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DOE Announces Efforts to Address Transmission Development for West Coast Offshore Wind

April 6, 2023

Reading Time : **6 min**

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In February 2023, the U.S. Department of Energy (DOE) released its West Coast Offshore Wind Transmission Literature Review and Gaps Analysis ("Transmission Review") aimed at identifying areas where additional transmission studies will be required to support the development of offshore wind projects off the coasts of California, Oregon and Washington.[1] DOE followed up the release of its Transmission Review with an announcement that it would be conducting a new 20-month West Coast Wind Transmission Study ("Transmission Study"), which will provide a roadmap for developing the transmission infrastructure necessary to eliminate the transmission constraints currently limiting offshore wind development along the west coast.[2] Given the Biden administration, California and Oregon's aggressive offshore wind goals and the fact that existing onshore transmission is insufficient to accommodate these goals, the Transmission Review and Transmission Study are likely to play a key role in planning for the build-out of transmission necessary to deploy major west coast offshore wind projects.

Background

The Biden administration has set a goal of bringing 15 gigawatts (GWs) of floating offshore wind online by 2035 and both California and Oregon have established offshore wind goals of 2-5 and 3 GWs by 2030, respectively.[3] In line with these goals, the Bureau of Ocean Energy Management (BOEM) has established two Wind Energy Areas (WEAs) off the coast of California and two Call Areas off the coast of Oregon for the development of wind projects.[4]

BOEM conducted a lease sale for the two California WEAs representing five lease areas and 373,268 acres in early December 2022.[5]

But the WEAs and Call Areas established by BOEM—while representing high capacity wind areas—are located up to 65 miles from shore and are generally isolated from the high voltage transmission that will be necessary to transmit energy from offshore wind projects to high load areas.[6]DOE's Transmission Review represents an initial first step towards addressing the transmission needs associated with west coast offshore wind projects by evaluating the existing west coast offshore wind transmission analyses and identifying other considerations that transmission planning analyses will need to take into account for these projects going forward. The Transmission Study will build on the Transmission Review by evaluating multiple pathways to ensure transmission is available to meet the administration and state offshore wind goals and will be used "to develop practical plans through 2050 to address transmission constraints that currently limit offshore wind development along the nation's West Coast."[7]

Transmission Review

Of the more than 30 west coast electric generation and transmission studies that were reviewed as part of the Transmission Review, DOE found a number of common themes, including a lack of:[8]

- Transmission capacity at potential onshore interconnection points and transmission networks, particularly in northern California, necessary to connect offshore wind at the scale contemplated by the WEAs and Call Areas.
- Suitable points of interconnection near the WEAs or Call Areas.
- Consensus regarding the optimal ocean grid infrastructure or offshore transmission network for serving these projects.
- Analysis that considers multiple interconnection points and/or multiple transmission systems.
- Studies considering subsea transmission options.

DOE concludes that additional studies will be required to fully illuminate these themes, particularly if transmission development to support these important projects is pursued in a coordinated fashion.[9]

Additionally, the Transmission Review identifies a number of subjects that will need to be addressed going forward to ensure that adequate transmission infrastructure is developed to support the delivery of the electricity produced by west coast offshore wind projects. At the top of DOE's list is the lack of interregional coordination.[10] The Transmission Review notes that utilities in the West increasingly rely on long distance transmission to serve their loads and thus make interregional transmission coordination essential. Offshore wind, if coordinated with the resource needs of a large number of western load serving entities, could result in a holistic plan that integrates offshore wind projects for the benefit of multiple regions.[11]

The Transmission Review also suggests other technical considerations of offshore wind transmission development that should be evaluated in future analyses. Analyzing the interregional portfolios of loads and generation and how they are likely to change over time to accommodate state policy objectives could, for example, affect offshore wind's role in the resource mix. Understanding the technological readiness of transmission and offshore wind infrastructure along with viable undersea cable routes would also be helpful to identifying alternative pathways for delivering energy from offshore wind projects to high load areas. And developing more concrete generation attribute and project cost estimates will be important for performing cost-benefits analysis related to these projects and their development paths.

The Transmission Review also notes that new policy developments will need to be considered as they arise in the planning process for west coast offshore wind.[12] Indeed, a majority of the analyses summarized by the Transmission Review were completed prior to the passage of the Inflation Reduction Act and its extension of the tax credits for offshore wind to at least 2034[13] and appropriation of $100 million for planning interregional transmission development and the development of transmission for offshore wind energy.[14]And few, if any, of the analyses take into account more recent planning decisions—like the California Independent System Operator Corporation's proposal to delay queue processing and evaluate whether it's possible to study offshore wind and certain other long-lead time resources through a separate queue process—that are likely to affect the development of transmission necessary to support offshore wind projects.[15]

Transmission Study

While the 20-month west coast Transmission Study is just kicking off and few details are available yet, DOE's corresponding Atlantic Offshore Wind Transmission Study is scheduled to conclude by November of this year and will likely provide some insight into what to expect from the west coast Transmission Study.[16] DOE has stated that the Atlantic Offshore Wind Transmission Study will, among other things, identify scenarios and pathways of offshore wind energy deployment with transmission topologies, quantify the impacts of different offshore wind transmission scenarios, compare transmission technologies, and determine a critical point after which the benefits of a coordinated transmission framework will outweigh the benefits of radial generator lead lines.[17]

Conclusion

The west coast currently lacks the transmission infrastructure necessary to achieve the Biden administration, California or Oregon's offshore wind goals. To meet these goals and ensure that the offshore wind projects contemplated to be developed in the WEAs and Call Areas are able to deliver their energy to high load centers, transmission planning to support these projects must commence soon. Although offshore wind projects have long lead times (the Transmission Review notes that BOEM's process timeline anticipates up to seven years for a construction and operations plan to be approved),[18] transmission projects cannot be built overnight and thus starting the planning process for the projects necessary to support west coast offshore wind is essential.[19] The DOE's Transmission Review and Transmission Study represent important first steps in that process.

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[1] U.S. Dept. of Energy, *West Coast Offshore Wind Transmission Literature Review and Gaps Analysis* (Feb. 2023), https://www.energy.gov/eere/wind/articles/doe-report-helps-understand-west-coast-offshore-wind-transmission-needs.

[2] *See* U.S. Dept. of Energy, *New Analysis Studying West Coast Offshore Wind Transmission Options* (Feb. 22, 2023), https://www.energy.gov/eere/wind/articles/new-analysis-studying-west-coast-offshore-wind-transmission-options.

[3] Transmission Review at 8, 19.

[4] *Id*. at 8.

[5] U.S. Dept. of the Interior, *Biden-Harris Administration Announces Winners of California Offshore Wind Energy Auction* (Dec. 7, 2022), https://doi.gov/pressreleases/biden-harris-administration-announces-winners-california-offshore-wind-energy-auction.

[6] Transmission Review at 8, 15.

[7] U.S. Dept. of Energy, *U.S. Department of Energy Announces New Actions to Accelerate U.S. Floating Offshore Wind Deployment* (Feb. 22, 2023), https://www.energy.gov/articles/us-department-energy-announces-new-actions-accelerate-us-floating-offshore-wind-deployment.

[8] Transmission Review at 10-11.

[9] *Id.* at 11.

[10] *Id.* at 15.

[11] *Id.*

[12] *Id.* at 16.

[13] 26 U.S.C. §§ 45, 45Y, 48 and 48E.

[14] 42 U.S.C. § 18715b.

[15] Transmission Review at 16.

[16] National Renewable Energy Laboratory, *Atlantic Offshore Wind Transmission Study* (last visited: April 2, 2023), https://www.nrel.gov/wind/atlantic-offshore-wind-transmission-study.html.

[17] *Id.*

[18] Transmission Review at 8.

[19] *See*, *e.g.*, U.S. Dept. of the Interior, *Proposed SunZia Southwest Transmission Project* (last visited April 2, 2023), https://www.blm.gov/programs/planning-and-nepa/plans-in-development/new-mexico/proposed-sunzia-transmission-project (noting that National Environmental Policy Act review began in 2009 for transmission project that has not yet commenced construction).

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