

The Power of Offshore Wind



What is Offshore Wind?

Offshore wind power is electricity generated from wind turbines in a body of water, usually in the ocean at depths of less than 200 feet. While fixed offshore wind turbines are built into the seabed on the East Coast, engineers are developing floating turbine platforms that could be installed in deeper waters at scale by 2050, unlocking more energy potential on the West Coast. According to the U.S. Department of Energy, offshore wind has the technical potential to provide more than 2,000 gigawatts (GW) of power, considering land use, technology, and environmental exclusions. This is almost double the annual electricity used in the United States. Even 1% of offshore wind's technical potential could power nearly 6.5 million homes across the country.¹

Offshore and Onshore Wind

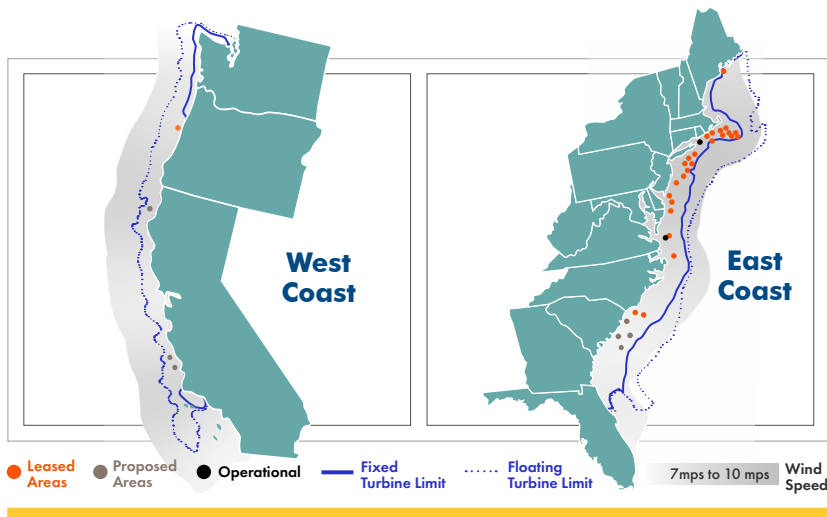
While both offshore and onshore wind are critical for a successful clean energy transition, there are key logistical differences. For instance, offshore wind is closer than onshore wind to the people who use it because most of the U.S. population reside on the coasts.

OFFSHORE WIND	ONSHORE WIND
Current Capacity: 0.042 GW	Current Capacity: 121.955 GW*
Larger, more costly components; costly installation	Smaller, less-expensive components
Taller turbines in the ocean capture more energy	Shorter turbines capture less energy
Steadier and stronger winds generate more consistent power, including through the night	Intermittent capacity because wind is not consistent on land
Transmission lines buried under ecologically sensitive seabeds	Transmission lines often built to carry power from rural to urban areas

Housed in the U.S. Department of Interior, the **Bureau of Ocean Energy Management (BOEM)** is a federal agency tasked with managing the energy and mineral resource development on the U.S. outer-continental shelf. In 2021, BOEM approved the nation's first two commercial-scale offshore wind projects: the 800 MW Vineyard wind project off the coast of Rhode Island, as well as the 130 MW South Fork Wind project off the Massachusetts coastline. Both of those projects are under construction now and will be built with union labor. BOEM plans to hold up to seven more offshore wind energy lease sales by 2025.

*U.S. Department of Energy (2021), *Land-Based Wind Market Report: 2021 Edition Released*.

Mapping Offshore Wind



Companies in the Gulf Coast and coasts of Hawaii, Alaska, and the Great Lakes are also considering and developing offshore wind farms. This map reflects the state of leases in mid-2022. The maximum distance for fixed and floating offshore wind turbines from the shore are depicted according to ocean floor depth.

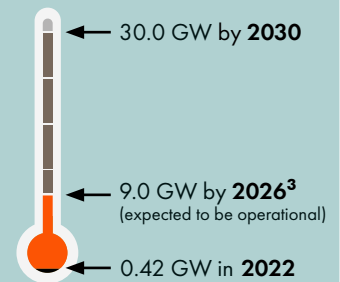
Despite strong winds, the offshore wind energy in the West Coast is largely limited due to 1) reserved ocean space for military bases and wildlife sanctuaries and 2) steeper, sudden increases in ocean floor depth up to 13,000 feet. Floating offshore wind turbine platforms could pose a new route to utilizing West Coast energy potential.

Federal Offshore Wind Goals

The federal government has set a goal to deploy 30 gigawatts (GW) of offshore wind by 2030, which would:

- Create billions of dollars a year in capital investments.
- Create thousands of good-paying jobs on project sites and in the supply chain.
- Power millions of American homes.
- Avoid 78 millions of metric tons of CO₂ emissions—the equivalent of nearly 80 coal-fired power plants in one year.²

State of Operational U.S. Offshore Wind



How to Make Offshore Wind Sustainable

- Coordinate transmission lines and energy storage upgrades.
- Recycle and reuse end-of-life blades for other manufacturing applications.
- Site projects responsibly, particularly as they effect local communities and wildlife.
- Develop domestic, environmentally conscious sources of critical metals and minerals.

How to Make Offshore Wind Equitable

- Build a union-made, domestic supply chain.
- Foster equity and justice in related policy.
- Create good-paying jobs with high-road labor standards.
- Work alongside local communities from the start.

Project Labor Agreements (PLAs) are collective bargaining agreements between trade unions and contractors that govern terms and conditions of employment for all craft workers—union and nonunion—on a construction project. They protect taxpayers by eliminating costly delays due to labor conflicts or shortages of skilled workers.

References:

1. U.S. Department of Energy (2016), "Computing America's Offshore Wind Energy Potential."
2. The National Renewable Laboratory (2021), *Power Sector, Supply Chain Jobs, and Emissions Implications of 30 Gigawatts of Offshore Wind Power by 2030*.
3. Center for American Progress (2022), *The Road to 30 Gigawatts: Key Actions to Scale an Offshore Wind Industry in the United States*.