



EXECUTIVE SUMMARY

Offshore Wind Industry Report to the California Public Utilities Commission

In March 2021, two leading trade groups, *Offshore Wind California* and *American Clean Power—California*, along with individual companies, worked together to prepare an update on progress and developments in the offshore wind power industry in response to questions from the California Public Utilities Commission (CPUC). Among the highlights are:

1. Globally, offshore wind is expanding rapidly as a reliable, competitively priced clean energy source.

More than 160 offshore wind farms are up and running worldwide and 26 more are under construction. Of these, 10 projects – in the deep waters off Scotland, Portugal, Spain, Norway, France, and Japan – use floating platform technology that would be deployed in California. Current offshore wind leaders are the U.K. (10.4 GW), Germany (7.7 GW), and China (7.1 GW). More than 7 GW of floating offshore wind projects are being planned globally, with the first utility-scale projects expected to be operational in 2024.

2. In U.S., offshore wind is taking off on the East Coast, with commitments to build 29 GW by 2035.

Leading U.S. state commitments to offshore wind power include New York (9.0 GW), New Jersey (7.5 GW), Massachusetts (3.2 GW), Virginia (5.2 GW), Connecticut (2.3 GW), Maryland (1.6 GW), Rhode Island (0.4 GW), and Maine (0.012 GW). Most East Coast projects are sited in shallow waters and use fixed-bottom foundations. At the end of 2019, the U.S. had 6.4 GW of offshore wind capacity under federal and state permitting with signed power offtake agreements – a threefold increase from the previous year.

3. Why offshore wind advocates are calling on California to set a minimum 10 GW goal by 2040.

A new report by the California Energy Commission, CPUC, and California Air Resources Board found that at least 10 GW of offshore wind will be needed to meet California's 100% clean energy goal by 2045 and would result in \$900 million in total resource cost savings in the state's clean energy portfolio. Ten GW is only a small fraction of California's 112 GW offshore wind technical potential. Industry experience confirms the importance of large state commitments and economies of scale to drive down price and spur market competition in offshore wind, which has proven effective in East Coast states and other markets. A 10 GW goal would position California as an offshore wind leader in the U.S. and Pacific Rim, and a natural hub for the supply chain, jobs and port facilities to deploy this renewable energy on the West Coast and beyond.

4. Floating offshore wind costs are declining rapidly, and reductions are expected to continue for the next decade.

Industry experts estimate that, globally, offshore wind's Levelized Cost of Energy (LCOE) will drop from \$110-175/MWh in 2019 to \$60/MWh in 2032, with the main drivers being bigger wind turbines and blades, optimization of substructures and logistics, and component manufacturing industrialization. In California, floating offshore wind costs are estimated to drop by 44% between 2019 and 2032 and reach \$53–\$64/MWh by 2032, while generating power at high net capacity factors ranging from 49-55 percent for sites off California's coast.

5. Building California's offshore wind will generate major energy, climate, and jobs benefits, but will take time – and thus planning needs to start now.

Deploying California's offshore wind power will require following federal and state permitting processes, governed by an array of laws, regulations and agency guidance. Many of these can be pursued concurrently, but they will take as many as 5-6 years to complete. So, it's time to get planning underway now.

6. It is also essential to begin planning for offshore wind transmission upgrades as soon as possible.

According to the California Independent System Operator (CAISO), California has 5-7 GW of existing interconnection capacity on the central coast, including from transmission at retired or soon-to-be-retired power plants, that could be deployed for offshore wind. Sites on the north coast will require new transmission to reach electricity load centers further south, via undersea or onshore cables. In both areas, it's crucial for the state to conduct the necessary transmission planning so that investment upgrades can be made soon.

7. Moving forward with offshore wind now can save California ratepayers \$3.6 to \$7.8 billion, thanks to a new investment tax credit.

In December 2020, Congress passed and the President signed an expansion of the investment tax credit for offshore wind for projects initiated by the end of 2025 and placed into service by 2035. This measure will reduce the LCOE for an initial 3-4 GW of offshore wind off the central California coast by 15-20% and save California ratepayers \$3.6 to \$7.8 billion over the life of the offshore wind farms.

8. California stands to benefit from big advances in offshore wind technology and research.

Offshore wind advances – including floating technology – are showing dramatic progress. By the time California projects are built, individual wind turbines will be at least 15 MW, which means the state will need fewer of them to generate large amounts of clean, renewable power. Undersea cables and substations are well-tested. What the industry needs most in California is comprehensive statewide planning toward a long-term, offshore wind deployment goal, and an auction schedule for leases of federal waters in the prime wind areas off the coast.