

Date of Hearing: April 2, 2025

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Cottie Petrie-Norris, Chair

AB 472 (Rogers) – As Introduced February 6, 2025

SUBJECT: Energy: offshore wind generation

SUMMARY: Amends the definition of “infrastructure” for purposes of the Governor’s annual infrastructure plan to include port infrastructure for offshore wind energy development.

Specifically, **this bill:**

- 1) Amends the definition of “infrastructure” for purposes of the Governor’s annual infrastructure plan to include port infrastructure for offshore wind energy development.
- 2) Requires the annual California infrastructure plan to include an assessment of funding needs for port infrastructure for offshore wind energy development, beginning with the 2027-28 fiscal year.
- 3) Requires the Governor, in consultation with specified entities, to assess federal, state, and local funding opportunities, including general obligation bonds and funding from the private sector, that can help build port infrastructure for offshore wind energy development.

EXISTING LAW:

- 1) Establishes the policy that all of the state's retail electricity be supplied with a mix of Renewables Portfolio Standard (RPS)-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy. Requires the California Public Utilities Commission (CPUC), in consultation with the California Energy Commission (CEC), California Air Resources Board (CARB), and all California balancing authorities, to issue a joint report to the Legislature by January 1, 2021, reviewing and evaluating the 100% clean energy policy, and every four years thereafter. (Public Utilities Code § 454.53)
- 2) Requires the CEC in coordination with specified agencies, to develop 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, as specified. (Public Resources Code § 25991 et seq.)
- 3) Requires the CEC, in coordination with relevant state and local agencies, to develop a plan to improve waterfront facilities that could support a range of floating OSW energy development activities, as specified. (Public Resources Code § 25991.3)
- 4) Defines “infrastructure” real property, including land and improvements to the land, structures, and equipment integral to the operation of structures, easements, rights-of-way, and other forms of interest in property, roadways, and water conveyances. (Government Code § 13101)

- 5) Establishes the Voluntary Offshore Wind and Coastal Resources Protection Program to fund assessments, studies of impacts, comprehensive environmental impacts monitoring, adaptive management, and to fulfill infrastructure readiness commitments, among other activities, with the overall goal of avoiding and minimizing impacts to coastal resources from floating offshore wind. (Public Resources Code § 25992)
- 6) Requires the Governor to annually submit a five-year infrastructure plan to the Legislature in conjunction with the Governor's Budget. The plan is intended to complement the existing state budget process by providing a comprehensive guideline for the types of projects to be funded through that process. (Government Code § 13102)
- 7) Requires the infrastructure plan to contain, among other things, information on support for infrastructure needs and an evaluation of the impact of the new state debt on the state's existing overall debt position if the plan proposes the issuance of new state debt. (Government Code § 13102 (c) (2))
- 8) Allocates, upon appropriation by the Legislature, \$475 million for activities related to the development of offshore wind, including port infrastructure improvements and upgrades. (Public Resources Code § 94540)

FISCAL EFFECT: Unknown. This bill is keyed fiscal and will be referred to the Committee on Appropriations for its review.

CUSTOMER COST IMPACTS: This measure seeks to incorporate offshore wind port infrastructure into California's Five-Year Infrastructure Plan, and requires an assessment of funding needs for such infrastructure. While the legislation does not directly impact ratepayers, the use of public funds to implement this bill may result in costs to taxpayers, depending on the funding mechanisms employed.

BACKGROUND:

California's Transition to 100% Clean Electricity. SB 100 (De León, Chapter 312, Statutes of 2018) established the state policy that renewable and zero-carbon resources should supply 100% of retail sales and electricity procured in the state by 2045.¹ This policy was updated under SB 1020 (Laird, Chapter 361, Statutes of 2022) which accelerated the requirement on state agencies to 100% by 2035, and established interim targets to meet the economy-wide 100% goal. California has made progress in decarbonizing its energy sector, with recent data showing that zero-carbon and renewable resources supplied roughly 61% of the state's electricity in 2022.² Solar energy has been the dominant source of California's renewable energy resources, accounting for nearly 20%,³ of the state's electricity supply. This growth is largely attributed by

¹ Public Utilities Code §454.53

² 61% = 39.4% from renewables (solar, wind, geothermal, biomass, small hydro) + 10.8% from large hydro + 10.7% from nuclear. CEC; "Clean Energy Serving California"; <https://www.energy.ca.gov/programs-and-topics/topics/renewableenergy/clean-energy-serving-california>

³ 61% = 39.4% from renewables (solar, wind, geothermal, biomass, small hydro) + 10.8% from large hydro + 10.7% from nuclear. CEC; "Clean Energy Serving California"; <https://www.energy.ca.gov/programs-and-topics/topics/renewableenergy/clean-energy-serving-California>

the cheaper prices of solar photovoltaics in recent years and California's abundant solar capacity. However, as solar generation increases in California, the mismatch between when it is generated and when it is needed poses challenges for grid stability and operation. According to the CEC, OSW has the potential to produce electricity during periods when solar production declines. As such, OSW could complement solar and onshore wind resources thus improving grid reliability.

In March 2021, the CEC, California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) released the first SB 100 report, and offshore wind energy was modelled to 10 gigawatts (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 offshore wind energy online given the current California Independent System Operator (CAISO) interconnection queue and resource development needs of OSW.⁴ The report notes "The preliminary findings [in the report] are intended to inform state planning and are not intended as a comprehensive nor prescriptive roadmap to 2045... future work will delve deeper into critical topics such as system reliability and land use and further address energy equity and workforce needs."⁵ The subsequent report will be released in 2025, and one every four years later.

Offshore Wind California. Worldwide, OSW is developing into a dynamic and growing industry sector in renewable energy. By the end of 2023, the total global OSW capacity totaled to 75.2 GW.⁶ The U.S. lags behind with a total online capacity of only 42 MW today⁷, less than 1% of the global total. There is currently 56 GW of capacity under development – primarily on the East Coast – with approximately 14 GW of that expected to be online by 2035.⁸ Off the coast of California where winds can exceed 7 meters per second, the National Renewable Energy Laboratory (NREL) has identified 200 GW of offshore wind potential.^{9,10} This potential, however, is complicated by the fact that approximately 96% of it is located in water deeper than 60 meters, where the mature, fixed-bottom turbine technology that is used in most OSW projects globally and domestically is not technically feasible.¹¹ Instead, these OSW projects will need to rely on floating technology, wherein the towers are anchored to the seafloor via long mooring buoys and cables then connected to the grid through floating substations and subsea electric cables.

AB 525 Strategic Plan. In 2021, the Legislature passed AB 525 (Chiu, Chapter 231, Statutes of 2021), which the CEC in coordination with federal, state, and local agencies, California Native

⁴ Pg. 41; *Inputs & Assumptions: CEC SB 100 Joint Agency Report*; June 2020.

⁵ Pg. 1, CEC, CPUC, & CARB; *2021 SB 100 Joint Agency Report: Achieving 100 Percent Clean Electricity in California: An Initial Assessment*;" March 2021.

⁶ Global Wind Energy Council; *Global Offshore Wind Report 2024*; June 2024.

⁷Tham, N.; "The latest headwinds and tailwinds for U.S. offshore wind"; March 2024;

<https://bipartisanpolicy.org/blog/thelatest-headwinds-and-tailwinds-for-u-s-offshore-wind/>

⁸ American Clean Power; "New report: Offshore wind momentum grows with sector to invest \$65 billion and create 56,000 U.S. jobs by 2030"; July 2024; <https://cleanpower.org/news/offshore-wind-to-invest-65-billion-and-create-56000jobs-by-2030/>

⁹"Technical potential" is defined as the amount of offshore wind capacity that could be developed while taking into account exclusion factors related to water depth, mean wind speed, industry uses, and environmental conflicts (Musial et al. 2016a).

It does not include areas where the wind speeds are lower than 7 meters per second or deeper than 1,300 meters.

¹⁰ NREL; *2020 Offshore Wind Resource Assessment for the California Pacific Outer Continental Shelf*; October 2020.

¹¹ Pg. 7, CEC; *Research and Development Opportunities for Offshore Wind Energy in California*; August 2020.

American tribes, and a variety of stakeholders, to develop a strategic plan for offshore wind energy development in federal waters off the California coast. In August 2022, the CEC approved a planning goal of 2–5GW by 2030, and eventually 25GW by 2045.¹² In July 2024, as per the requirements of AB 525, the CEC adopted a comprehensive strategic plan to guide the development of OSW and reach the 2045 planning goal.¹³ This includes an assessment of the investments necessary at California’s ports to enable the development of offshore wind energy.

California OSW Leases. In December 2022, The Bureau of Ocean Energy Management (BOEM)¹⁴ held the first federal offshore wind (OSW) lease auction in the Pacific, awarding five lease areas off California’s coast. These areas, located approximately 20 miles offshore, include three near Morro Bay on the Central Coast—leased by Equinor Wind, Golden State Wind, and Invenergy—and two off Humboldt County in Northern California, leased by Vineyard Offshore and RWE. All five projects will feature large-scale floating offshore wind farms, a first of their kind. Together, they have a combined nameplate capacity of 4.6 GW, marking a significant step in California’s offshore wind development.

California OSW Ports. The successful development of OSW will require upgrades to ports and waterfront facilities to support multiple operations, including construction and staging of floating platform foundations, manufacturing and storage of components, and final assembly. The CEC and BOEM have determined that no single port can meet all of the port infrastructure needs for the OSW industry in California.¹⁵ Instead, the state must strategically develop a port network that can efficiently, cost-effectively, and reliably support staging and integration (S&I), manufacturing/fabrication (M/F), and operation and maintenance (O&M) activities along the California Coast.¹⁶ Different factors affect the candidacy of each port for each activity. S&I sites require a large amount of space, deep navigation channels, and cannot have any air draft restrictions (e.g. bridges) since the fully assembled turbine systems, which rise 1,100 feet above water, need to be towed out to the installation site. Therefore, the ports of Humboldt, Los Angeles, and Long Beach are most suitable as S&I sites. M/F sites can occupy less space than S&I sites and be at locations with air draft restrictions since the individual components can be transported horizontally via vessel or barge. Ideally, O&M sites that transfer crew to and from the OSW farms should be close to the wind farm location to minimize travel crew time.

The Port of Humboldt Bay has already drawn up plans, begun mobilizing funding, and started the environmental review process for required upgrades to serve the OSW industry. The Port of Long Beach has also begun preparing for a proposed \$4.7 billion development plan that would create a facility to support the manufacturing and assembly of OSW turbines.¹⁷ The CEC estimates that the total upgrades needed across all of the identified ports will cost approximately

¹² CEC; “Offshore Wind Energy Development off the California Coast Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045”; August 2020.

¹³ CEC; “AB 525 Reports: Offshore Renewable Energy”; <https://www.energy.ca.gov/data-reports/reports/ab-525-report-offshore-renewable-energy>; July 10, 2024

¹⁴ The Bureau of Ocean Energy Management (BOEM) is a U.S. federal agency under the Department of the Interior responsible for managing the development of energy and mineral resources on the Outer Continental Shelf (OCS). BOEM oversees offshore wind, oil, gas, and marine mineral leasing while ensuring environmental protection and sustainable resource use.

¹⁵ Chap. 1, BOEM; *California Floating Offshore Wind Regional Ports Assessment*; January 2023.

¹⁶ Fig. 6-5, CEC; *Commission Adopted Final Report AB 525 Strategic Plan Volume II*; July 2024.

¹⁷ Port of Long Beach; “Pier Wind Project Concept Phase: Final Conceptual Report”; April 2023.

\$(11 to 12 billion) to meet the 2045 goal for 25 GW of OSW in California.¹⁸ However, a coordinated port development strategy—along with programs that support early-stage port upgrades—is needed to support offshore wind deployment.

Port-adjacent Communities. Industrial activity and development at ports can result in significant environmental burdens for communities living near ports, including air, water, noise, and light pollution. Nearly 2 million pounds of toxic air contaminants pollute the skies in or near the Ports of Los Angeles and Long Beach, which contributes to high childhood asthma rates in those communities.¹⁹ Although port and truck electrification have promise to achieve local emissions reductions, many emissions from port activities also come from the marine vessel traffic moving goods in and out, which may be increased as a result of OSW activity. The investment into port upgrades, however, could support an average of about 6,700 skilled workers annually over 10 years across the myriad of potential port sites.²⁰

California Offshore Wind Advancement Act. AB 3 (Zbur, Chapter 314, Statutes of 2023) establishes the California Offshore Wind Advancement Act, and requires the CEC, in consultation with the State Lands Commission, and other specified state entities to develop a strategy for seaport readiness for offshore wind energy developments, including the feasibility of achieving 50% and 65% in-state assembly and manufacturing of offshore wind energy projects, as provided. This bill builds upon the efforts of AB 525 report, and requires the CEC to provide a final report on its findings to the Governor and the Legislature on or before December 31, 2027.

California Infrastructure Planning Act. AB 1473 (Hertzberg, Chapter 606, Statutes of 1999) established the *California Infrastructure Planning Act* which requires the Governor to annually submit a statewide five-year infrastructure plan to the Legislature, along with the state budget.²¹ The plan identifies priority infrastructure needs across all state agencies and proposes funding strategies over a five-year horizon, ensuring that investments are strategically aligned with California's long-term policy objectives and state funding capacity. This structured approach supports transparency, efficiency, and accountability in allocating resources for needed infrastructure projects across various sectors, such as transportation, education, water resources, and public safety.

2022 Five-Year Infrastructure Plan. The plan submitted as part of the 2022-2023 budget witnessed historic investments. California was expected to receive about \$14 billion of additional funding from the federal Infrastructure Investment Act. The Administration also proposed investments for clean energy projects in the 2022-23 budget that would make the state more resilient to climate change. This included \$45 million from the General Fund that was ultimately approved by the Legislature which allows the California Energy Commission (CEC) to fund activities that advance the development of offshore wind energy in federal waters off California. The CEC has yet to disburse this funding.

Climate Resiliency Bond. SB 867 (Allen, Chapter 83, Statutes of 2004), known as the Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024,

¹⁸ Pg. 25, CEC; *Commission Adopted Final Report AB 525 Strategic Plan Volume I*; July 2024

¹⁹ CalMatters; “In the shadows of industry: LA County’s port communities”; February 2022; <https://calmatters.org/environment/2022/02/environmental-justice-photo-essay-la-county-port-communities/>

²⁰ Pg. 169, CEC; *Commission Adopted Final Report AB 525 Strategic Plan Volume II*; July 2024.

²¹ AB 1473 (Hertzberg, Chapter 606, Statutes of 1999)

authorized \$10 billion in general obligation bonds to fund a variety of projects to increase the state's resilience to climate change while safeguarding its natural resources. Within this measure, \$475 million is specifically allocated for port infrastructure upgrades to support offshore wind energy development.

COMMENTS:

- 1) *Author's statement.* According to the author, "Offshore wind has the potential to transform the economy of the North and Central Coasts and create access to a new renewable energy source. Responsible, integrated planning for offshore wind energy facilities is key to their success. AB 472 will ensure offshore wind ports are included in California's annual infrastructure planning so we can meet our state's clean energy goals and create good paying jobs in local communities."
- 2) *January 2025 Temporary Memorandum.* In January 2025, President Trump signed a temporary memorandum indefinitely suspending new or renewed OSW leases on the Outer Continental Shelf (OCS) and mandating a comprehensive assessment and review of federal wind leases and permitting practices. The order also directed all federal agencies to pause all "new or renewed approvals, rights of way, permits, leases, or loans for onshore or offshore wind projects"²² This policy shift marks a reversal from the previous Administration's efforts to expand the OSW industry. While the order does not immediately revoke existing leases, it subjects them to a review process that could lead to terminations therefore creating uncertainty around the future growth of the industry.
- 3) *Alternative Path.* Substantial investments will be needed to transform California's ports into facilities capable of supporting the assembly, storage, and deployment of large-scale wind turbines. The strategic plan released by the CEC estimates that the total upgrades needed across all of the identified ports will cost approximately \$11 to \$12 billion to meet the 2045 goal for 25 GW of OSW in California. This legislation directs the five-year California infrastructure plan to include an assessment of funding needs for port infrastructure for offshore wind energy development—a directive that aligns with CEC's efforts under the AB 525 strategic plan.

As mentioned above, the statewide five-year infrastructure plan identifies priority infrastructure needs across all state agencies and proposes funding strategies over a five-year horizon, ensuring that investments are strategically aligned with California's long-term policy objectives and state funding capacity. Therefore, including infrastructure assessments for a specific industry as this bill provides could introduce complexities into the state's infrastructure planning process and risk undermining the broader intent of the plan., the author may wish to leverage the expertise of the CEC and consider instead including the assessment into the integrated energy policy report (IEPR) which serves as a blueprint for state energy planning and infrastructure development.

- 4) *Existing Law.* Section 1(d) of the intent language of the bill incorrectly states that SB 100 requires that eligible renewable energy resources and zero-carbon resources supply 60

²² The White House, "Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government's Leasing and Permitting Practices for Wind Projects." Accessed March 16, 2025

percent of all retail sales of electricity to California end-use customers by December 31, 2030. *As such, the committee recommends amending this section to state that SB 100 requires that eligible renewable resources supply 60 percent of all retail sales of electricity to California end-use customers by December 31, 2030, and eligible renewable and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045.*

- 5) *Updated AB 525 Plan*— As eluded earlier, the CEC was mandated to develop a strategic plan for OSW development in federal waters off the California Coast. As part of this initiative, the CEC released a Draft Strategic Plan on January 19, 2024, for public review and comment. On July 10, 2024, the CEC finalized the Strategic Plan, establishing the state's roadmap for offshore wind energy development, with target goals of 2-5 GW of OSW capacity by 2030 and 25 GW by 2045. *As such, given the adoption of the final Strategic Plan, the author and committee recommend deleting references to the Draft Strategic Plan to reflect the most up-to-date adopted strategic plan set forth by the CEC.*

6) *Prior Legislation.*

AB 3006 (Zbur, 2024) would have amended the definition of “infrastructure” for purposes of the Governor’s annual infrastructure plan to include port infrastructure for offshore wind energy development. Died – Senate Committee on Appropriations.

AB 2537 (Addis, 2024) would establish the Offshore Wind Community Capacity Funding Grant Account to build capacity within local communities and tribal communities to support engagement of the process of OSW energy development in California and continuously appropriate funding from the existing Voluntary Offshore Wind and Coastal Resources Protection Fund at the CEC. Status: Vetoed by the Governor.

AB 3 (Zbur) requires the CEC to prepare a report that identifies potential alternatives, analyzes, and makes recommendations regarding procurement mechanisms and procurement strategies for offshore wind energy projects to be financed, entitled, constructed, and operated within the timeframes necessary for meeting the state’s carbon neutrality goals. Status: Chapter 314, Statutes of 2023.

AB 80 (Addis, 2023), would have required the Ocean Protection Council, upon an appropriation by the Legislature, to establish and oversee a West Coast Offshore Wind Science Entity to ensure that comprehensive baseline assessments and ongoing monitoring data related to the California ocean ecosystem are available to inform state and federal decision-making. Status: Held in the Senate Committee on Appropriations.

SB 704 (Min, Chapter 292, Statutes of 2023) authorizes the California Coastal Commission to seek scientific advice on offshore wind, among other things.

AB 1373 (Garcia, Chapter 367, Statutes of 2023) authorizes the DWR to act as a centralized procurement entity until January 1, 2035, to procure eligible energy resources, including OSW, in order to help the state meet its renewable and zero-carbon energy resources and reliability goals should the CPUC identify a specific procurement need and make a request of DWR. Also committed a future \$6 million appropriation in the 2024-

25 fiscal year to support environmental monitoring and research into OSW impacts around the regions the federal government has leased areas for wind development, among other things.

SB 286 (McGuire, Chapter 386, Statutes of 2023) establishes the California Offshore Wind Energy Fisheries Working Group to address OSW project impacts on certain fisheries and related interests, including the development of a statewide strategy to minimize impacts to ocean fisheries and providing for reasonable compensation to those affected. Additionally, required the CCC to process a consolidated coastal development permit for new development associated with OSW projects and related transmission facilities in the coastal zone, and required the CSLC to be the lead agency for purposes of environmental review for OSW projects, among other provisions.

AB 209 (Committee on Budget, Chapter 251, Statutes of 2022) requires the CEC to establish and administer a program to support OSW infrastructure improvements to advance the capabilities of California's ports, harbors, and other waterfront facilities to support the buildout of OSW facilities. Also established the Voluntary Offshore Wind and Coastal Resources Program at the CEC to support state activities that complement or support federal laws related to the development of OSW facilities, among other provisions.

SB 1020 (Laird) establishes interim targets for the statewide 100% clean energy policy. Additionally requires state agencies to accelerate their 100% clean energy policy goal by 10 years. Status: Chapter 361, Statutes of 2022.

SB 1253 (Melendez) requires the infrastructure plan to set out infrastructure priorities relating to specified flood prevention and maintenance. Status: Chapter 195, Statutes of 2022.

AB 525 (Chiu) requires the CEC to establish 2030 and 2045 planning goals, as specified, for electricity generated by offshore wind. Additionally requires the CEC, in coordination with specified agencies, to develop a five-part strategic plan for offshore wind development and to submit the plan to the Natural Resources Agency the Legislature by June 30, 2023. Status: Chapter 231, Statutes of 2021

SB 100 (De León) establishes the 100% Clean Energy Act of 2017 which increases the Renewables Portfolio Standards (RPS) requirement from 50% by 2030 to 60% 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% clean energy. Status: Chapter 312, Statutes of 2018.

- 7) *Double Referral*. This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Natural Resources.

REGISTERED SUPPORT / OPPOSITION:**Support**

350 Humboldt: Grass Roots Climate Action
American Clean Power- California
California Association of Port Authorities
California Environmental Voters (formerly Clcv)
California State Association of Electrical Workers
California Wind Energy Association
Clean Power Campaign
Climate Reality Project San Diego
Climate Reality Project San Fernando Valley Chapter
Climate Reality Project, Los Angeles Chapter
Climate Reality Project, Orange County
Coalition of California Utility Employees
County of Humboldt
Environment California
Environmental Defense Fund
Epic - Environmental Protection Information Center
Friends Committee on Legislation of California
Independent Energy Producers Association
Invenergy, LLC
Long Beach; Port of
Oceantic Network
Offshore Wind California
Pacific Merchant Shipping Association
Port of Long Beach
Sierra Club California
The Climate Center

Opposition

None on file.

Analysis Prepared by: Lina V. Malova / U. & E. / (916) 319-2083