Date of Hearing: March 22nd, 2023

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY
Eduardo Garcia, Chair
AB 344 (Wood) – As Introduced January 31, 2023

SUBJECT: Electricity: load-serving entities: offshore wind facilities

SUMMARY: Authorizes electrical corporations, electric service providers, and community choice aggregators—collectively, load-serving entities (LSEs)—to jointly enter into agreements to procure electricity generated from offshore wind facilities.

EXISTING LAW:

1) Requires the CPUC to adopt a process for each LSE serving end-use customers in the state, to file an Integrated Resource Plan (IRP) and schedule periodic updates to the plan to ensure that LSEs accomplish specified objectives. Requires each LSE to prepare and file an IRP consistent with those objectives on a time schedule directed by the California Public Utilities Commission (CPUC) and subject to CPUC review. (Public Utilities Code § 454.52)

2) Requires that the IRP of each LSE contribute to a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy resources in a cost-effective manner, meets the emissions reduction targets for greenhouse gas emissions established by the California Air Resources Board (CARB) for the electricity sector, and prevents cost shifting among LSEs. (Public Utilities Code § 454.54)

3) Requires retail sellers and publicly owned utilities to increase purchases of renewable energy such that at least 60% of retail sales are procured from eligible renewable energy resources by December 31, 2030. This is known as the Renewables Portfolio Standard (RPS). (Public Utilities Code § 399.11 et seq.)

4) Defines LSEs as an investor-owned utility (IOU), electric service provider, or community choice aggregator, but does not include a local publicly owned electric utility or The State Water Resources Development System (commonly known as the State Water Project.) (Public Utilities Code § 380)

5) Defines joint powers agreements as formal, legal agreements between two or more public agencies that share a common power and want to jointly implement programs, build facilities, or deliver services. Joint powers enable a group of governments to collaborate and share resources for mutual support or common actions which, in this case, constitutes procuring electricity. A joint powers agency or joint powers authority (JPA) is a new, separate government organization created by the member agencies, but is legally independent from them. Like a joint powers agreement (in which one agency administers the terms of the agreement), a joint powers agency shares powers common to the member

agencies, and those powers are outlined in the joint powers agreement.[1] Membership in a JPA is generally limited, with specific statutory exceptions, to public agencies and does not extend to all LSEs (electrical corporations, specifically, are LSEs but are not public agencies). (Government Code § 6500)

6) Authorizes County Board of Supervisors to construct, acquire, develop, operate and maintain wind energy and associated transmission lines. Permits financing of the construction of the wind energy plants and associated transmission lines may occur by any method of financing county works. Authorizes counties to lease or sell the plants and transmission to an electrical corporation but prohibits the county from directly selling the power to customers. (Government Code §§ 25730-25733)

7) Requires the California Energy Commission (CEC) to develop a strategic plan for achieving offshore wind development off the California Coast and establish megawatt planning goals for 2030 and 2045. The strategic plan is due to the Legislature by June 30, 2023. (Public Resources Code §§ 25991-25991.8)

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

BACKGROUND:

Resource procurement under JPAs – Two or more public agencies are expressly permitted to establish a JPA, through which they may jointly procure electricity. Examples of JPAs established to procure electricity include the Northern California Power Agency[2] and the Southern California Public Power Authority, which are collective groups of municipal utilities and irrigation districts that jointly plan, finance, construct, and operate transmission and generation projects. In 2021, eight community choice aggregators (CCAs) representing parts of northern and central California joined to form a new JPA – California Community Power. The CCAs forming California Community Power represent 2.6 million customer accounts and 6.6 million people across more than 140 municipalities. Recently, California Community Power issued joint procurement for 500 megawatts (MWs) of long-duration energy storage.[3]

Joint procurement by IOUs – IOUs can engage in joint procurement contractually. For example, the San Onofre Nuclear Generating Station was jointly owned by two IOUs: Southern California Edison (78.21%) and San Diego Gas & Electric (20%), as well as the city of Riverside (1.79%)[4]. All contracted procurement by IOUs is subject to a CPUC approval process.

Offshore Wind Potential – Over the last four decades, California has advanced land-based wind energy. As of 2019, almost 6 gigawatts (GW) of installed wind capacity was generating in the

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[1] Senate Local Government Committee, *A Citizen's Guide to Joint Powers Agreements*, August 2007; https://sgf.senate.ca.gov/sites/sgf.senate.ca.gov/files/GWTFinalversion2.pdf
[2] NCPA is technically a not-for-profit Joint Action Agency. https://www.ncpa.com/about/mission/joint-action/
[3] Eight Community Choice Aggregators Partner to Form California Community Power – A Joint Powers Authority (CalCCA, 2.8.21) https://cal-cca.org/eight-community-choice-aggregators-partner-to-form-california-community-power-a-joint-powers-authority/
[4] Southern California Edison; "Southern California Edison announces plans to retire San Onofre Nuclear Generating Station"; June 2013; https://newsroom.edison.com/releases/southern-california-edison-announces-plans-to-retire-san-onofre-nuclear-generating-station

state, [5] the fifth largest amount of wind capacity in the United States.[6] Although California has no offshore wind generation, the National Renewable Energy Laboratory has identified 200 GW of offshore wind technical potential[7] for California.[8] However, approximately 96% of this potential is located in water deeper than 60 meters, where the mature, fixed-bottom turbine technology is not technically feasible.[9] Off the coast of California, a steep continental shelf and increased wind speeds combine to make floating turbines the primary technically feasible option.

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.[10] Depending on the type of floating structure, some assemblage 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 offshore wind globally has occurred via fixed turbine technologies where the turbines are anchored to the seabed through a solid foundation. These designs prevent dynamic motion and do not allow the machine to move significantly in response to wave or wind pressures. Fixed foundations typically exhibit a maximum usable water depth of 50 to 60 meters; beyond this depth, fixed wind designs are not economically or technically feasible.[11]

Many East Coast states and foreign countries have developed offshore wind projects employing fixed foundation turbines. The first was a 0.45 MW farm off the Danish coast in 1991.[12] Since that early project, three markets — the United Kingdom, Germany, and China—account for 82.1 percent of the global installed capacity.[13] In the United States, offshore wind development is being driven by a collection of eight East Coast states including New York, Massachusetts, and New Jersey, which account for at least 22.5 GW of project commitments through 2035. Nearly all project proposals are sited in federal waters – which start three nautical miles from shore out to 200 nautical miles[14] – and fall under the jurisdiction of the federal Bureau of Ocean Energy Management (BOEM). They are all fixed foundation projects.

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[5] CEC's "Electricity From Wind Energy Statistics and Data" page; https://ww2.energy.ca.gov/almanac/renewables_data/wind/index_cms.php; viewed on March 21, 2021

[6] https://www.eia.gov/todayinenergy/detail.php?id=39772

[7] "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.

[8] Optis, et al. *2020 Offshore Wind Resource Assessment for the California Pacific Outer Countinental Shelf*, National Renewable Energy Laboratory; NREL/TP-5000-77642 BOEM 2020-043; October 2020.

[9] Pg. 7 CEC *Research and Development Opportunities for Offshore Wind Energy in California*; CEC-500-2020-053; August 2020.

[10] Pg. viii; Optis, et al. *2020 Offshore Wind Resource Assessment for the California Pacific Outer Countinental Shelf*, National Renewable Energy Laboratory; NREL/TP-5000-77642 BOEM 2020-043; October 2020

[11] Pg. 11 CEC *Research and Development Opportunities for Offshore Wind Energy in California*; CEC-500-2020-053; August 2020

[12] *Ibid.* Pg. 14 CEC *Research and Development Opportunities for Offshore Wind Energy in California*; CEC-500-2020-053; August 2020.

[13] *Ibid*, pg. 15

[14] Nautical miles approximate roughly 1.15 land miles; they are based on the circumference of the earth equal to one minute of latitude and are the primary measure in ocean navigation.

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 offshore wind development. In total, these BOEM-designated call areas are estimated to have an energy resource potential of about 21 GW. These areas may be leased through an auction following a call for nominations, a formalized process to gauge interest from potential developers. In California, BOEM identified three call areas in 2018 as potentially suitable for offshore wind energy leasing: the Humboldt Call Area, the Morro Bay Call Area, and the Diablo Canyon Call Area.[15] While there is a significant potential for offshore wind 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, and Department of Defense activities.

California Action on Offshore Wind – In October of 2016, The Bureau of Ocean Energy Management–California Intergovernmental Renewable Energy Task Force was created as a partnership of state, local, and federal agencies, including the CEC, BOEM, and tribal governments. The Task Force promotes coordination and communication among these entities on potential offshore leases for research or commercial development off the California coast. One of the first public meetings of the Task Force was held in April 2017 in San Luis Obispo to share offshore wind planning activities with the local community.[16] Many public meetings and workshops on offshore wind have been held by the CEC since.[17]

BOEM held a wind energy auction for five leases off the coast of California in December 2022. The lease sale represents the third major offshore wind lease sale this year and the first ever for the Pacific region. The sale drew competitive high bids from 5 companies totaling $757.1 million, well exceeding the first lease sales that were held in the Atlantic. However, the winning bids were lower on a per-acre basis ($2,028 per acre) than the winning bids in recent auctions in the Carolinas ($2,861 per acre) and New York and New Jersey ($8,951 per acre). The lower winning bid figure may reflect the economic uncertainty associated with a high-inflation environment, concern about the stability of the supply chains required for large development projects, and the longer technological track record of fixed relative to floating offshore wind projects.[18] BOEM's lease sale offered five lease areas covering 373,268 total acres off central and northern California. The leased areas have the potential to produce over 4.6 gigawatts of offshore wind energy, enough to power over 1.5 million homes.[19]

The passage of AB 525[20] in 2021 required the CEC, in coordination with federal, state, and local agencies and a wide variety of stakeholders, to develop a series of reports intended to outline a

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[15] Pg. vi. Optis, et al. *2020 Offshore Wind Resource Assessment for the California Pacific Outer Continental Shelf*, National Renewable Energy Laboratory; NREL/TP-5000-77642 BOEM 2020-043; October 2020
[16] BOEM Press Release; "BOEM Joins State of California and San Luis Obispo County at Local Informational Forum on Offshore Wind Planning in California;" March 24, 2017; https://www.boem.gov/newsroom/notes-stakeholders/boem-joins-state-california-and-san-luis-obispo-county-local
[17] Notice of Scoping Workshop: Advance to Next-Generation Offshore Wind Energy Technology; https://www.energy.ca.gov/event/workshop/2020-10/notice-scoping-workshop
[18] Utility Dive; "'Proceed with caution': Key takeaways from California's first offshore wind energy auction;" December 19, 2022; https://www.utilitydive.com/news/proceed-with-caution-key-takeaways-from-californias-first-offshore-wind/638780/
[19] U.S. Department of Interior Press Release; "Biden-Harris Administration Announces Winners of California Offshore Wind Energy Auction;" December 7, 2022; https://doi.gov/pressreleases/biden-harris-administration-announces-winners-california-offshore-wind-energy-auction
[20] AB 525, Chiu, Chapter 231, Statutes of 2021

framework for offshore wind energy deployment off the California coast. That framework is divided into four individual reports forecasting electrical production targets, outlining the permitting process, and assessing the potential economic benefits, culminating in the release of a strategic plan for offshore wind deployment due to the Legislature in June 2023.

The CEC established MW planning goals for offshore wind of 2,000 MW–5,000 MW for 2030 and 25,000 MW for 2045.[21] In setting these MW targets, the CEC considered the generation profile of offshore wind, existing transmission infrastructure, and potential impacts on coastal resources, among other factors. The range in the planning goals for 2030 reflects an understanding that achieving a 2030 online date for any proposed offshore wind project will take a significant mobilization of resources as well as timely infrastructure investments, while the planning goal for 2045 reflects anticipated technological developments and related cost reductions. These goals are, at the admission of the CEC, "designed to be potentially achievable but *aspirational* and are established at levels that can contribute significantly to achieving California's climate goals."[22]

The CEC recently released a draft conceptual permitting roadmap, which outlines a framework for federal, state, and local agency coordination—through formalized memoranda of understanding and agreements—that provides a set a of principles from which to work, including a commitment to the development of a single application checklist for permitting.[23] Additionally, the CEC released a report assessing the potential economic benefits for offshore wind with specific focus on seaport investments and workforce development. The report suggests a correlation between megawatt offshore wind targets and job growth, citing studies that estimated that total annual jobs associated with the offshore wind industry may be as many as 5,000 jobs by 2030 for 3,000 MW and increase to 13,000 jobs with the production of 10,000 MW by 2040.[24]

Alternative approach to offshore wind development: In the governor's 2023-24 January budget proposal, $32 million is allocated to the Department of Water Resources to initiate a new centralized energy resource procurement function, in which the state would procure large-scale clean resources for LSEs and publicly owned utilities. This central procurement function may be used to invest in difficult to develop or costly resources, making it a plausible alternative path to offshore wind development if high cost precludes private-sector investment.[25]

COMMENTS:

1) *Author's Statement*. According to the author, "Offshore wind presents an incredibly exciting opportunity for the State of California, one that we must be ready to meet head

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[21] CEC; "Offshore Wind Energy Development off the California Coast Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045"; August 2022
[22] Pg. 5; *Ibid.*
[23] CEC; "Assembly Bill 525: Draft Conceptual Permitting Roadmap for Offshore Wind Energy Facilities Originating in Federal Waters off the Coast of California"; December 2022
[24] CEC; "Preliminary Assessment of Economic Benefits of Offshore Wind Related to Seaport Investments and Workforce Development"; December 2022
[25] Legislative Analyst's Office; "The 2023-24 Budget: Crafting Climate, Resources, and Environmental Budget Solutions;" February 22, 2023; https://lao.ca.gov/Publications/Report/4692#:~:text=The%20Governor's%20budget%20proposal%20would,Greenhouse%20Gas%20Reduction%20Fund%2C%20or

on. The cost of developing this energy source is high and, while we hope the cost of development will decline in the future, we must ensure that load-serving entities can actually afford to buy this power once it is developed. AB 344 will support the offshore wind market by allowing load serving entities to enter into joint procurement agreements with one another for the purposes of buying offshore wind."

2) *What is the cost?* California's offshore wind resources are in water depths greater than 60 meters, making floating turbines the primary technological option. While fixed-bottom offshore turbines are a proven technology, floating technologies are relatively nascent – and more expensive – with only 66 MW installed worldwide at the end of 2019.[26]

   Of operational floating offshore wind projects, 2017's Hywind Scotland project – the world's first commercial floating offshore wind project – provides some perspective on current pricing data. That project is currently priced around $240 per megawatt-hour (MWh).[27] However, many projections forecast these costs will decline rapidly over the next decade as the global industry for floating turbines continues to grow, with almost 6.2 GW of global projects in the pipeline.[28] In addition to projected price declines driven by large-scale development, substantial effort and funding is going toward bringing down the cost of floating offshore wind. The U.S. Departments of Energy, Interior, Commerce, and Transportation are collaborating on the Floating Offshore Wind Shot to accelerate breakthroughs across engineering, manufacturing, and other innovation areas. The program aims to reduce the costs of floating technologies by more than 70% by 2035, to $45 per MWh.[29]

   The National Renewable Energy Laboratory (NREL) recently published a California-focused study on offshore wind costs.[30] The study estimated the cost of floating offshore wind would decline by 44% on average, reaching $53 to $64 per MWh for projects coming online by 2032.[31] This is compared to ranges of $83 to $180 per MWh for projects coming online in 2019. These NREL estimates are based on assumptions in turbine technology upsizing, supply chain and manufacturing efficiencies, and technological improvements resulting in lower costs over the decade, but are not guaranteed nor firm. The price estimates often represent a best-case scenario. Both the CPUC and CEC continually update their pricing data as new projections are released. While these estimates provide guidance to the agencies, it is currently unknown what the actual costs of these projects will be off the California coast.

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[26] Pg. 107; *2021 SB 100 Joint Agency Report.*
[27] Equinor News; "Hywind Scotland remains the UK's best performing offshore wind farm;" March 23, 2021. https://www.equinor.com/en/news/20210323-hywind-scotland-uk-best-performing-offshore-wind-farm.html
[28] Lee, Joyce and Feng Zhao, *Global Offshore Wind Report 2020,* Global Wind Energy Council., August 2020. https://gwec.net/wp-content/uploads/2020/12/GWEC-Global-Offshore-Wind-Report-2020.pdf; as reported on pg. 107; *2021 SB 100 Joint Agency Report.*
[29] The White House, FACT SHEET: Biden-Harris Administration Announces New Actions to Expand U.S. Offshore Wind Energy, September 15, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/#:~:text=The%20Floating%20Offshore%20Wind%20Shot,to%20%2445%20per%20megawatt%2Dhour.
[30] Beiter, P., et al.; *The Cost of Floating Offshore Wind Energy in California Between 2019 and 2032*; NREL; Revised November 2020.
[31] Pg. x; *Ibid.*

3) *Restriction of JPAs to public entities.* Membership in a JPAs is generally limited to public agencies (federal, state, and local governments), with rare exceptions. On those occasions, legislation has authorized some types of private entities to enter into joint powers agreements with public agencies for specified purposes. For example, state law allows a mutual water company to enter into a joint powers agreement with any public agency for the purpose of jointly exercising any power common to the contracting parties provided that the agreement ensures that no participating public agency becomes responsible for the underlying debts or liabilities of the JPA.[32] Similarly, state law allows nonprofit hospitals to enter into JPAs to provide health care services in Fresno County;[33] Contra Costa County;[34] Tulare, Kings, and San Diego Counties;[35] and Tuolumne County.[36]

   Most recently, the Legislature enacted SB 1403 (Maienschein, Chapter 188, Statutes of 2015). SB 1403 allows, until January 1, 2024, one or more private, nonprofit 501(c)(3) corporations that provide services to homeless persons for the prevention of homelessness to form a JPA, or enter into a joint powers agreement with one or more public agencies. With the exception of these specific examples, JPAs are reserved for public agencies, which would exclude IOUs from entering into such agreements.

   This bill is nonspecific in its direction to LSEs, simply stating they "may jointly enter into agreements to procure." Should this language contemplate IOUs forming JPAs, additional statutory authorization may be necessary. However, as noted above, IOUs may jointly procure outside of a formalized JPA process; as such, the language in the bill would be inclusive of all types of LSE procurement arrangements.

4) *Related Legislation.*

   AB 3 (Zbur, 2023), accelerates the approval, implementation, and operation of offshore wind energy projects, and seeks to clarify the evaluation criteria for, and the authority of California governmental agencies over, port and transmission infrastructure improvements related to offshore wind. Status: *pending referral* in the Assembly Committee on Rules.

   AB 80 (Addis, 2023), expresses the intent of the Legislature to create the Offshore Wind Coastal Compensation Fund for purposes of mitigating the impacts of the deployment of offshore wind infrastructure in California on the tourism industry, wildlife, and the fishing industry, funding costs associated with the future decommissioning of obsolete offshore wind infrastructure, and providing funding to marine life sanctuaries, federally recognized tribes, cities, and counties. Status: *pending referral* in the Assembly Committee on Rules.

   SB 286 (McGuire), expresses the intent of the Legislature to enact future legislation relating to offshore wind generation. Status: *referred* to the Senate Committee on Rules.

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[32] AB 2014, Cortese, 1994
[33] AB 1785, Reyes, Chapter 55, Statutes of 2002
[34] AB 3097, Campbell, Chapter 148, Statutes of 1996
[35] SB 850, Kelley, Chapter 432, Statutes of 1997
[36] AB 2717, House, Chapter 227, Statutes of 2000

5) *Prior Legislation.*

AB 525 (Chu) requires the California Energy Commission (CEC) to develop a strategic plan for achieving 3,000 MW of offshore wind development off the California Coast by 2030, and at least 10,000 MW by 2040. Status: Chapter 231, Statutes of 2021.

SB 1403 (Maienschein, 2015) Allows a public agency or agencies and one or more private, nonprofits dedicated to provide services to homeless to form a joint powers agency or enter into a joint powers agreement in order to identify and provide services to the most costly, frequent users of public funded emergency services. Status: Chapter 188, Statutes of 2015.

SB 100 (De León) establishes the 100 Percent Clean Energy Act of 2018 which increases the Renewables Portfolio Standard (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. Requires the CPUC, in consultation with the CEC, CARB, and all California balancing authorities, issue a joint report to the Legislature by January 1, 2021, reviewing and evaluating the 100 percent clean energy policy. Status: Chapter 312, Statutes of 2018.

SB 350 (De León), among its many provisions, required the CPUC to adopt a process for each LSE to file an IRP starting in 2017 and updating periodically. Additionally required POUs to also file an IRP by January 1, 2019. Status: Chapter 547, Statutes of 2015.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file.

Opposition

None on file.

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