

ENVIRONMENT

# First-ever California offshore wind auction nets \$757 million



BY NADIA LOPEZ, DECEMBER 6, 2022 UPDATED DECEMBER 7, 2022



Three offshore wind turbines operate off the coast of Rhode Island. The first leases off California will be auctioned off today. Photo by Michael Dwyer, AP Photo

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## IN SUMMARY

Several dozen companies competed for leases to build massive floating wind farms in deep ocean waters off Morro Bay and Humboldt County. The auction was the first major step toward producing offshore wind energy off the West Coast.

The first-ever auction for leases to build massive wind farms off California's coast netted final bids of \$757.1 million today, signaling the beginning of a competitive market for a new industry producing carbon-free electricity.

The [auction](#) — the first on the West Coast — included [five sites](#) about 20 miles off Morro Bay and Humboldt County, totaling 583 square miles of deep ocean waters. The leases from the federal government are the first step in a years-long regulatory process that could culminate in the nation's first commercial-scale floating wind turbines off California's coast.

The results of the auction offer the first key signs for gauging how strong the market is for producing offshore wind energy off California.

The total amount — to be paid by five energy companies — was considerably smaller than the record-breaking [\\$4.37 billion that companies paid for six offshore wind leases off New York and New Jersey's coasts](#) in February. That was the largest amount ever paid for U.S. offshore energy leases — including for oil and gas. The funds are paid into the U.S. Treasury's General Fund.

While calling the lease sale a “huge success,” Adam Stern, executive director of Offshore Wind California, a trade group for the industry, said the lower lease sales could be due to the uncertainty companies may feel about offshore wind development on the West Coast. The lease area off New York/New Jersey also was 30% larger and will generate about 50% more electricity.

“Our state is not as far along in preparing for offshore wind in areas like port infrastructure, transmission and procurement policies,” Stern said.

[Forty-three](#) companies were eligible to bid on the leases offered by the U.S. Bureau of Ocean Energy Management, which oversees offshore energy and mineral projects. The winners were RWE Offshore Wind Holding, California North Floating, Equinor Wind US, Central California Offshore Wind and Invenergy California Offshore.

The offshore waters included in the auction have the potential to host several hundred turbines that produce more than [4.5 gigawatts to power about 1.5 million homes](#).

Offshore wind projects are considered critical to meeting California's goals to provide a new source of electricity, end reliance on fossil fuels and battle climate change.

The auction is "great news for California's offshore wind industry, workers, and electricity ratepayers," Stern said. "It's the most consequential milestone yet for the Golden State's efforts to make offshore wind a key part of its diverse clean energy future."

**"There's a lot of opportunities, but there's also some challenges... California has deeper waters than any other areas with these floating turbines so far in the world."**

— HABIB DAGHER, UNIVERSITY OF MAINE

Experts say construction is at least five to six years away, and an array of unknowns must first be addressed by the companies: the high costs of construction, the logistics of producing the energy and bringing it to shore, and the environmental risks to marine life and commercial fisheries.

"There's a lot of opportunities, but there's also some challenges," said Habib Dagher, executive director of the University of Maine's Advanced Structures and Composites Center, who is helping develop the first offshore floating wind turbines in the U.S.

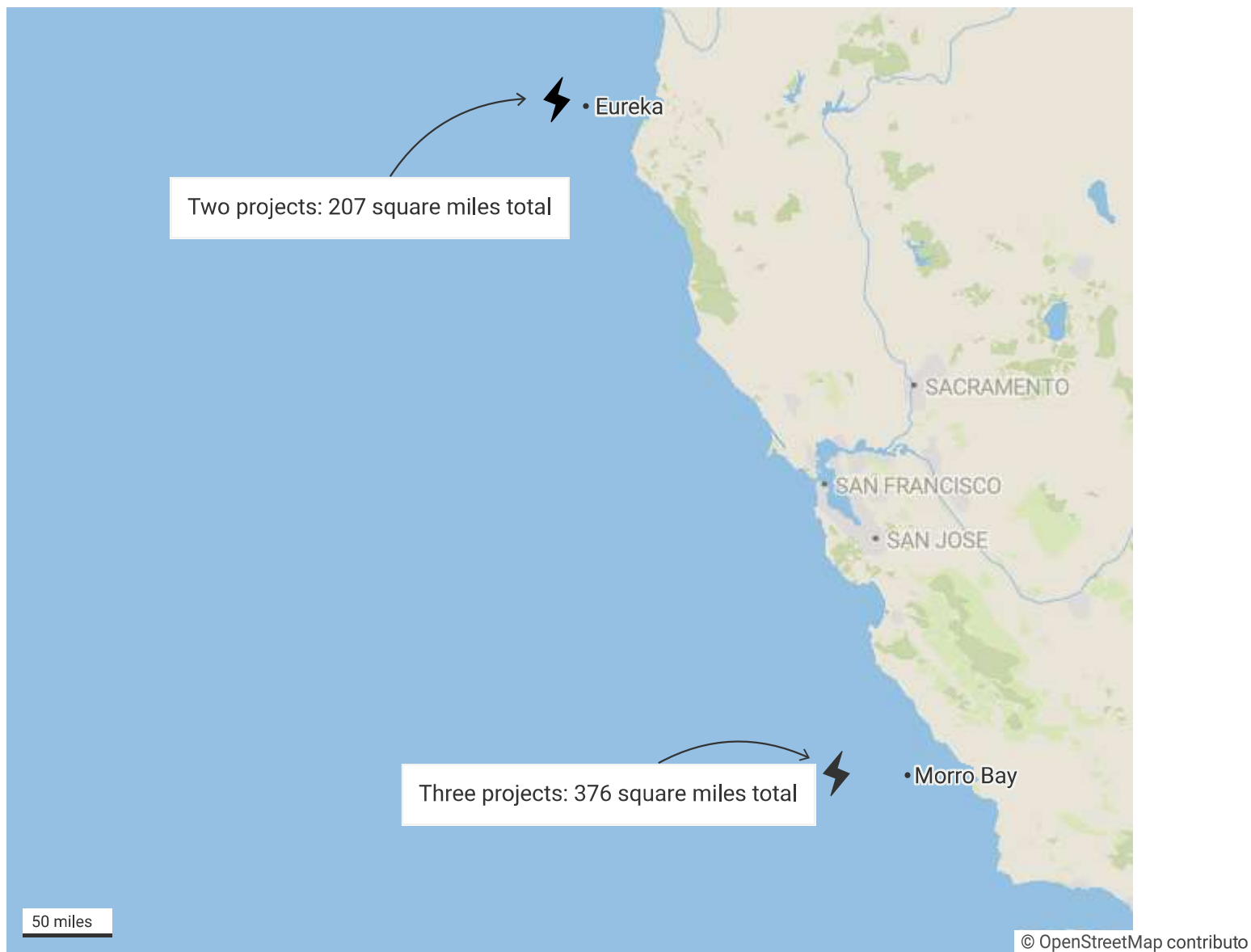
"California has deeper waters than any other areas with these floating turbines so far in the world," he said. "How do you protect the environment, protect local stakeholders, protect the fisheries, protect indigenous communities, while also speeding up permitting so we make a difference with global climate change?"

Unlike current offshore wind turbines fixed to the ocean floor off the East Coast, California's turbines — the first of their kind in the nation — would float on platforms anchored by cables in waters reaching about half a mile deep.

The turbines are hundreds of feet tall with blades that are bigger than a football field, but they would largely be out of sight from the shore, about 20 miles away. The Morro Bay lease area covers 376 square miles, while Humboldt's is 207 square miles.

## Offshore wind leases off California

The federal government will auction off leases for offshore wind production in 583 square miles of deep ocean waters off Humboldt County and Morro Bay. The areas, about 20 miles offshore, have the potential to produce more than 4.5 gigawatts to power about 1.5 million homes.



Map: John Osborn D'Agostino, CalMatters • Source: [Bureau of Ocean Energy Management](#) • [Embed](#) • [Download image](#) • Created with [Datawrapper](#)

The state's ambitious offshore wind targets build off President Joe Biden's 2021 pledge to deploy [30 gigawatts of offshore wind nationally by 2030](#). Gov. Gavin Newsom hopes to add between 2 to 5 gigawatts of offshore wind off California's coasts by 2030.

The state's ultimate goal is to produce at least [25 gigawatts from offshore wind sources by 2045](#) – the boldest commitment any state has made. That could supply electricity for 25 million homes.

“Offshore wind is a critical component to achieving our world-leading clean energy goals and this sale is an historic step on California’s march toward a future free of fossil fuels,” Newsom said in a statement. “Together with leadership from the Biden-Harris Administration, we’re entering a new era of climate action and solutions that give our planet a new lease on life.”

## **How do offshore wind farms work?**

[Offshore wind turbines work](#) similarly to land-based ones. Wind makes the turbine's blades spin around a rotor, which then turns a generator to produce electricity. The turbines send energy through cables under the seabed to an onshore substation, where the energy is converted to a higher voltage before being fed into the grid that provides electricity.

California’s offshore wind farms would be the first in the country constructed with floating platforms at a large scale. Europe has long been a leader in developing offshore wind technologies, including a few [existing floating offshore wind farms](#).

The U.S. hopes to soon become another world leader in developing the technology, said Dagher of the University of Maine.

“The U.S. still has an opportunity to lead in floating technologies,” he said. “But we need to move forward on the technology side and keep investing in research and development.”

The first offshore wind turbines in the U.S. are rooted to the sea floor in relatively shallow waters on fixed structures, which are unsuitable for deep waters. California’s floating turbines, however, will be located about 20 miles offshore and will need to be anchored by cables that reach to the ocean floor at depths of several thousand feet.

The federal government has held ten other competitive lease sales and issued 27 commercial wind leases in the Atlantic Ocean, spanning from Massachusetts to North Carolina, according to the U.S. Bureau of Ocean Energy Management.

The two U.S. offshore wind farms are capable of generating a combined 42 megawatts of electricity. The country’s first offshore wind project, off the coast of [Rhode Island](#), launched in 2016 with five turbines,

followed by a project in [Virginia](#) with two turbines. More projects are on the way, including off the coasts of [Massachusetts](#), [New York](#) and [New Jersey](#).

Building and operating the nation's new offshore wind industry will be worth \$109 billion to supply chain businesses over the next 10 years, [according to one report](#).

Costs for launching the projects have decreased by as much as 60% since 2010, according to a [July report](#) from the International Renewable Energy Agency. The [cost of producing the energy](#) in the U.S. averages about \$84 per megawatt-hour, more than most other types of energy, according to the U.S. Department of Energy.

### **Bigger and deeper carries more risks and higher costs**

Today's auction is just one of many steps in the permitting and construction of commercial offshore wind development off California. Developers must submit plans detailing the cost and scale of the wind farms before going through an extensive environmental review. That process could take five to six years before construction, which could take a couple more years, begins, said Stern of Offshore Wind California.

The companies will have to seek approval or permits from several state and federal agencies, including the California Coastal Commission.

The scale and size of the technology means California would need to rapidly build specialized port facilities and servicing vessels to construct and transport the gigantic turbines. To speed up deployment, he said it's critical that the state start now [investing in transmission and port infrastructure](#) and developing a clear roadmap on permitting and procurement.

**“We know that we have to do something different. Offshore wind is different. That being said, we're also acutely aware that there are impacts on communities.”**

— DAVID CHIU, FORMER ASSEMBLYMEMBER

Wind power tends to be stronger in the ocean than on land, making offshore wind a particularly valuable renewable energy source that could help the grid during times when other renewables like traditional

wind and solar can't produce energy.

Winds off the coast are strongest in the late afternoon and evening, which is exactly when – particularly in the summer – electricity demand surges as people go home and turn on appliances like air conditioners.

But several challenges exist with deploying the technology in deep ocean waters, including risks to marine life and concerns over natural disasters, such as earthquakes, said Dagher of the University of Maine.

The turbines off Eureka would be in waters 2,490 feet deep and for Morro Bay, 3,320 feet, he said. No project in the world exists in waters this deep. The deepest project to date is in Norway, in waters 721 feet deep, Dagher said.

“That adds costs and risk because no one's building anything this big or this deep yet,” he said.

At a [climate summit](#) hosted by the California Energy Commission on Monday, state leaders, public officials and companies gathered to discuss offshore wind deployment in California ahead of the lease sale.

San Francisco City Attorney and former Assemblymember David Chiu said the burgeoning industry could help grow the state economy by adding thousands of good-paying union jobs in multiple sectors and helping fossil fuel workers transition into renewables.

Chiu authored [AB 525](#), passed in 2021, requiring the state Energy Commission to establish offshore wind planning goals for 2030 and 2045 and develop a five-part strategic plan by 2023. He said strong workforce training programs and community benefit agreements, especially with Native American tribes, will be crucial to implementing the law. The potential impacts on commercial fisheries also must be considered.

“We know that we have to do something different. Offshore wind is different,” he said. “But that being said, we're also acutely aware that there are impacts on communities.”

The federal government will offer bidding credits for developers who enter into community benefit agreements and invest in workforce training or supply chain improvements in communities. Companies that develop offshore wind projects in California also will be required to enter into labor agreements and work with Native American tribes before beginning construction.

## Studying risks to dolphins, whales, fish and birds

While offshore wind is a climate-friendly resource, many environmental groups and researchers say floating wind turbines could pose environmental risks. Sea turtles, fish and marine mammals could become entangled in the cables, while birds and bats could get caught in the turbines, said Irene Gutierrez, an environmental attorney at the Natural Resources Defense Council.

“We want to make sure it’s done right,” she said. “There's a lot that we don't know about offshore wind in the West and what that means for various marine and coastal ecosystems.”

To reduce harm to these animals, Gutierrez said federal and state agencies, developers and researchers must work together to conduct more research and commit to regularly monitoring the effects on natural habitats once the projects launch.

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— IRENE GUTIERREZ, NATURAL RESOURCES DEFENSE COUNCIL

Brandon Southall, a scientist with the environmental group California Ocean Alliance and a research associate at UC Santa Cruz who studies the effects of noise on marine mammals, is performing a risk assessment on the lease areas for the federal government to assess how to avoid disruptions to endangered animals and noise-sensitive marine life.

“There’s a lot of uncertainty,” he said. “But there are a lot of tools that we have that are rapidly evolving, like listening and directional vector sensors to locate where animals are coming from, and we have some baseline data from other projects.”

He said the boats servicing and maintaining the turbines would pose some of the largest risks to dolphins and whales, which communicate over long distances and are sensitive to noise. To avoid being too disruptive to their communication patterns, Southall said the turbines should be installed with noise-reduction technology. Ship operators should also be required to follow a speed limit to avoid striking marine mammals, he added.



Despite the risks, Southall said they shouldn't derail efforts to deploy the clean energy source given the severity of the climate crisis. He said it's important that the federal and state governments develop a regulatory framework for companies to ensure they comply with environmental protections.

“I hope that when we're looking at these concerns about impacts, that we, as a scientific community and as a conservation community, don't lose sight of the fact that we need sustainable, alternative energy,” Southall said. “We need a balance of informed and conservative cautionary decision-making, but not so precautionary and so afraid of the uncertainty that we never get there.”

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