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June 26, 2023

California Energy Commission
715 P Street
Sacramento, California 95814

RE: Workshop on AB 525 - Assessing Transmission Upgrades and Investments for Offshore Wind Development off the Coast of California (Docket No. 17-MISC-01)

Dear Chair Hochschild and Commissioners:

American Clean Power – California ("ACP-California")[1] appreciates this opportunity to provide the following comments for consideration by the California Energy Commission ("CEC") on the May 25, 2023 Workshop on Assembly Bill 525: Assessing Transmission Upgrades and Investments for Offshore Wind Development off the Coast of California ("the Workshop"). Transmission is a critical pillar to launching the offshore wind industry, along with solving the challenges of procurement, ports, and permitting. There are myriad issues facing interconnection, transmission planning, and development, which are critical to solve for multiple resources in California's clean energy transition. ACP has been advocating for improvements in transmission planning and development for multiple years, and we have submitted numerous comments on this topic to the California Independent System Operator ("CAISO"), California Public Utilities Commission ("CPUC"), and most recently to the CEC for the Integrated Energy Policy Report ("IEPR").[2]

[1] The American Clean Power Association ("ACP") is the national voice of companies from across the clean power sector that are providing cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the American economy, and driving high-tech innovation across the United States. ACP's mission is to transform the U.S. power grid to a low-cost, reliable, and renewable power system. ACP-California is a state project of ACP, representing companies who develop, own, and operate utility-scale solar, storage, land-based wind, offshore wind, and transmission assets to power a clean and renewable economy for California and the West.

[2] ACP-California is actively participating in other transmission-related processes and has filed comments with discrete recommendations on transmission / interconnection reform in the following venues:

- CAISO Interconnection Process Enhancements, March 27, 2023 Comments here: https://stakeholdercenter.caiso.com/Comments/AllComments/b6ed131c-ecaa-460d-8316-e0e0dcd0373f#org-5097e698-2a91-4550-b16e-1cda35ad26b9
- CEC's 2023 IEPR, May 23, 2023 Comments on Bulk Transmission Issues here: https://efiling.energy.ca.gov/GetDocument.aspx?tn=250290&DocumentContentId=85019

Rather than reiterating these past comments, in this letter we focus on the specific challenges facing offshore wind ("OSW") development in Morro Bay and the North Coast and the CEC's role in addressing those challenges. As a general matter, we believe there are a variety of transmission development and policy solutions that the state will need to pursue to support offshore wind. The CEC is in the best position to look across the various transmission planning, approval, development, and interconnection processes and to advise and direct the CPUC and CAISO on how these various processes can be improved and fit together to accommodate offshore wind. Through its unique authority under Assembly Bill ("AB") 525, its role in Senate Bill ("SB") 100 and zonal resource planning, and its partnership and memorandum of understanding[3] with its sister energy planning agencies, the CEC is in a critical position to address many systemic and specific offshore wind transmission challenges. In this letter, we suggest opportunities for the CEC to support offshore wind transmission through the phases of transmission planning and approval, construction, permitting, interconnection, and allocation of deliverability.

Transmission Planning and Approvals

The CEC should engage closely with its sister energy planning entities to ensure the state is planning sufficient transmission for offshore wind on a timeframe that aligns with offshore wind procurement and construction. The Transmission Planning Process ("TPP") is a critical process for long-lead time resources, especially those dependent on new transmission. New transmission is planned and approved through interconnection processes, the CAISO TPP, or through incumbent transmission owners' internal processes. The only existing process that can meaningfully plan for new transmission needed to access offshore wind within a reasonable amount of time is the TPP. Generators will continue to pursue interconnection processes, but those processes will suffer from uncertainty and delay for the foreseeable future unless there is a plan to expedite requests in certain transmission zones that are a high policy priority and/or are less impacted than others.

First, we recommend the CEC take a more active role in conveying base case policy needs to the CAISO for analysis in the TPP. The TPP provides ample and broad opportunities for state-level participation in transmission planning. Pursuant to Federal Energy Regulatory Commission Order 1000, the TPP explicitly contemplates inputs and assumptions from the state, including policy direction for new upgrades provided by the state. Under federal law, the conveyance of state policy direction is broad and can come from any state regulatory authority, including the CEC. The CEC should play an active role in the TPP and consistent with its

- CPUC IRP Transmission Planning Process, February 2, 2023 Comments on Inputs and Assumptions here: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M501/K872/501872308.PDF

[3] CAISO, CPUC, CEC Memorandum of Understanding, December 2022, available at http://www.caiso.com/Documents/ISO-CEC-and-CPUC-Memorandum-of-Understanding-Dec-2022.pdf.

oversight role under AB 525, should help ensure that the 2023-2024 TPP and later TPP cycles adequately plan, approve, and facilitate the development of new policy-driven upgrades.

In this role, we recommend the CEC send clear policy signals to "right-size" transmission through a planned and staged offshore wind development approach. To start, the CEC should convey inputs and assumptions as part of a CAISO TPP base case for 8 – 10 GW of offshore wind by 2035. The CEC should make clear that this quantity of capacity is needed for a specific state policy need pursuant to the statutory provisions of SB 100 and AB 525, as well as the CEC's expert analysis in preparing the SB 100 Report, AB 525 Report, and specific findings on the need for proactive policy-driven transmission planning for offshore wind resources. Moreover, SB 887 added Section 454.57 to the Public Utilities Code. That code section explicitly requires state agencies to provide fifteen-year transmission planning guidance to the CAISO. Despite the strong statutory language calling for OSW-specific policy-driven transmission upgrades, OSW has not been adequately represented in the CPUC's TPP inputs and assumptions provided to the CAISO thus far. In the last Integrated Resource Planning ("IRP") Decision[4], the CPUC conveyed a base case total of 4.7 GW for both OSW regions. However, as the CEC[5], the CPUC[6], and leaseholders have identified, the development potential for OSW is much larger. Recent modeling and analysis of OSW density factors suggest the two wind areas in California are capable of 8 – 10 GW of total capacity. The leaseholders' latest estimates for the Morro Bay-area leases are 5,500 – 6,000 MW, and for the Humboldt area, 2,600 – 3,800 MW. The CEC should utilize this updated analysis[7] to convey a more realistic total amount of capacity for development in this 2023-2024 TPP cycle.

Given the CAISO is already planning to this larger quantity in its planned offshore wind sensitivity analysis, and the final study plan for the 2023-2024 TPP cycle is still pending, the time is right to update this critical base case assumption. Planning to the right scale will ensure the first offshore wind projects will have the necessary interconnection and transmission deliverability to support state policy goals.

At the culmination of the TPP, CAISO must take action to approve upgrades warranted by its base case analysis. The CAISO noted in the 2022-23 TPP that it will advance upgrades for OSW in the 2023-24 TPP. The CEC should work with the CAISO to help ensure it has the

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[4] Available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M502/K956/502956567.PDF.

[5] California Energy Commission, "Commission Report Offshore Wind Energy Development off the California Coast Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045," August 2022.

[6] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2023-irp-cycle-events-and-materials/draft_2023_i_and_a.pdf.

[7] See DNV report, May 2022, available at https://topsectorenergie.nl/documents/334/20220519_RAP_DNV_Optimal_Offshore_Wind_Turbine_Size_and_Standardisation_F.pdf.

information and policy direction necessary to reach approvals in this 2023-2024 TPP cycle, including updating the offshore wind base case quantities to 6 GW in Morro Bay and 3 – 4 GW in Humboldt. This is the only way to ensure transmission capacity can be online in time to energize offshore wind projects in the early 2030s.

In Morro Bay, a new 500 kV hub is needed due to the expansion limitation of the 500 kV Diablo Canyon substation. The CAISO has highlighted the ability to interconnect 5.3 GW of resources after Diablo Canyon Power Plant ("DCPP") is offline. However, studying to at least 6 GW of capacity in this 2023-2024 TPP cycle will illuminate the need for additional infrastructure – such as a new 500 kV line between Diablo Canyon and Gates with a tap at the new 500 kV Morro Bay substation. Should the retirement of DCPP be extended, the available capacity in the region is reduced to 3 GW, which would be half the output from all leases.

The need to right size transmission solutions is especially acute in the Humboldt wind area. The state has long acknowledged that the portion of Pacific Gas and Electric's ("PG&E") system serving Humboldt County and the surrounding areas is severely transmission constrained. Any single Humboldt offshore wind project will require significant transmission upgrades in this region, but the state is also eyeing potential to develop 14 or more GW of new capacity from the Mendocino, Del Norte, and Humboldt regions to achieve 2045 climate and offshore wind goals. In addition to the CEC's work under AB 525, the CAISO analyzed North Coast offshore wind in a 2021-2022 TPP special study[8] and found that six total AC, HVDC, and VSC-HVDC lines would be necessary to deliver approximately 14 GW of OSW from the North Coast to load centers in the Bay Area. The Schatz Energy Research Center's forthcoming study also acknowledges the need for multiple subsea and land-based solutions to achieve medium or large-scale build out of offshore wind in the North Coast and recommends a staged approach to project approvals.[9] A "no regrets" transmission solution for the first set of offshore wind projects from the North Coast should also benefit (through improved system deliverability or otherwise) future upgrades necessary to achieve an additional 10 – 15 GW of OSW from the North Coast region.

Thus, the challenge will be to determine which upgrades and new lines to be approved as part of the 2023-2024 cycle will best facilitate future capacity expansions over the next two decades. This requires studying a sufficient base case resource in the current TPP cycle (e.g. 3 – 4 GW from the North Coast) while analyzing and selecting potential solutions within the framework of past special studies and longer-term planning efforts.

[8] See http://www.caiso.com/InitiativeDocuments/ISOBoardApproved-2021-2022TransmissionPlan.pdf, p. 225.

[9] Schatz Energy Research Center, May 25, 2023 AB 525 Presentation.

A key link between the TPP planning cycles and this long-term approach is the CAISO's 20-year transmission outlook, which will be updated beginning this year. The CEC should work with the CAISO throughout this year's TPP to ensure that the state is able to move past iterative planning and special studies toward a comprehensive approach to transmission planning across a 20-year horizon. The CEC should urge the CAISO to address how the first wave of transmission solutions expected to be proposed in CAISO's 2023-2024 TPP fit into a long-term goal of integrating future capacity additions in Del Norte and Mendocino, across multiple successive transmission planning cycles. This level of forecasting within the current planning cycle will enable selection of the best "no regrets" approvals and will help developers of offshore wind resources understand how and when future capacity may be added.

Transmission Construction

Projects of the scale needed to facilitate 5 – 10 GW of offshore wind may require 10 years to permit, structure, and develop. A key consideration in this timeline is the construction phase. After projects are approved, the CAISO will determine which projects should be made available for competitive solicitation and which will be constructed by the incumbent transmission owner.

CAISO conducts competitive solicitations for proposals to finance, construct, own, operate and maintain regional transmission facilities; it evaluates whether the project sponsor and proposals meet the qualifications for consideration, and takes the steps necessary for selecting approved project sponsor(s) according to the CAISO tariff and its Business Practice Manual ("BPM") for Transmission Planning Process.[10]

The CEC should ensure that an infrastructure project of the magnitude necessary to deliver OSW capacity from the North Coast can be built in a reasonable timeframe. Given the ongoing transmission workload of the investor-owned utilities just upgrading the existing system, the state should ensure that it evaluates all options for transmission development. In particular, the CEC should help ensure that an OSW-related competitive solicitation process for new policy-driven upgrades is set up for success. In addition to advocating for the need for policy-driven upgrades, the CEC, CAISO, and other interested entities should start planning a competitive solicitation well ahead of one that might follow CAISO Board Approval of a 2023-24 TPP. Starting the solicitation planning process now, including consideration of competitive design solutions, will ensure that the solicitation participants have an adequate opportunity to bring different options to CAISO.

We also believe the decisions about the optimal financing and development structure should be made before 2025 (i.e., following the 2023-24 TPP). The state should not wait to

[10] CAISO BPM Transmission Planning Process, Section 5.

evaluate transmission development models until after the final 2023-24 TPP is approved. The state should evaluate the optimal development models well ahead of when new policy-driven upgrades are presumably put to a competitive solicitation. The state should evaluate those models now and ensure that non-incumbent developers have a clear understanding of what they will be bidding on and how the state will facilitate development. For example, if the State intends to play a role by exercising its bonding authority, that should be identified as a potential strategy now and factored into the overall cost profile of new OSW transmission development. State financing can provide attractive overall project cost savings through the unique tax benefits associated with public financing. Moreover, the state's strong financial position may help ameliorate delays and lessen transaction costs that are otherwise associated obtaining financing at various stages of development before the transmission owner has been able to establish a rate base by making new transmission facilities "used and useful." The financial benefits of state financing can help reduce the time and overall cost of OSW transmission development.

In light of ongoing delays of interconnection work in PG&E's system, we do not believe PG&E is currently positioned to build significant new transmission. There may also be questions about whether PG&E can adequately finance new transmission development of the scale required for the North Coast. Recent applications for PG&E wildfire mitigation costs, as well as plans to raise capital for ongoing operations through equity sales of Pacific Generation, have all but made clear that PG&E faces challenges attracting financing structures necessary to maintain and operate its existing system, let alone undertake new large-scale transmission development.[11] The CEC should acknowledge this reality and send clear signals now about the state's desire and plans to evaluate proposals from non-incumbent transmission developers. However, the competitive solicitation process is normally not publicly accessible; generators have no role in evaluating potential sponsors. The CEC as a state agency could be involved in the CAISO selection process and would provide the lens of state-level energy policy and resource planning.

While the state develops plans for non-incumbent (or state-led) transmission development, it should simultaneously direct PG&E to focus its OSW-related efforts on the upgrades needed to its existing onshore transmission facilities the CAISO has already found are necessary to deliver OSW capacity.[12] These onshore upgrades (e.g., in the PG&E Bay Area) have already been documented by the CAISO and should be part of PG&E's plans to upgrade network transmission facilities in the near-term. Increasing deliverability in the Bay Area will not only facilitate delivery of OSW resources when those are available but could also increase

[11] See PG&E's 2023 GRC (A.21-06-021), 2022 Cost of Capital (A.21-08-15), and 2023 Cost of Capital (A.22-04-008).

[12] http://www.caiso.com/InitiativeDocuments/ISOBoardApproved-2021-2022TransmissionPlan.pdf

deliverability and provide economic and reliability benefits to ratepayers in the near and medium terms.

Transmission Permitting

Following project approvals by the CAISO and selection of a transmission developer, a large transmission project faces lengthy permitting through the CPUC's Certificate of Public Convenience and Necessity process, which involves California Environmental Quality Act review. This process can be lengthy and face significant delays beyond the transmission developers' (or dependent generators') control. Transmission permitting represents a significant risk to offshore wind developers who require clarity in the realistic timing of transmission completion in order to finalize the commercial operation date in their contracts.

CEERT and GridLab[13] and the Clean Air Task Force and EDF[14] have analyzed transmission permitting challenges in California and presented recommendations to eliminate duplicative approvals and expedite environmental reviews. ACP supports these recommendations and has sponsored SB 420 (Becker) as one component of the solution set needed to significantly reform transmission infrastructure approvals in California. The CEC, as an energy policy leader in charge of identifying viable renewable resource zones (e.g., through busbar) and as a partner of the California energy agency Memorandum of Understanding ("MOU"),[15] should take a leading role in identifying and advancing policy solutions to timely transmission development.

We also encourage the CEC to engage with its state and federal partners to explore routing options for subsea cable transmission solutions. Although these routes will present certain unique challenges, they should not be discounted or prematurely judged to be more difficult than overland options. Instead, the CEC should explore policy solutions that may be necessary to accommodate these transmission lines across suitable subsea routes. For example, there is little precedence for permitting transmission cables through state Marine Protected Areas, and this may warrant clarification in state policy.

Interconnection Process

In parallel with the CAISO and energy agency transmission planning and approval processes, offshore wind developers will need to proceed through the Generator Interconnection and Deliverability Allocation Process ("GIDAP" or "Interconnection"). Given the CAISO's recent proposals and decisions to shift forward timelines for opening and processing

[13] https://gridlab.org/wp-content/uploads/2023/03/Transmission-in-California.pdf

[14] https://www.catf.us/resource/growing-grid-plan-accelerate-californias-clean-energy-transition/

[15] Available at http://www.caiso.com/Documents/ISO-CEC-and-CPUC-Memorandum-of-Understanding-Dec-2022.pdf.

new transmission interconnection requests as part of Cluster 15 and beyond,[16] and the CAISO's need to further winnow the interconnection queue to manage request volumes that far exceed system existing or planned capacity, it will be essential that both the timelines for interconnection evaluation and the new criteria and concepts for prioritizing requests and allocating deliverability align with the development and procurement cycles for offshore wind. As long-lead time resources seeking to meet early-2030s deployment goals, offshore wind cannot afford to "miss" or be cut from the appropriate GIDAP process (be it in Cluster 14, the current Cluster 15, or in a future Cluster 16).

ACP-California recommends that the CEC work with the CAISO to evaluate whether there are opportunities for expediting interconnection requests consistent with federal laws for open and non-discriminatory access to the transmission grid. Specifically, the CEC should evaluate whether there is a legal basis for expediting interconnection requests in San Luis Obispo and Humboldt counties, due to the relatively small number of requests in these areas. The CEC should also explore how an approach to interconnection that prioritizes resource zones where transmission is available or planned could facilitate offshore wind interconnection.

ACP continues to believe that any proposals under the Interconnection Process Enhancements must adhere to open access transmission laws and all technologies and locations must be evaluated. However, certain areas may present opportunities for expedited interconnection due to the fact that there are a relatively small number of interconnection requests and thus the time required to prepare interconnection studies may be less than for more impacted parts of grid. Especially in priority zones, we believe interconnection requests can be expedited consistent with open-access laws when the time required for the CAISO and transmission owner to study and coordinate with interconnection customers is clearly less than for other transmission zones. We believe this may be the case for projects interconnecting in Morro Bay and Humboldt regions.

Going forward, the CEC should help the CAISO develop an interconnection process that accommodates long-lead time, large-scale diverse resources that the state has identified as part of an optimal long-term portfolio.

Deliverability Allocation

Through the GIDAP, offshore wind developers will proceed toward an interconnection agreement and will potentially receive an allocation of system deliverability. Each successful offshore wind project will require full-capacity deliverability status, as this is the only way to maximize the Resource Adequacy products it can sell in an offtake contract. This is yet another

[16] See https://stakeholdercenter.caiso.com/StakeholderInitiatives/Interconnection-process-enhancements-2023.

area where it will be essential for CAISO processes to accommodate policy priorities, such as offshore wind.

There are clear transmission-related opportunities in the Morro Bay region that could facilitate OSW development in the early 2030's. The deliverability from Diablo Canyon is a unique opportunity for OSW that both the CEC and CPUC have recognized in their AB 525 and IRP decisions.[17] However, ensuring deliverability will be available for OSW will require action by CAISO in implementing its deliverability allocation methodology. As articulated in comments to the CAISO, [18] ACP-California strongly supports CAISO's proposal in its 2022 Transmission Planning Process Enhancements initiative to retain policy-driven transmission capacity for the specific policy purpose for which it was enabled. Having this capability will be critical to ensuring that the state's policy objectives, including the necessary resource diversity to achieve those goals, can be realized. This policy enhancement will be necessary in both the North Coast and Central Coast, but is more pressing in the Central Coast where the timeframe for retirement of Diablo Canyon Power Plant is uncertain, and where competition for existing or newly available capacity may be higher. The CEC should also engage with the CPUC and PG&E on the dispensation of PG&E's deliverability rights following the retirement of DCPP.

As a first step in proactively addressing the question of deliverability in the Morro Bay region, the CEC should first make clear to the CAISO that the development potential for the Morro Bay offshore wind leases is larger than the amount of deliverable capacity available currently at Diablo Canyon and Morro Bay. As discussed above, leaseholders estimate the Morro Bay region could accommodate 6 GW of development. The state should not simply assume that Central Coast capacity will be available to serve the full OSW development potential. Instead, the CEC should convey supplemental inputs and assumptions for the base case in the 2023-24 TPP that accounts for 6 GW of OSW development, under different scenarios for when Diablo retires. Similarly, the CAISO should not assume that new San Luis Obispo battery resources will be dispatched in a manner complimentary to offshore wind. Next, the CEC should work with the CAISO to develop a durable program for deliverability reservation as part of the CAISO's Interconnection Process Enhancements.

Link to Procurement

[17] See the CEC's "Commission Report Offshore Wind Energy Development off the California Coast Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045," August 2022; and CPUC, 2022 Preferred System Plan Decision, Section 7.2, available at https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M451/K412/451412947.PDF.

[18] See ACP Comments in Transmission Planning Process Enhancements, available at https://stakeholdercenter.caiso.com/Comments/AllComments/fe469961-883e-4454-9adb-44eb6098b450.

As memorialized in the Transmission and Resource Planning MOU,[19] transmission and procurement processes are inextricably and bidirectionally linked. Thus, there will be no viable transmission or interconnection solution for offshore wind without an effective, centralized procurement process capable of providing offtake certainty for this long-lead time, very large-scale, and new resource. Each step in the transmission planning and interconnection processes requires planning, policy, or offtaker indications that the energy and capacity of an offshore wind resource will be purchased on long-term contract by a certain date. A successful procurement process and schedule must enable offshore wind projects in Cluster 14 and 15 to meet their commercial viability requirements for obtaining and retaining deliverability. Therefore, we urge the CEC to continue to engage with the Governor's Office and Legislature to secure a central procurement mechanism suitable for offshore wind, with dates certain for CPUC and Central Procurement Entity activities that will enable alignment with GIDAP timelines.

Conclusion

ACP-California supports the CEC's efforts to proactively analyze and develop solutions to develop the transmission and interconnection facilities necessary to meet the full development potential for OSW in the Humboldt and Morro Bay regions. We appreciate the opportunity to provide these comments on the Workshop.

Sincerely,

Molly Croll
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American Clean Power Association

[19] Available at http://www.caiso.com/Documents/ISO-CEC-and-CPUC-Memorandum-of-Understanding-Dec-2022.pdf.