Building Capacity and Knowledge for Responsible Ocean Energy in California

Briefing Handout

As Californians experience the impacts of a warming planet – from devastating wildfires and prolonged droughts to rising sea levels – policymakers are increasingly turning towards ocean-based renewable energy. Ocean energy development will require significant advancements in research and expertise to navigate the unique environmental and technological challenges of harnessing power from the sea. Collaboration between academic institutions, policymakers, tribes, and industry will be essential for sustainable and equitable development. This discussion will delve into California's potential role in advancing capacity and knowledge for responsible ocean energy innovation, even while federal action is uncertain.

Policy Context

In the last five years, state and federal actions on ocean energy in California focused on floating offshore wind energy, with some policy advances on wave and tidal energy. California's deep offshore waters preclude the use of fixed-bottom wind turbines, which are in operation on the US East Coast and worldwide. Instead, offshore wind on floating platforms, a newer technology with limited global deployment, is planned primarily in federal waters.

State policy sets energy goals for 5 GW by 2030 and 25 GW by 2045 from offshore wind energy, which is enough to power 25 million homes.¹ In 2022, under the Biden Administration, the Bureau of Ocean Energy Management (BOEM) awarded five leases in the Morro Bay and Humboldt wind energy areas (see image). A site assessment process is underway for the current lease areas. Additional BOEM leases will be required to meet State goals. In 2024, the California Energy Commission (CEC) released a strategic plan for offshore wind energy, per AB 525.¹ This coming summer, State activities are expected to ramp up to meet AB 1373, which authorizes central procurement, or purchasing, of offshore wind energy among other provisions. Proposition 4, the 2024 climate bond, authorizes



BOEM Lease Areas off Humboldt Bay and Morro Bay. (Credit: Figure modified from BOEM)

the State to spend \$475 million on port infrastructure changes related to offshore wind energy. The CEC is also leading work evaluating wave and tidal energy to meet mandates set by SB 605.

Emerging Capacity & Knowledge Development in California

New collaborations and initiatives seek to train a new ocean energy workforce, develop science guidance for monitoring, and synthesize research for the public, including*:

- The Pacific Offshore Wind Consortium, a joint effort between the Schatz Energy Research Center at Cal Poly Humboldt, the Pacific Marine Energy Center at Oregon State University, and the Center for Coastal Marine Sciences at Cal Poly San Luis Obispo, seeks to advance research and innovation, university-level workforce education and professional development, and community and Tribal engagement and knowledge exchange.
- A collaboration between Cal Poly Humboldt, the Yurok Tribe, and College of the Redwoods seeks to train a local workforce for the proposed development of floating offshore wind projects along California's North Coast.
- The High Road Training Partnership Offshore Wind Tribal Apprenticeship / Pre-apprenticeship Program, a job training program in San Luis Obispo County associated with the CADEMO project, an offshore wind energy pilot in state waters.
- The California National Marine Sanctuary Foundation, California Ocean Protection Council, and Cal Poly San Luis Obispo are developing a roadmap for comprehensive environmental monitoring guidance for offshore wind.
- Resources synthesizing research on offshore wind to address frequently asked questions about offshore wind energy and its impacts are available from California Sea Grant and the California Ocean Science Trust² (see QR code), among others.



*This list is not exhaustive. Please share additional efforts during discussion.



Sources

1. (2024, April 10). CEC Adopts Offshore Wind Energy Strategic Plan to Support California's 100% Clean Electricity Future. California Energy Commission. Retrieved April 21, 2025, from https://www.energy.ca.gov/news/2024-07/cec-adopts-offshore-wind-energy-strategic-plan-support-californias-100-clean

2. (n.d.). The Potential Impacts of Floating Offshore Wind in California. California Ocean Science Trust. Retrieved April 21, 2025, from https://www.oceansciencetrust.org/projects/windfactsheets/