SENATE COMMITTEE ON ENERGY, UTILITIES AND COMMUNICATIONS
Senator Steven Bradford, Chair
2023 - 2024 Regular

Bill No:	AB 3	**Hearing Date:**	6/20/2023
Author:	Zbur		
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Urgency:	No	**Fiscal:**	Yes
Consultant:	Nidia Bautista		

SUBJECT: Offshore wind energy: reports

DIGEST: This bill requires the California Energy Commission (CEC), by December 31, 2026, to develop a second-phase plan and strategy for seaport readiness that builds upon the recommendations and alternatives in the strategic plan for offshore wind (OSW) energy developments that is due to the Legislature by June 30, 2023. The bill also requires the CEC to conduct a study, by December 31, 2027, on the feasibility of achieving specified in-state assembly and manufacturing and federally specified domestic content thresholds.

ANALYSIS:

Existing law:

1) Establishes the 100 Percent Clean Energy Act of 2018 as a policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers by December 31, 2045. Requires the California Public Utilities Commission (CPUC), State Energy Resources Conservation and Development Commission (Energy Commission(CEC)), and California Air Resources Board (CARB) to, as part of a public process, issue a joint report to the Legislature by January 1, 2021, and every four years thereafter, that includes specified information relating to the implementation of the policy. (Public Utilities Code §454.53)

2) Establishes the California Renewable Portfolio Standard (RPS) Program which requires investor-owned utilities (IOUs), publicly owned utilities (POUs), community choice aggregators (CCAs), and energy service providers (ESPs) to increase purchases of renewable energy such that they each procure a minimum quantity of electricity products from eligible renewable energy resources, as defined, so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieves 25 percent of retail sales by December 31,

2016, 33 percent by December 31, 2020, 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. (Public Utilities Code §§399.11, 399.13, 399.15, 399.30)

3) Establishes a chapter on OSW generation that requires the CEC to:

   a) Develop, in coordination with relevant federal, state, and local agencies, a strategic plan for OSW energy developments installed off the California coast in federal waters, and requires the CEC to submit the strategic plan to the Natural Resources Agency and the Legislature on or before June 30, 2023. (Public Resources Code §25991)

   b) Evaluate and quantify, on or before June 1, 2022, the maximum feasible capacity of OSW to achieve reliability, ratepayer, employment, and decarbonization benefits and to establish megawatt (MW) OSW planning goals for 2030 and 2045. (Public Resources Code §25991.1)

   c) Work, in coordination with specified state entities, with stakeholders, other state, local, and federal agencies, and the OSW energy industry to identify suitable sea space for wind energy areas in federal waters sufficient to accommodate those OSW planning goals. (Public Resources Code §25991.2)

   d) Develop a plan, in coordination with relevant state and local agencies, based on those identified sea spaces, to improve waterfront facilities that could support a range of floating OSW energy development activities. (Public Resources Code §25991.3)

   e) Assess, in consultation with specified state entities, the transmission investments and upgrades necessary to support those OSW planning goals. (Public Resources Code §25991.4)

   f) Develop and produce a permitting roadmap that describes timeframes and milestones for a coordinated, comprehensive, and efficient permitting process for OSW energy facilities and associated electricity and transmission infrastructure off the coast of California. (Public Resources Code §25991.5)

4) Repeals the chapter on OSW generation on January 1, 2027. (Public Resources Code §25991.8)

5) Requires the CPUC and the CEC to undertake various actions in furtherance of meeting the state's clean energy and pollution reduction objectives. (Public Utilities Code §400)

6) Defines a "renewable electrical generation facility" to include a facility that uses wind and any additions or enhancements to the facility using that technology. (Public Resources Code §25741)

7) Establishes, as part of the Warren-Alquist State Energy Resources Conservation and Development Act, the CEC and grants the CEC the exclusive authority to certify any stationary or floating electrical generating facility using any source of thermal energy, with a generating capacity of 50 MW or more, and any facilities appurtenant thereto. (Public Resources Code §25000 et seq.)

8) Authorizes the United States Secretary of the Interior, in consultation with other federal agencies, with the granting of leases, easements, or rights-of-way on the outer Continental Shelf for offshore energy development. (Energy Policy Act of 2005, 42 U.S.C. §388)

This bill:

1) Requires the CEC, in consultation with the State Lands Commission, to develop a second-phase plan and strategy for seaport readiness that builds upon the recommendations and alternatives in the strategic plan for OSW energy developments.

    a) Requires the CEC to make a draft report, with recommendations for implementation of a port development strategy, available for public review and comment for at least 60 days.

    b) Requires the CEC to submit a final report on the second-phase plan and strategy to the Governor and the Legislature on or before December 31, 2026.

    c) Requires the CEC to take specified actions for purposes of the second-phase plan, including:

        i) Propose priority seaport locations for OSW turbine assembly to serve Central Coast and North Coast OSW energy projects.

ii) Recommend alternatives only with sufficient landside and water acreage or capacity to support maximum in-state assembly and manufacturing of OSW energy components.

iii) Identify ports that maximize in-state workforce opportunities.

iv) Consider transportation and other infrastructure investments needed to develop seaports.

v) Collaborate with tribal governments to minimize impacts to natural and cultural resources and maximize economic benefits to tribal governments.

vi) Consult with key stakeholders, including environmental and environmental justice organizations, fisheries groups, labor unions, ratepayer advocates, wind energy developers, and others, to develop appropriate seaport siting criteria that satisfies specified criteria, including minimizes adverse impacts to cultural and natural resources and maximizes local and in-state economic and workforce benefits.

2) Requires the CEC to conduct a study on the feasibility of achieving 70 percent and 85 percent in-state assembly and manufacturing of OSW energy projects and the federal domestic content thresholds for OSW energy projects as part of the tax incentives provided via the federal Inflation Reduction Act (IRA). Authorizes the CEC to coordinate with the Governor's Office of Business and Economic Development for purposes of the study. Requires the CEC to submit a report on the study to the Governor and the Legislature on or before December 31, 2027, and include, among its provisions:

a) Requires the study to assess current manufacturing capabilities within California that are suitable to support the OSW energy supply chain.

b) Identify gaps in the current supply chain and workforce for achieving the domestic content thresholds specified in the federal IRA.

c) Identify supply chain and workforce investments needed by the state.

d) Study and evaluate any potential impacts to ratepayers.

e) Identify federal and state funding.

f) Coordinate with tribal governments and consult with various stakeholders (fisheries, environmental justice, labor unions, and other groups).

3) Repeals these provisions, including the existing law provisions in the chapter on OSW generation, on January 1, 2031.

Background

Offshore Wind (OSW) potential. As of 2019, almost six gigawatts (GW) of installed wind capacity was generating in the state, the fifth largest amount of wind capacity in the United States, with all of it generated from land-based systems. Although California has no commercial OSW generation, the National Renewable Energy Laboratory has identified 200 GW of OSW technical potential for California. However, approximately 96 percent of this potential is located in water deeper than 60 meters, where the mature, fixed-bottom turbine technology is not technically feasible. Wind turbines are composed of: rotating turbine blades, the wind turbine tower or mast**,** and the nacelle (the 'head' of the wind turbine mounted on top of the support tower)**.** Floating turbines employ mooring (cabling) and an anchored substructure underwater which steadies a platform holding the wind turbine above water. The use of cabling to anchor the turbine allows floating platforms to operate at depths between 60 and 1,300 meters.

Off the coast of California, a steep continental shelf and increased wind speeds combine to make floating turbines the primary technically feasible option. Depending on the type of floating structure, some assembly of floating turbines may need to occur offshore, requiring naval cranes and vessels to stabilize such operations, and port infrastructure and specific port water depths. In contrast, most of the development of OSW globally has occurred via fixed turbine technologies where the turbines are anchored to the seabed through a solid foundation. Fixed foundations typically exhibit a maximum usable water depth of 50 to 60 meters; beyond this depth, fixed wind designs are generally not economically or technically feasible. Due to the water depth in areas with high ambient winds, much of the OSW energy projects serving California are likely to be composed of very large floating wind turbines (as tall as the Eiffel Tower) anchored to the sea floor in federal waters offshore. These projects will include components in state waters, such as cables transporting the energy onshore, vessels navigating state waters to serve the projects, and docking and support facilities onshore.

Nearly all OSW project proposals in the United States are sited in federal waters – which start three nautical miles from shore out to 200 nautical miles – and fall under the jurisdiction of the federal Bureau of Ocean Energy Management

(BOEM). In total, BOEM has designated 13 active call areas in the United States. Call areas are regions of the ocean designated by BOEM as potential areas for OSW development. In California, BOEM identified three call areas in 2018 as potentially suitable for OSW energy leasing: the Humboldt Call Area, the Morro Bay Call Area, and the Diablo Canyon Call Area. While there is a significant potential for OSW development off the California coast, considerable barriers remain. Among the challenges are significant transmission requirements and competing coastal uses, including shipping, fishing, recreation, marine conservation, cultural uses, and Department of Defense operations.

SB 100's Joint Agency Report. SB 100 (De León, Chapter 312, Statutes of 2018) established a target for renewable and zero-carbon resources to supply 100 percent of retail electricity sales by 2045 and includes a requirement for a Joint Agency Report as a first step to evaluate the challenges and opportunities in implementing SB 100. OSW was included as part of the core scenario in the *2021 SB 100 Joint Agency* report. The OSW system availability was limited to 10 GW over four resource zones: Morro Bay, Diablo Canyon, Humboldt Bay, and Cape Mendocino. The model was given an input assumption of 2030 as the first available year for bringing OSW online, given the current California Independent System Operator interconnection queue and resource development needs of OSW, with costs for the different zones estimated between $69 and $82 per MW hour (MWh) for 2030. Given these input assumptions, nearly all 10 GW of OSW was selected when made available in the model, but this selection only occurred after 2035, regardless of the scenario, and the full 10 GW was selected only in 2045. OSW energy generation is projected to be an important component of the state's efforts to decarbonize energy generation and to achieve carbon neutrality by 2045, particularly as OSW can be a more stable and complementary resource to help integrate with variable renewable energy resources.

In December 2022, the BOEM held a wind energy auction for five leases off the coast of California. This was the first federal OSW energy area lease in the Pacific. The leases sold for $757.1 million and covered 373,268 acres located approximately 20 miles offshore of central (San Luis Obispo County) and northern (Humboldt County) California. These lease areas have the potential to generate up to 4.6 GW of OSW energy.

AB 525 (Chiu, Chapter 231, Statutes of 2021). AB 525 required several actions to support the development of OSW in California, including a requirement that the CEC propose targets for OSW energy generation off the coast of California. In August 2022, the CEC released ambitious targets, including a goal of two to five GW installed by 2030 and 25 GW by 2045. AB 525 also requires the CEC to

develop a strategic plan in preparation for advancing the development of OSW on the coast of California. Relevant to the proposals in AB 3, the strategic plan is due to the Legislature June 30, 2023 and is required to include five chapters, including one on the economic and workforce development and identification of port space and infrastructure. The requirements of this chapter of the strategic plan are detailed in Public Resources Code §25991.3, and include:

- Development of a plan to improve waterfront facilities that could support a range of floating offshore wind energy development activities, including construction and staging of foundations, manufacturing of components, final assembly, and long-term operations and maintenance facilities.

- An analysis of the workforce development needs of the California offshore wind energy industry, including occupational safety requirements, the need to require the use of a skilled and trained workforce to perform all work, and the need for the Division of Apprenticeship Standards to develop curriculum for in-person classroom and laboratory advanced safety training for workers.

As of the writing of this analysis, the CEC has not issued the strategic plan that is due by June 30th. The CEC has published interim reports, on a permitting roadmap and the *Preliminary Assessment of the Economic Benefits of Offshore Wind Related to Seaport Investments and Workforce Development Needs and Standards*. The report noted the largest economic benefits for California from an OSW industry would be realized with the development of a local supply chain where OSW components such as floating platforms, towers, mooring lines, and anchors could be manufactured in-state. To encourage development of a local supply chain, a sufficient OSW pipeline needs to be identified to provide confidence in the market and support early investment. However, the report stated:

> Due to the proximity to offshore wind farms and local communities, seaports will be a focal point for workforce development, and most of the offshore wind industry jobs created will be at the ports. This is especially true for multi-use ports that do manufacturing, construction, assembly, and maintenance activities as most of economic benefits from offshore wind workforce development are expected to come from creating these good-paying jobs centered at ports. Some studies estimate that upwards of 80 percent of the offshore workforce could be in the supply chain. It will take time for this new industry to attract and develop manufacturers, fabricators, and assembly facilities, and offshore wind projects will likely rely on materials and components from the East Coast and abroad while supply chain businesses develop in California. This scenario implies that benefits

from the supply chain workforce will initially be low and increase significantly over time as the supply chain matures.

The CEC acknowledges that California ports may not be able to handle all the required activities to support the wind turbine manufacturing industry initially, even with investments and significant upgrades. Until the state can build out the infrastructure, offshore wind components will have to be manufactured elsewhere and imported to California. The CEC report notes that California may need more than a single port to support the emerging OSW industry, and a multiport strategy may be required, considering the upgrades and capabilities that may be needed to develop floating OSW and the expected cost of transporting equipment and workers from ports to wind farm locations. One study examined existing seaports along the California coast and found that more than 10 port terminal sites may be needed to support California's OSW planning goal of 25 GW by 2045. According to a study conducted by the U.C. Berkeley Center for Labor Research and Education, industry has identified a minimum threshold of eight GW over a 10-year period to support manufacturing and supply chain investments. Without a minimum threshold of eight GW over a 10-year period, manufacturers would be less likely to invest in a local supply chain, and the economic benefits would be far less significant. Furthermore, any California OSW turbine development will have to comply with the federal 1920 Jones Act, which requires any ship delivering goods or people from one US site to another must be built, owned, and primarily crewed by American citizens. Currently, there are a very limited number of compliant ships that could tow out the floating turbines.

Recent state funding to support OSW infrastructure development. In March 2022, the CEC approved a $10,450,000 grant to the Humboldt Bay Harbor, Recreation, and Conservation District (Humboldt Harbor District) to support the development of a new multipurpose OSW marine terminal at the Port of Humboldt. The CEC grant is supporting early project efforts, including environmental review studies and engineering and design work. The 2022–2023 State Budget also appropriated $45 million to the CEC for a new program, established by AB 209 (Committee on Budget, Chapter 251, Statutes of 2022) which authorized the CEC to create and administer a new program "to support offshore wind infrastructure improvements in order to advance the capabilities of California ports, harbors, and other waterfront facilities to support the buildout of offshore wind facilities and maximize the economic and environmental benefits of an offshore wind industry in California." Other ports are also vying to serve as the main or additional location for the assembly of the OSW turbines, including the Port of Long Beach which has recently proposed Pier Wind, a project to build a 400-acre OSW turbine assembly terminal at California's Port of Long Beach with a price tag of $4.7 billion.

Comments

This bill will require the CEC to build off the yet to be released AB 525 strategic plan and delve more deeply into the questions concerning prioritizing seaports and study the feasibility of achieving 70 percent and 85 percent in-state assembly and manufacturing of OSW energy projects and the domestic content thresholds established by the federal Inflation Reduction Act tax incentives, roughly 20 percent for OSW and escalating to 55 percent by 2028. As both the federal and state governments proceed ambitiously to spur OSW development, questions remain regarding what is needed to realize the full economic benefit. According to the author, it is unclear what investments and supply chain developments are needed to manufacture OSW components in the state, and how that might impact ratepayers. This bill would require the CEC to continue to help inform these questions by requiring the prioritization of seaport locations for OSW turbine assembly to serve Central Coast and North Coast OSW projects and study the in-state manufacturing and assembly potential of OSW.

Need for technical amendments. To ensure the CEC incorporates both the in-state assembly and in-state manufacturing and domestic content thresholds, the author and committee may wish to amend this bill to ensure the language is clarified throughout this bill.

Double Referral. Should this bill be approved by this committee, it will be re-referred to the Senate Committee on Natural Resources and Water.

Prior/Related Legislation

AB 80 (Addis, 2023) requires the Ocean Protection Council to establish and oversee, in coordination with other state agencies, a West Coast Offshore Wind Science Entity. The bill is pending in the Senate Committee on Natural Resources and Water.

SB 286 (McGuire, 2023) establishes the California Offshore Wind Energy Fisheries Working Group to address OSW energy project impacts to certain fisheries and other interests, including providing for compensation to those affected, and requires the California Coastal Commission to process a consolidated coastal development permit for new development associated with OSW energy projects and related transmission facilities, among other things. The bill is pending in the Assembly Committee on Natural Resources.

AB 525 (Chiu, Chapter 231, Statutes of 2021) required the CEC to establish, by June 1, 2022, planning goals, as specified, for the years 2030 and 2045 from

electricity generated by OSW. The bill also requires the CEC, in coordination with specified agencies, to develop a strategic plan, for OSW developments and to submit the plan to the Natural Resources Agency and the Legislature by June 30, 2023.

SB 413 (McGuire, 2021) among its provisions, requires the CEC, in consultation with the Offshore Wind Project Certification, Fisheries, Community, and Indigenous Peoples Advisory Committee (created by the bill), to establish a process for the certification of OSW generation facilities that is analogous to the existing requirements for certification of thermal powerplants, and makes the CEC the exclusive authority for the certification of offshore wind generation facilities. The bill was held by the author in this committee.

AB 1371 (Cunningham, 2019) would have required the CPUC to determine appropriate targets for the procurement of OSW generation on behalf of retail end-use customers of California retail sellers in order to meet the state's RPS and zero-carbon goals. The bill died in Assembly Committee on Utilities & Energy due to COVID-related legislative priorities.

SB 100 (De León, Chapter 312, Statutes of 2018) established the 100 Percent Clean Energy Act of 2017 which increases the RPS requirement from 50 percent by 2030 to 60 percent, and creates the policy of planning to meet all of the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100 percent clean energy.

FISCAL EFFECT: Appropriation: No Fiscal Com.: Yes Local: No

SUPPORT:

Environment California, Sponsor
1000 Grandmothers for Future Generations
350 Conejo / San Fernando Valley
Active San Gabriel Valley
Ban SUP
Brightline Defense Project
California Association of Port Authorities
California Environmental Voters
California Interfaith Power & Light
California State Association of Electrical Workers
CEERT
Clean Air Task Force

Climate Action California
Climate Resolve
Coalition of California Utility Employees
County of Los Angeles
Environmental Working Group
Families Advocating for Chemical & Toxics Safety
Friends Committee on Legislation of California
Natural Resources Defense Council
Pacific Environment
Pacific Merchant Shipping Association
Peninsula Interfaith Climate Action
San Diego Unified Port District
Santa Cruz Climate Action Network
Secure the Future 2100
Sierra Club California
State Building and Construction Trades Council of California
The Climate Center
USC Schwarzenegger Institute
Vote Solar

OPPOSITION:

None received

ARGUMENTS IN SUPPORT: According to the author:

> Offshore wind energy will play a crucial role in meeting California's goal of achieving 100% renewable energy by 2045 and has the potential to create a significant number of high-paying jobs in the state. AB 3 requires the California Energy Commission to study and recommend strategies for procuring energy, maximizing job opportunities for the state and creating pathways for developing port infrastructure to achieve our climate change goals through offshore wind energy.

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