

# RECHARGE

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## 'This will set the bar' | All eyes on California for historic first US floating wind auction

An iconic image of a surfer off California - but will the state's floating wind sector see lift-off. Photo: Shutterstock



*ANALYSIS | As bumper 43 applicants line up, experts say milestone round is test for industry's risk appetite while industrialisation holds key to long term success*

By **Tim Ferry**

The US' flagship west coast deepwater wind auction set to kick off tomorrow (6 December) is the nation's most eagerly anticipated seabed leasing round since the New York Bight spurred a \$4bn-plus bidding bonanza, and marks the opening of a whole new frontier for the global floating sector.

The US government and the state of California will spur at least 4.6GW – and likely far more – of new capacity and a multibillion dollar investment wave, playing a huge role in the state's massive climate and renewable energy ambitions that include a near term target of 2-5GW by 2030 and 25GW by 2045.

Five lease zones spread across two separate wind energy areas (WEA) off Morro Bay in central California and Humboldt County in the north are to come under the hammer (*see graphic at foot*). The WEAs sprawl over some 373,000 acres of Pacific deepwater and hold a wind resource expected by the Bureau of Ocean Energy (BOEM), the lead regulator of energy development in federal waters, to generate enough clean power for 1.6 million homes.

The auction has attracted a **bumper 43 applicants** that includes international stalwarts, American newbies, and joint ventures across technology and project developers.

The leasing round begins 6 December at 0700 Pacific Standard Time (1000 Eastern Standard Time), with BOEM anticipating it may extend over several days. Bids start at \$6m and provisional winners will be announced at its conclusion, but the results may take several weeks before being certified.

But will that huge demand lead to a feeding frenzy such as was seen for fixed-bottom capacity in the **New York Bight**, where bids totalled \$4.37bn in February this year? Not necessarily, according to some expert commentators.

"Prices tend to be higher in states that have actual offshore wind mandates than in states where they're just supporting it," Walt Musial, National Renewable Energy Laboratory (NREL)'s head of offshore wind energy research, told *Recharge*.

New York and **New Jersey**, the two US states facing the New York Bight, have some of the nation's most aggressive legal targets. "In California, we don't see that mandate," said Musial.

California's mid-century floating goal leads the nation but is not legally mandated. The state does have aggressive decarbonisation mandates of 40% reduction in greenhouse gas emissions off 1990 baselines by 2030, and economy-wide carbon neutrality by 2045, but is technologically agnostic.

The state leads the US with 27GW of utility and residential solar, but this poses grid balancing challenges.

Musial said California understands that floating wind is going to be needed, "but to what degree is still in question." The state also lacks a clear pathway to market, as it doesn't have a central authority capable of organising procurement.

"These first few leases will set a bar for where things go," said Musial.

### Diverse range of bidders

California's floating auction has seen an unprecedented range of bidders, from industry stalwarts Orsted and Avangrid to oil supermajors TotalEnergies and BP and local energy consortiums new to the sector, such as Redwood Coast Energy Authority (*see panel*).

This “reflects both confidence in the direction of national and state energy goals [and] the knowledge that offshore wind has to be a significant part of the solution,” said Theodore Paradise, chief policy and legal officer in the US for Swedish floating wind developer Hexicon, which is also a qualified bidder.

Floating wind “is the perfect complement to solar to generate clean, reliable baseload power”, Jonah Margulis, senior vice president for offshore wind at Mainstream Renewables, told *Recharge*.

Scott Urquhart, CEO of research consultancy Aegir Insights, told *Recharge*: “Getting one of the first leases gives you a good foothold and positions you for many future options that might come your way.”

The auction is heavily focused on delivering local economic benefits, with 10% of the bid value available as community benefit agreements and 20% towards supply chain and workforce development, and those successful in obtaining lease options will need to invest in significant supply chain plans as well as bonuses directly to affected communities.

### **Port, transmission, and supply chain bottlenecks**

California needs substantial supply chain and port investment, without which successful leaseholders will face myriad challenges advancing their projects.

Marshalling ports are “absolutely necessary for projects to get built,” said Musial, but Morro Bay has no readily available port nearby, with the only harbour actively developing a floating wind programme at Humboldt Bay, nearly 500 miles (800km) away.

Joshua Singer, lead on offshore wind ports for engineering consultancy Moffat & Nichol, told a recent conference, “There are no other ports on southern California that can be readied in time.”

Morro Bay’s three leases hold around a gigawatt each, and any port capacity built in the vicinity would need to be shared, adding to the risk, said Musial.

Humboldt WEA, conversely, has existing transmission infrastructure to handle only some 150MW of offshore wind power, a tenth of its 1.5GW capacity potential.

**Floating wind plant in northern California would require \$5.3bn-\$8bn in high-voltage transmission lines**, according to the California independent system operator (Caiso), compared to only a single, 500kV substation for around \$110m for the central coast.

“They’re probably going to need more lease areas” to drive investment in the grid, Musial noted.

Supply chain investment is another question for the industry. The state has large-scale industrial ports at Long Beach and Los Angeles, but these are already bursting at the seams with logistics activity.

Building supply chain capacity instead of shipping components in from Asia or the US east coast could drive mass investment and jobs creation.

American Job Project sees GDP impacts from construction alone driving \$16.2bn to \$39.7bn in California, while the University of Southern California’s Schwarzenegger Institute estimates job gains from developing 10GW by 2040 totalling up to 195,000 job-years.

### CALIFORNIA FLOATING WIND AUCTION QUALIFIED BIDDERS

547 Energy  
 AEUG Offshore  
 Algonquin Power Fund (America)  
 Arevia Power  
 Avangrid Renewables  
 BP US Offshore Wind Energy  
 California North Floating  
 California Offshore Wind  
 Development  
 California South Floating  
 Castle Wind  
 Central California Offshore Wind  
 Cademo Corporation  
 Cierco Project Corporation  
 Clearway Renew  
 Corio OSW Investments  
 CPV Offshore Wind  
 EDF Renewables Development  
 EDPR Offshore North America  
 Equinor Wind US  
 Ferrovial Energy US  
 GW Offshore Wind  
 Hexicon USA  
 Ideol USA  
 Invenegy California Offshore  
 JERA Renewables NA  
 Marubeni Power International  
 Mission Floating Wind  
 Northcoast Floating Wind  
 Northland Power America  
 Orsted North America  
 Pacific Moon Offshore Wind  
 Pacific Offshore Wind  
 Redwood Coast Energy Authority  
 (RCEA)  
 Redwood Coast Offshore Wind  
 RWE Renewables Development  
 RWE Offshore Wind Holdings  
 Seaglass Offshore Wind I  
 Seaglass Offshore Wind II  
 Shell New Energies US  
 SSE Renewable North America  
 Offshore Wind  
 TotalEnergies Renewables USA  
 US Mainstream Renewable Power  
 wpd offshore Alpha  
 Source: Bureau of Ocean Energy  
 Management

### **'Global epicentre'**

Jason Folsom, vice president for renewables at Aker Solutions, told the *Recharge* Summit event in Washington, DC in November that California **could become “the global epicentre** for floating wind”. Still, the industry’s success will depend on cost reductions that are being challenged by surging inflation, rising interest rates, and relentless supply chain disruptions.

The Biden administration’s **Floating Wind shot** aims to not only see 15GW of capacity in deep waters off US coastlines but the levelised cost of energy (LCOE) slashed by 70% in that same time frame.

Musial said cost reductions depend on large-scale industrialisation on the same turbine platform.

“The industry needs to mature the platform that they’ve developed at the 15MW scale and optimise and industrialise around that point,” he said.

“We can gain huge cost reductions just through the industrialisation of one specific platform, the standardisation of those parts in serial production, and the learning that goes on at those levels,” he said.

California's floating auction map and leases on offer.  
Photo: Bureau of Ocean Energy Management

