

# **Winds of Change: Realizing our Clean Energy Goals with Offshore Wind Development**

Assembly Utilities & Energy Committee

Informational Hearing

8.14.2024 | 1:30PM



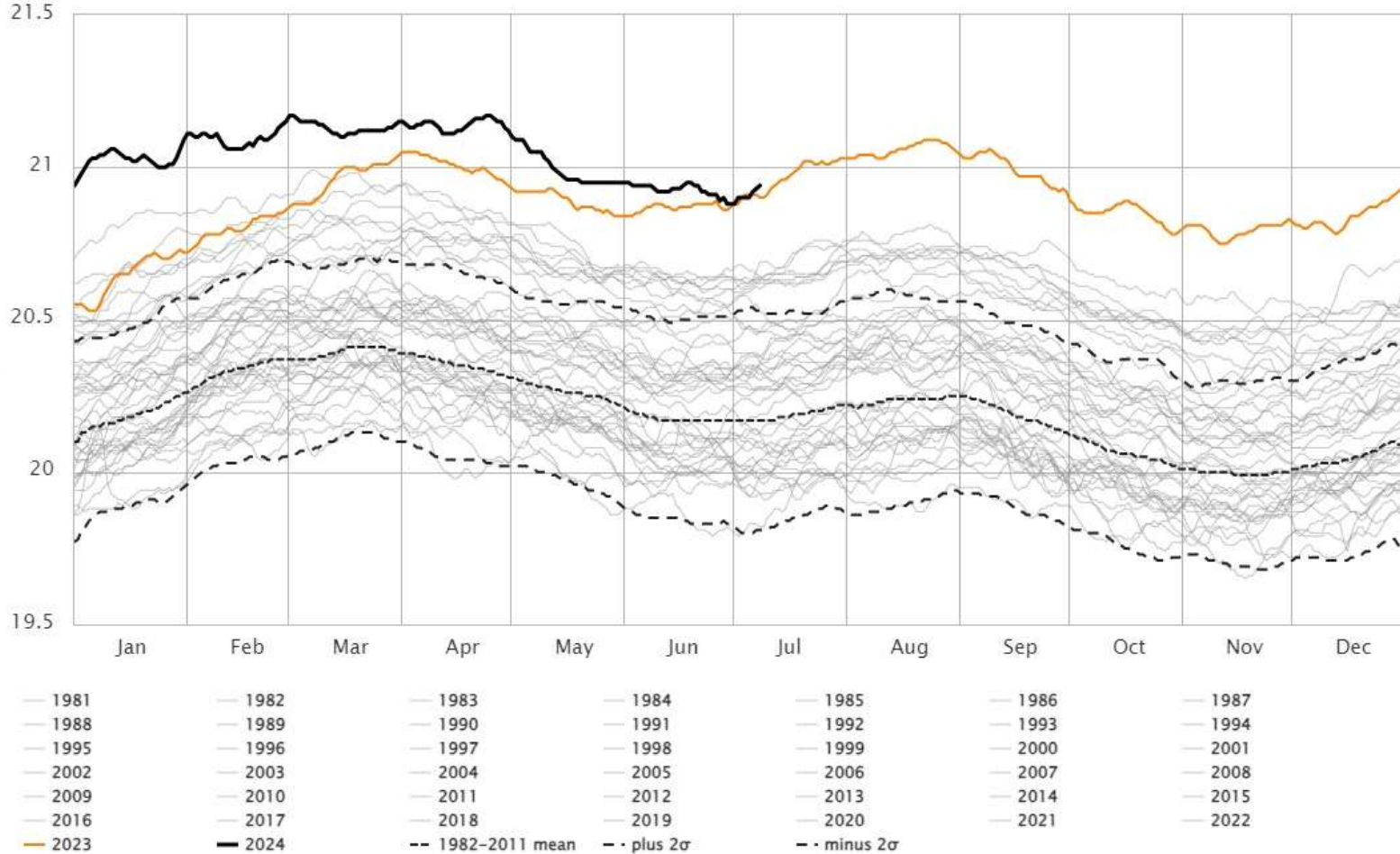
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Source: NOAA / University of Maine  
[https://climateresearcher.org/clim/sst\\_daily/](https://climateresearcher.org/clim/sst_daily/)  
 Data as of July 8, 2024

## Daily Sea Surface Temperature, World (60°S–60°N, 0–360°E)

Dataset: NOAA OISST V2.1 | Image Credit: ClimateReanalyser.org, Climate Change Institute, University of Maine

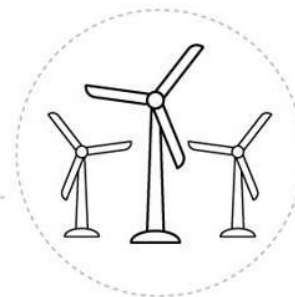


- **Climate change** is a primary context for offshore wind development.
- Global temperatures are “shattering records.”





# California Offshore Wind Goals



**5 GW**

By 2030

**25 GW**

By 2045



Enough electricity to power 3.75-25 million homes

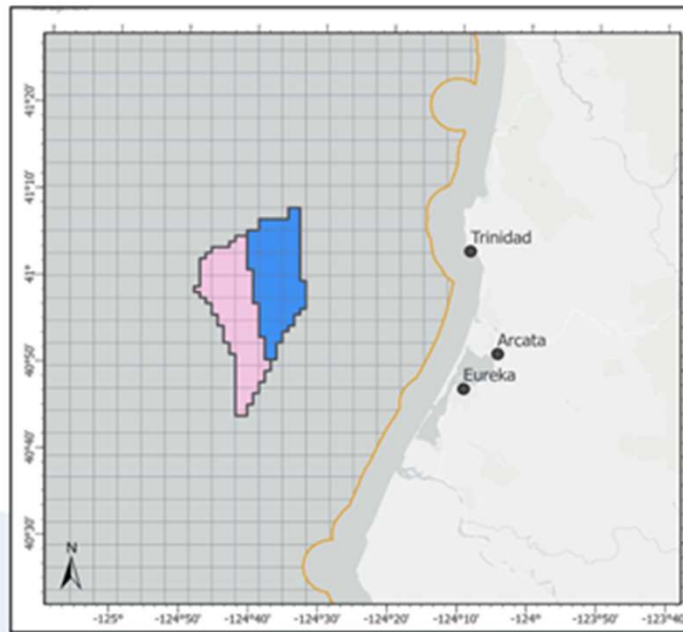




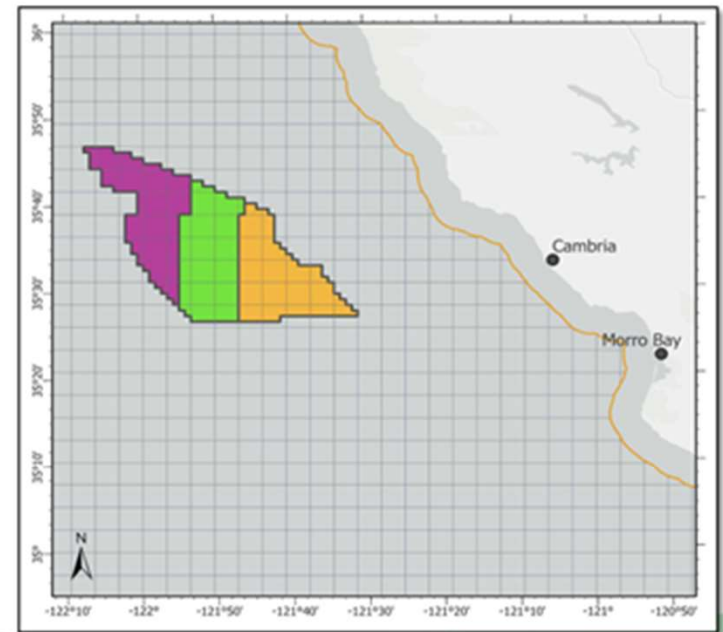
# BOEM Wind Lease Areas

- Auction in December 2022
- Leases signed in June 2023
- Survey plans developing

**Two (2) Leases in Humboldt**  
RWE & Vineyard Wind



**Three (3) Leases in Morro Bay**  
Equinor, Golden State Wind, & Invenergy

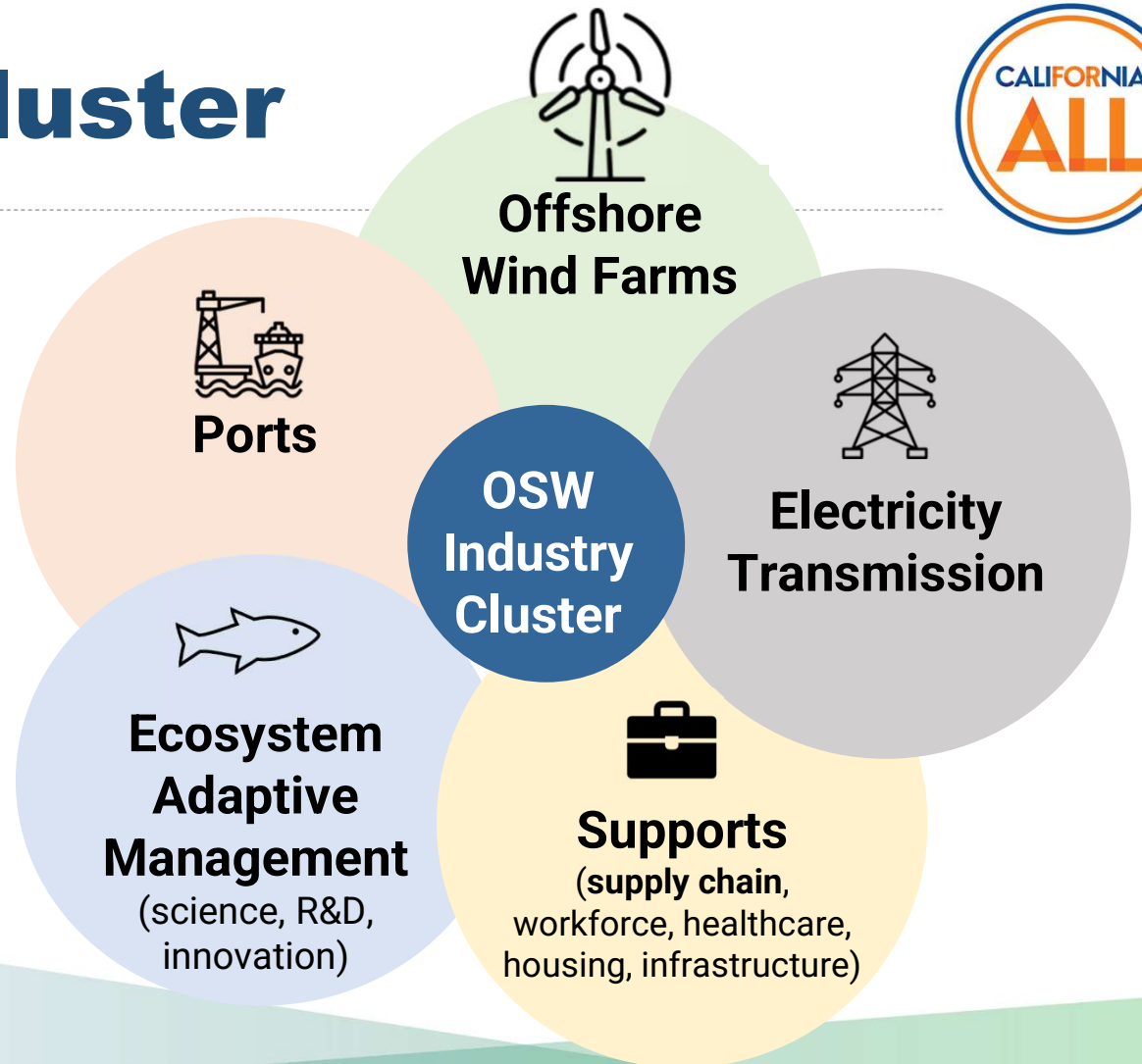


Source: BOEM, 2022

# OSW Industry Cluster



- Policy / Planning
- Leasing and Permitting
- Finance / Procurement
- Construction / Commissioning
- Operations & Maintenance
- Decommissioning
- State, regional, and tribal participation
- For state agencies and OSW development regions, multiple regulatory and economic development processes underway simultaneously





# OSW Potential Value Propositions

- **Diversify CA (and Western U.S.) clean energy mix for increased reliability** – OSW balances solar energy at night and in winter; may help with grid stress events in Western U.S. heat domes and more regional heat storms.
- **GHG reductions:** offshore / onshore wind has **~3 percent of** CO<sub>2</sub>e emissions per unit of electricity generated compared to natural gas.\*
- **Equitable socio-economic benefits** – skilled and trained high-road jobs, supply chains, safety
- **Improved ports** – lower pollution, higher compatibility for users and communities
- New and expanded electric **transmission** designed for **energy equity benefits** and multiple uses (e.g., reliability, port electrification etc.)
- **Innovation, science, research** opportunities – new technologies, systems optimization; part of permitting, cost reductions, regional / state economic growth
- Infrastructure designed for **enhanced compatibility** (e.g., green ports, ecosystem adaptive management, military activities, shipping, tribal and commercial fisheries)



Fixed turbines ~1/2 mile apart at Block Island Wind Farm, RI. Source: <https://tethys.pnnl.gov/wind-project-sites/block-island-wind-farm>

\* Source: National Renewable Energy Laboratory “*Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update.*” [2021]: <https://www.nrel.gov/docs/fy21osti/80580.pdf> Accessed 4.9.2024.



# OSW Potential Effects

- Lack of capacity for permitting and processes in offshore wind regions
- Calls for more science to understand effects
  - Potential species impacts
    - e.g., salmonids, sturgeon, lamprey, whales, other marine mammals, birds, bats
  - Upwelling, secondary entanglement, electromagnetic fields, noise
- Community safety concerns
  - Missing and Murdered Indigenous People (MMIP)
  - Increased air pollution
  - Heavy marine industry in new regions
- Tribal Nations cultural resources
- Exploitation of resources and inequitable benefits
  - Regional, rural, and tribal participation in the socio-economic upsides of green infrastructure development



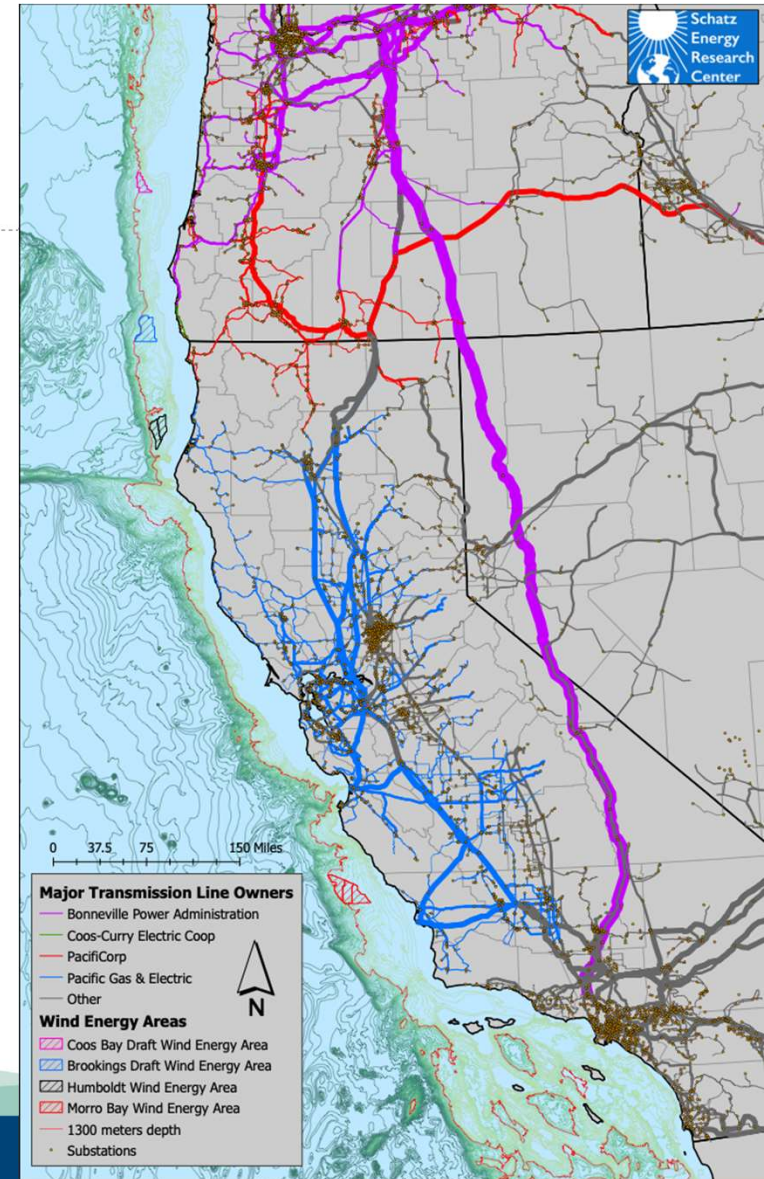
Hoary Bat flying in the Humboldt Wind Energy Area on October 3, 2022.

SOURCE: Will Kennerley, Oregon State University  
<https://today.oregonstate.edu/news/oregon-state-university-researchers-are-first-see-risk-bat-flying-over-open-ocean>

# OSW Activities Snapshot



- Adopted AB 525 Offshore Wind Energy Strategic Plan (July 2024)
- Approved CAISO 23-24 Transmission Plan & 2024 Transmission Outlook
- Port development activities underway (e.g., Humboldt Bay, Long Beach, others)
- CEC OSW Waterfront Facility Improvement Program (\$45M) (AB 209, 2022)
- Second-phase Port Development Plan (due by Dec. 2026) (AB 3, 2023)
- Several wind developer surveys are underway; wind developer semi-annual progress reports posted on BOEM's website
- Ecosystem adaptive management activities, e.g., FY24/25 budget \$3.6M for Comprehensive Environmental Monitoring and Research Program led by OPC
- Workforce / supply chain development – Supply Chain Report, 50-65% in-state assembly/manufacturing (due by Dec. 2027) (AB 3, 2023)
- CA Public Utilities Commission (AB 1373, 2023) – establishment of the Central Procurement Entity option at the Dept. of Water Resources for long-lead time, diverse, clean energy resources, including offshore wind energy projects





# OSW Outlook



- Implementation of AB 525 Offshore Wind Energy Strategic Plan
- BOEM PEIS
- Coordinated Permitting
  - Model based on Desert Renewable Energy Conservation Plan
    - Renewable Energy Action Team / Renewable Energy Policy Group
    - State / federal / tribal governments and agencies
  - Others, e.g., federal FAST-41
- CA Round 2 Wind Energy Area Auction Planning
  - Led by BOEM, auction estimated for 2028
- Supply chain / workforce development collaborations
- Tribal initiatives, regional partnerships

Map source: AB 525 Offshore Wind Strategic Plan

