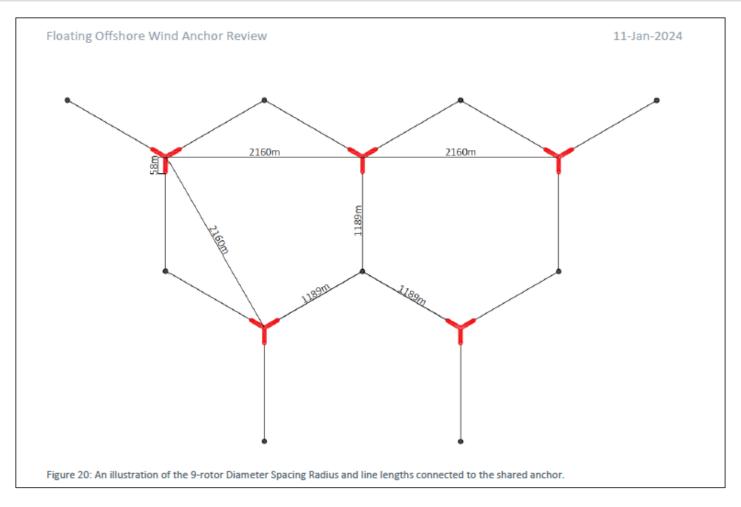
Turbine Spacing Increases With Rotor Diameter



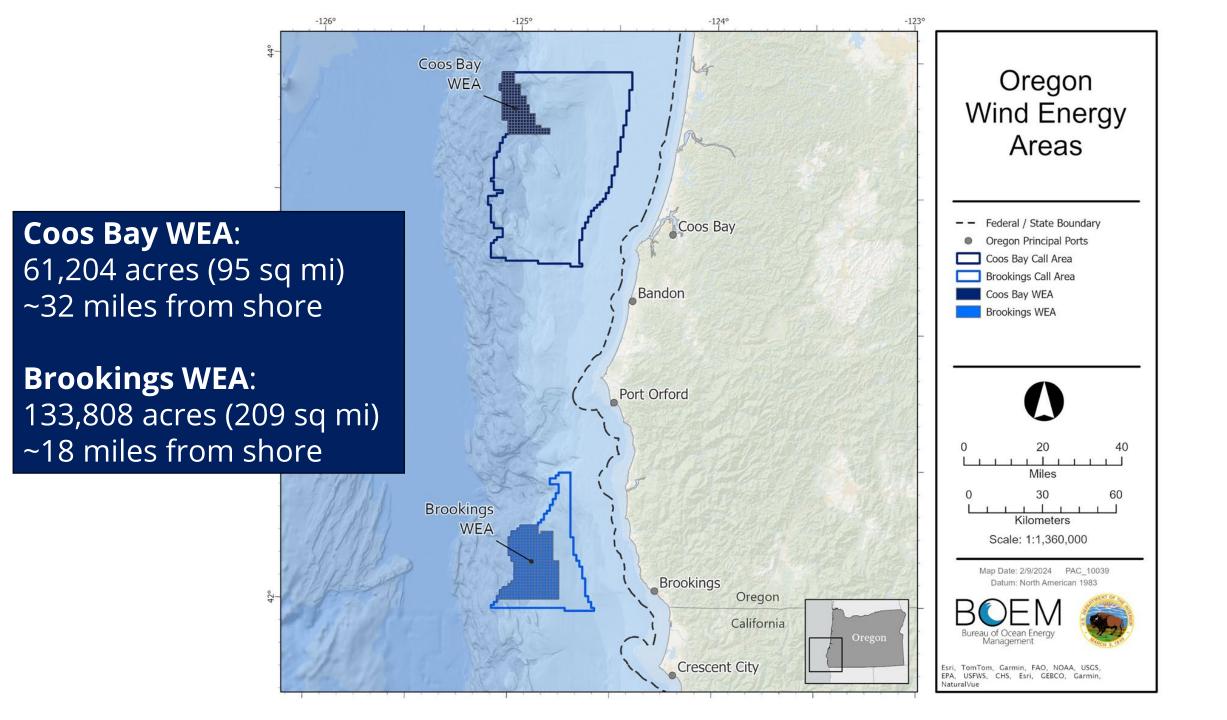
Wider spacing = higher capital cost because of longer array cables and larger array footprints, but lower wake losses, with typical spacing varying between 6D and 8D.

How many turbines?





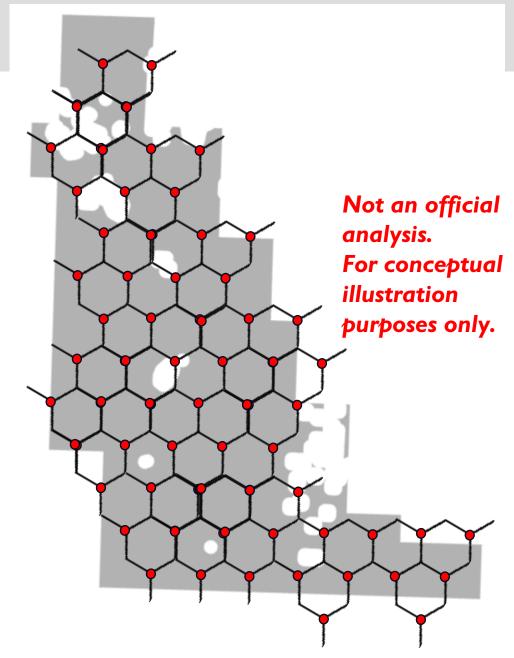




Hypothetical turbine configuration in the BOEM Wind Energy Areas

(Jeff's scratch pad — not a real proposal)

- Incorporates 1.3 mile spacing (9 rotor diameters for a 15 MW turbine)
- White areas are known rocky areas with 1,000 ft buffer
- Ballpark estimate: ~40-50 turbine maximum capacity (600 – 750 MW) in Coos Bay WEA



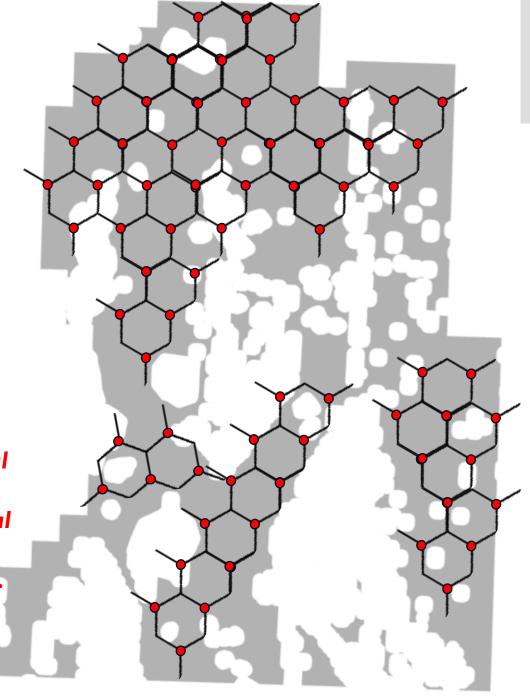


Hypothetical turbine configuration in the BOEM Wind Energy Areas

(Jeff's scratch pad — not a real proposal)

- Incorporates 1.3 mile spacing (9 rotor diameters for a 15 MW turbine)
- White areas are known rocky areas with 1,000 ft buffer
- Ballpark estimate: ~60-65 turbine max capacity (900 – 975 MW) in Brookings WEA

Not an official analysis.
For conceptual illustration purposes only.





Floating Offshore Wind Project in Federal Waters Regulatory Overview

Federal Waters

State federal consistency review jurisdiction currently extends to 500 fathoms due to Oregon's federally approved Geographic Location Description.

Floating Offshore Wind Installation:

- BOEM Construction and Operations Plan
- Army Corps Permit
- DEQ Water Quality Certification (if the project involves effects to state waters)
- State Federal Consistency review of federal permits (enforceable policies include fish & wildlife, water quality, archaeological resources, Goal 19 Ocean Resources, Territorial Sea Plan)
- Consultations (USFWS, NMFS, USCG, FAA, others)

State Waters

Out to 3 nautical miles

shore

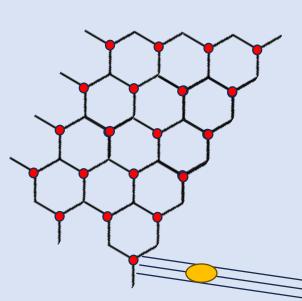
land

Cables on Seafloor:

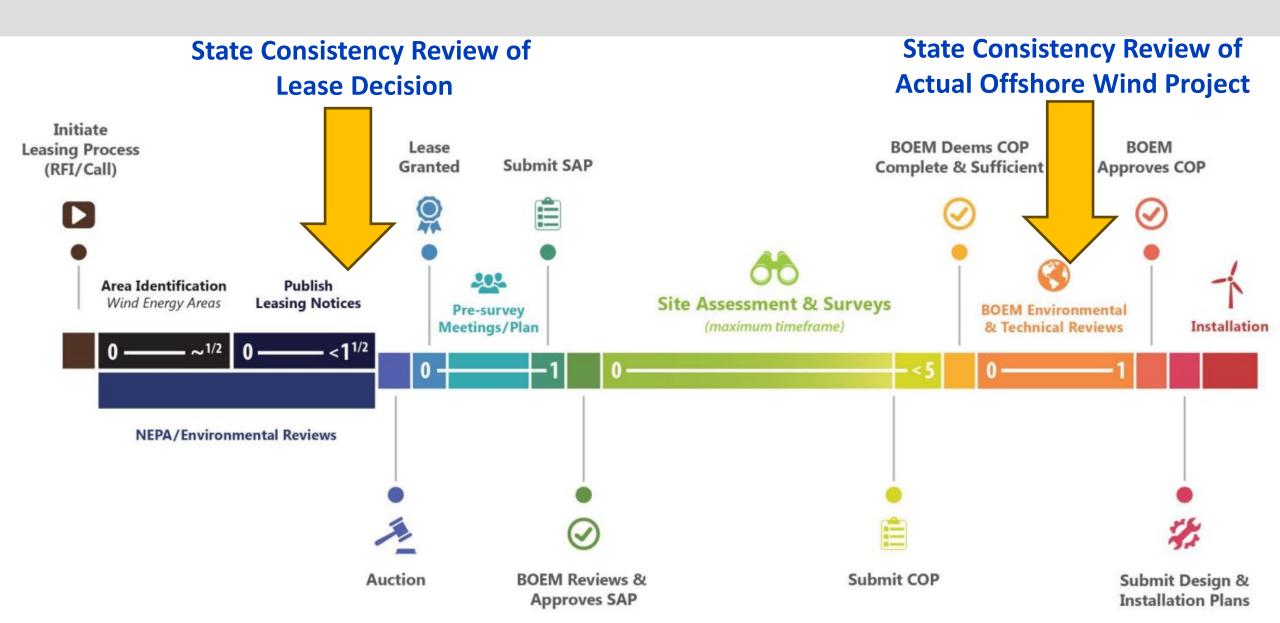
- BOEM Construction and Operations Plan
- Army Corps Permit
- DSL Cable Easement
- DSL Removal-Fill Permit
- DEQ Water Quality Certification
- SHPO Archaeological Permit
- State Federal Consistency review of federal permits (enforceable policies include fish & wildlife, water quality, archaeological resources, Goal 19 Ocean Resources, Territorial Sea Plan)

Cable landings and routing:

- Ocean Shore permit (OPRD)
- Land Use Permits (Local Govt)



BOEM Offshore Wind Process



What Key Enforceable Policies Apply?

- Statewide Planning Goals
 - 1: Citizen Involvement
 - 5: Natural Resources, Scenic and Historic Areas, and Open Spaces
 - 6: Air, Water, and Land Resources Quality
 - 19: Ocean Resources
- Territorial Sea Plan Part 2: Making Resource Use Decisions
- ORS 496: Wildlife

- ORS 506: Commercial Fishing and Fisheries
- ORS 509: Additional Fishery Requirements
- ORS 465: Hazardous Waste and Materials
- ORS 468A: Air Quality
- ORS 468B: Water Quality
- ORS 196: Ocean Resources
- ORS 358: Archaeological Objects and Sites



Key Review Considerations

- Fish and Wildlife concerns & policies
- Fisheries/Marine transportation effects
- Viewshed Impacts
- City/County policies
 - Cable landing & facilities
- Territorial Sea Plan
 - Part 4 Subsea Cables
 - Part 5 Marine Renewable Energy
- Tribal Feedback & Consultation
 - Federal consultation initiated early in the taskforce process – DLCD is a signatory.

What questions and topics are being discussed for the Roadmap?

Roadmap Requirements in HB 4080

Roadmap shall define standards to be considered in the processes related to Offshore Wind development and approval.

Standards must support:

- Effective Stakeholder Engagement
- Local and regional coastal communities
- Creation of economic opportunities and sustainment of existing local and regional economies;
- Creation of an offshore wind workforce that is trained, housed, and equitable
- Protection of tribal cultural and archaeological resources, culturally significant viewsheds, and other interests of Tribes
- Protection of the environment and marine species
- Achievement of state energy and climate policy objectives





Roadmap Outline

- 1. Purpose and Background
- 2. Alternative Futures and Waypoints
- 3. State Policy Assessment and Recommendations
- 4. Strategic Planning Elements (opportunities, challenges, recommendations)
- 5. Action Plan



Roadmap Outline

1. Purpose and Background

2. Alternative Futures and Waypoints

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Concepts being discussed

- What are the "waypoints" along the path to development?
- Where are the state's "policy gaps" around offshore wind?
- Should the state lead its own marine spatial planning for federal waters? What would we do differently?
- How do we responsibly manage uncertainty and risk?
- How should the state coordinate its research agenda internally and with West Coast neighbors?
- What should the state's role be in future community benefit conversations, and what role does state policy play?
- What does a market signal or "welcome from the state" look like?
- What are the "exit ramps" for the state in the process?



From Effects to Standards

Existing Offshore Wind Gaps and **Policies** Policy / **Effects** Policy/ Action to **Action** (wanted and **Address** Rec's Needs unwanted) **Effects**



Capturing Effects

Possible Effects of Offshore Wind Energy Development Cultural and Tribal Resources

Potential Effects	Some Examples	What impacts or effects are missing?
Effects on historic, archeological and traditional cultural resources located within the project area of potential effect (determined in consultation with Tribes and Oregon State Historic Preservation Office.)	 Nearshore and onshore paleoshoreline Changes in wave energy and sediment on the sea floor may uncover additional cultural resources so regular surveys should be conducted Assumes no visual presence from characterization activities and no other archaeological resources in the vicinity offshore 	
Effects on tribal uses and/or resources located within the Project area.	 Includes nearshore and onshore areas (beyond just the project site and WEA) Onshore archaeological sites; Native American Graves Protection and Repatriation Act (NAGPRA) specific 	
Effects to tribal lifeways, including sacred views (cultural viewsheds); commercial and subsistence activities, important foods, degraded environment, natural resources as cultural resources.	Include Indigenous Determinants of Health, regional effect from migratory species Effect on non-ESA species of importance (lamprey)	



State/Local policy revisions to address gaps

Framework for legal enforceable agreements

Federal Siting/Planning

Public Engagement and education (ongoing)

Tribal communities

engaged (ongoing)

 Port infrastructure & supply chain readiness plan (woven into estuary plan updates as appropriate)

"Welcome from State"

- Energy Strategy identifies offshore wind power need
- Socioeconomic studies quantify economic/job benefits
- Market signal to developers (incentives, policies, etc.)

State-led spatial planning

Identifies constraints and opportunities in federal and state waters and onshore areas

- Critical species/habitats
- Critical uses
- Critical cultural views
- Shore cable landing locations

Establish prioritized OR Research Agenda & Science Collaborative

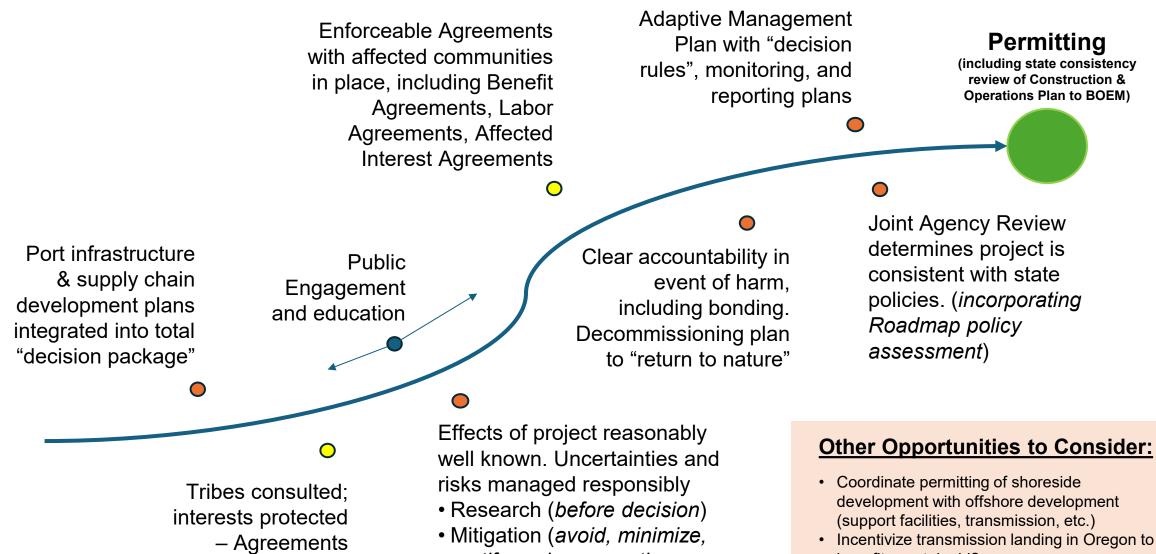
May address related waypoints:

- Baseline "Before" data for the ecosystem
- Identify study needs early for NEPA analysis
- Identify range of fisheries effects
- Answer key effect questions early
- Assess cumulative effects and limitations
- Incorporate indigenous/traditional knowledge
- Collaboration with CA and WA on research
- Include best offshore wind tech and practices.

Other Opportunities to Consider:

- Supply Chain assessment/registry and interstate/international coordination
- Study supply chain capacity investment needs
- Transmission planning/investment to complement future offshore wind
- Study community investment needs (housing, infrastructure, social services) to support OSW
- Explore/pursue Regional power market or state procurement authority to reduce power purchase barriers
- · Improve state agency capacity

Other Opportunities to Consider: Research agenda, Secure ongoing state input on site based on prioritized characterization studies between lease and knowledge gaps, permit phase Consider Leverage fishing vessels and/or Tribes for data addresses basic pilot/research collection cumulative/system project Cumulative interstate fishery effects **Public** concerns assessment Planning and investments to meet community engagement infrastructure, housing, service needs and education Coordination and planning transmission needs - incentivize landing in Oregon to benefit "Welcome from State" coastal grid? Market signal to Enforceable Agreements: · Consider co-stewardship agreements with Consider state/ developers that Tribes prior to leasing affected community and leasing is desired local lease tribal needs identified; based on energy ownership negotiations planned needs, economic opportunity desires Fishery Cumulative effects **Tribes** Engagement evaluation sets Leasing consulted; cumulative limit of **Plans** (including state interests consistency development review of BOEM protected leasing action) **Avoidance** areas from Port infrastructure state-led spatial & supply chain planning Risks from postplans (coordinated honored leasing surveys with WA/CA) responsibly managed



rectify, reduce over time,

compensate)

Adaptive Management Plan

- · Incentivize transmission landing in Oregon to benefit coastal grid?
- Establish methods for reporting and responding to issues (e.g., hotline)
- Establish expectations for Tribal involvement in Adaptive Management Plans.
- · State investment and incentives for supply chain, workforce, and community development.

Supply Chain secured or Workforce training developed and community support (e.g., housing, services) Power purchase Ongoing project agreements set engagement with prices, secure state, Tribes, public, project viability affected interests Project support infrastructure completed (ports, transmission, community support) \bigcirc Enforceable Agreements (incl. Project Labor

Agreements) in place and

in good standing

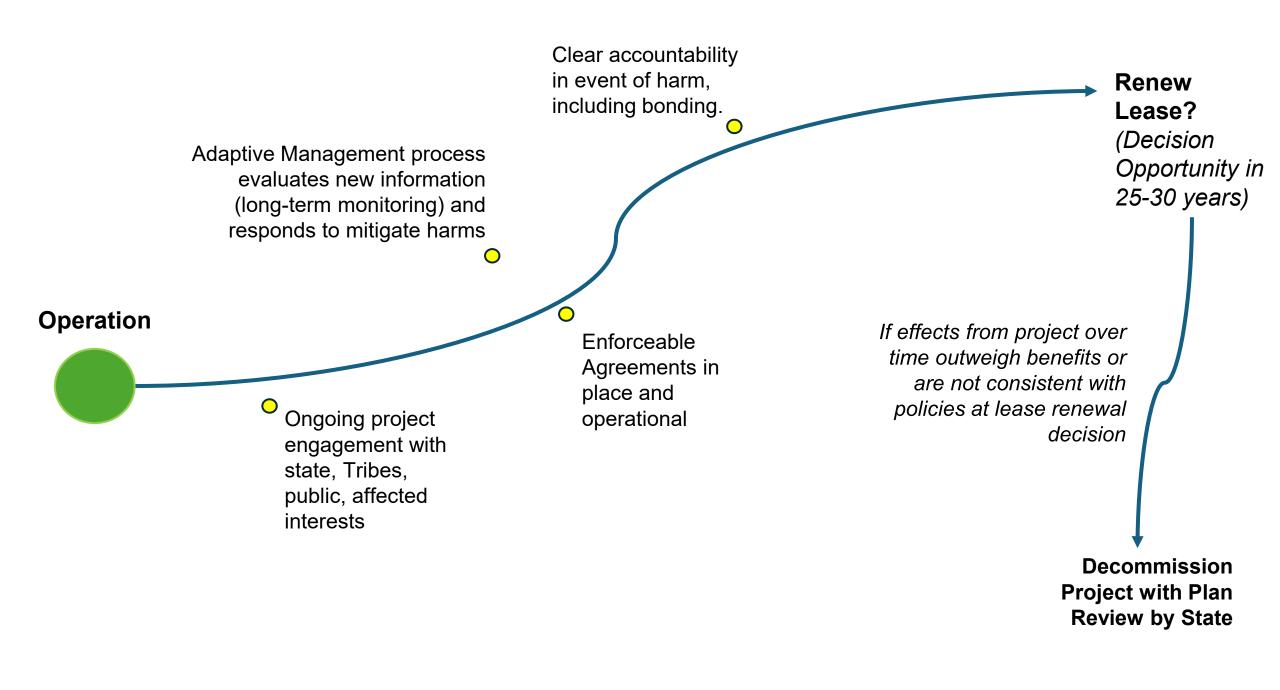
Other Opportunities to Consider:

Contracting with local maritime and coastal businesses for services

Final project designs remain consistent with state policies (otherwise conduct supplemental review)



Construction



Roadmap Guideposts

"I do think wind's a viable way to go, but the community has to want it. We have to understand what it means."

"We've also talked about building a West Coast procurement infrastructure so we can get the materials and things that actually go into making these windmills available."

"This is probably a 10-year horizon. We haven't even had a lease, looking at what they've done in Europe and on the East coast but by 2035, we really could use that extra option for new renewable energy and I think we should continue to pursue it."

-Governor Tina Kotek





Stay Tuned with the Roadmap effort

- DLCD's public engagement on the Roadmap continues this summer
- Sign up for DLCD's Offshore Wind Energy Roadmap Listserv
- Attend a Roadmap Roundtable meeting or provide public comment
- Full Roadmap will be open for public comment next year







Meeting Survey

This QR code will send you to a short survey that gives you a way to tell us what should be in the Offshore Wind Roadmap.

URL for survey:

https://www.surveymonkey.com/r/DLCDOSW





Your Turn!

- Ask questions live or write on the provided slips.
- Sign up to get in the line to ask a question.
- We will call on you when it is your turn to speak.
- Provide your full name and affiliation before you speak
- When providing comments or questions, please:
 - Respect time limits as assigned.
 - Use respectful language.



