BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Ordering Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Reforms and Refinements, and Establish Forward Resource Adequacy Procurement Obligations.	Rulemaking 21-10-002

COMMENTS OF OFFSHORE WIND CALIFORNIA ON ADMINISTRATIVE LAW JUDGE'S RULING ON ENERGY DIVISION'S REGIONAL WIND EFFECTIVE LOAD CARRYING CAPABILITY STUDY

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I. INTRODUCTION

Pursuant to the June 1, 2022 *Administrative Law Judge's Ruling on Energy Division's Regional Wind Effective Load Carrying Capability Study* ("ALJ Ruling"), Offshore Wind California ("OWC")[1] respectfully submits the following comments. California Public Utilities Commission ("Commission") Decision ("D.") 21-06-029 directed the Energy Division to develop regional effective load carrying capability ("ELCC") values for wind resources for the 2023 Resource Adequacy ("RA") compliance year.[2] Energy Division staff ("Staff") have now prepared the resulting Regional Wind Effective Load Carrying Capability Study Results for 2024 ("Wind ELCC Study").[3] The Commission should:

1) find that the Wind ELCC Study corroborates high-average monthly wind ELCC values for offshore wind; and,

[1] OWC is a nonprofit coalition of industry partners with a shared interest in promoting policies and public support for responsible development of offshore wind power in California. Its board member companies and organizations include Aker Offshore Wind, BP, Equinor, Hexicon, Magellan Wind, Mainstream Renewable Power, Ørsted, Pacific Ocean Energy Trust, Principle Power, RWE, Shell, and SSE Renewables. OWC's members provide an independent voice and industry expertise to facilitate offshore wind deployment off California's coast. OWC engages in public education and advocacy efforts to include offshore wind power as part of a comprehensive solution to California's energy needs. OWC is filing a motion for party status concurrently with these comments.

[2] D. 21-06-029 at 79 (Ordering Paragraph 15).

[3] ALJ Ruling at Appendix A, as revised pursuant to June 9, 2022 *E-Mail Ruling Attaching Energy Division's Revised Regional Wind Effective Load Carrying Capability Study*.

2) disclose underlying data and assumptions relied upon to inform the ELCC values for offshore wind.

II. THE WIND ELCC STUDY CORROBORATES HIGH AVERAGE MONTHLY WIND ELCC VALUES FOR OFFSHORE WIND

The Commission should recognize the relative value that offshore wind can provide to help meet the State's energy demands, and the benefits it offers compared to other sources of renewable energy. This value is demonstrated in the plots of average monthly wind ELCC.[4] Accounting for peak winds in the summer months and evening hours, the energy generation from offshore wind in California will serve to complement the State's existing use of solar and onshore wind resources.[5]

Regardless of the region, compared to onshore wind, offshore wind has the highest average capacity factor, as demonstrated in Figure 2 of the Wind ELCC Study. Several other studies support this finding. In a report published by USC Schwarzenegger Institute for State and Global Policy, the high capacity factor of offshore wind is attributed to technological advances, such as increased turbine size, lower maintenance demands, and stable electrical transmission.[6] In another example published in April 2022, NREL assessed the net capacity factors for offshore wind in the Humboldt and Morro Bay Wind Energy Areas.[7] This study, taking into consideration the impacts of "turbine spacing, mooring system footprints, wake losses within and between adjacent wind

[4] Wind ELCC Study at 7 (Figure 4).
[5] National Renewable Energy Laboratory ("NREL"), Assessment of Offshore Wind Energy Leasing Areas for Humboldt and Morro Bay Wind Energy Areas, California (April 2022), Figure 9 at 12, accessible at: https://www.nrel.gov/docs/fy22osti/82341.pdf ("NREL April 2022 Assessment"). This is NREL's most recent assessment of proposed offshore leasing areas in California.
[6] USC Schwarzenegger, California's Offshore Wind Electricity Opportunity (Aug. 2021), Appendix B at 49, Figure IIIA: Offshore Wind Generation Profile at 10, accessible at http://schwarzeneggerinstitute.com/images/files/OSW_Report.pdf.
[7] *See* NREL April 2022 Assessment.

plants, and other system losses," shows net capacity factors ranging from approximately 49 to 50 percent in Humboldt and 46 to 48 percent in Morro Bay.[8]

Notably, a host of factors may *increase* production relative to maximum capacity, including higher wind speeds, taller turbines, increased turbine spacing, greater ratio of rotor size to generator capacity, and turbine overplanting.[9] Without further information regarding the specific assumptions (such as wind turbine capacity, size, and spacing) that were used in the Wind ELCC Study, however, OWC is unable to comment further on the specific values presented.[10]

III. THE COMMISSION SHOULD DISCLOSE UNDERLYING DATA AND ASSUMPTIONS RELIED UPON TO INFORM THE ELCC VALUES FOR OFFSHORE WIND

The Wind ELCC Study, as well as the February 18, 2022 Loss of Load Expectation and Effective Load Carrying Capability Study Results for 2024[11] that the Wind ELCC Study cites as providing "broader, comprehensive descriptions of modeling assumptions,"[12] do not disclose the specific data and assumptions Staff relied upon to develop the values presented. The Commission should provide stakeholders with an opportunity to review and comment on the specific data relied

[8] NREL April 2022 Assessment at v, vi, 41, 44.
[9] Turbine overplanting means more turbines are utilized than required to meet the project export capacity limit.
[10] The Wind ELCC Study references the February 18, 2022 Loss of Load Expectation and Effective Load Carrying Capability Study Results for 2024, Appendix A of *Administrative Law Judge's Ruling on Loss of Load Expectation Study and Supply-side Demand Response Report, and Setting Comment Schedule* ("February 2022 Report"), as providing a comprehensive description of modeling assumptions. However, the February 2022 Report does not specifically address offshore wind. On page 8, the February 2022 Report cites to Commission resources that provide key input data. Footnote 9 refers to the webpage for 2019-2020 IRP Events and Materials and Footnote 10 refers to the webpage for Unified RA and IRP Modeling Datasets 2021. The 2019-2020 IRP Events and Materials webpage links to several documents, including the 2019-20 Inputs and Assumptions (February 27, 2020). Regarding offshore wind, the 2019-20 Inputs and Assumptions document references both NREL's Wind Integration National Dataset ("WIND") Toolkit and the UC Berkeley study California Offshore Wind: Workforce Impacts and Grid Integration for scaling. The 2019-2020 IRP Events and Materials webpage also links to the November 2020 NREL Report titled *The Cost of Floating Offshore Wind Energy in California Between 2019 and 2032*, accessible at https://www.nrel.gov/docs/fy21osti/77384.pdf.
[11] *See* February 2022 Report.
[12] Wind ELCC Study at 2, n. 1.

upon by Staff that may have a material impact on the Commission's ultimate recommendations and conclusions with respect to ELCC values for offshore wind.

IV. CONCLUSION

The development of regional wind ELCC values is a meaningful way to inform Integrated Resource Planning and RA procurement efforts. However, the Commission should provide greater clarity on, as well as the opportunity to review and provide comments on, the inputs and assumptions for offshore wind that are being employed by the Wind ELCC Study.

_____/s/_____

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