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Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Scoping Plan should Highlight the Role of Offshore Wind to Meet California's Clean Energy, Climate Needs

Dear Ms. Sahota:

Thank you for the opportunity to comment on the Draft 2022 Scoping Plan Update (Scoping Plan). The Scoping Plan identifies massive clean energy needs to achieve carbon neutrality in California. Offshore wind represents one of the most scalable and lowest impact forms of new renewable energy for California. RWE Renewables hopes the final Scoping Plan will further highlight the role of offshore wind to support carbon neutrality in California and recommend additional steps to fully evaluate its potential to advance California's climate and clean energy goals.

About RWE Renewables

RWE Renewables Americas develops, owns and operates some of the most efficient, highest performing renewable energy projects in the United States – including onshore wind, photovoltaic renewable generation and energy storage – and has developed and constructed more than 5,000 megawatts of renewable capacity in the U.S. since 2007. We rank among the top 10 onshore wind companies in the U.S., with more than 900 employees in the U.S., and the number of projects in the U.S. is growing.

RWE is one of the world's leading companies in offshore wind, active across the entire value chain, from project conception and development to construction as well as operation and maintenance. The unparalleled expertise the company has

earned over the last 20 years has resulted in 17 wind farms in operation. RWE Renewables recently secured area OCS-A 0539 in the New York Bight offshore lease auction, with a winning bid of \$1.1 billion. The awarded seabed has the potential to host about 3 gigawatts (GW) of capacity, enough to power 1.1 million U.S. homes. The project is expected to be in operation by the end of the decade.

The U.S. market is a strong focus of ours and our strategy for renewables is geared toward growth: RWE will invest \$1.66 billion annually to expand its wind, solar energy and storage technologies portfolio. RWE has committed to become carbon neutral by 2040, along with ambitious targets for all activities that cause greenhouse gas emissions. The Science Based Targets initiative has confirmed that these emission reduction targets are in line with the Paris Agreement.

Current energy planning underappreciates new clean energy needs

The Scoping Plan identifies significant new electricity loads and clean energy requirements to achieve carbon neutrality in California. This includes “unprecedented load growth” that must be met with clean energy resources.¹ Above and beyond those grid-connected loads, the Scoping Plan identifies significant additional new energy requirements for hydrogen production (~40 GW) and undefined energy requirements for direct air capture.

These loads, while not quantified in the Scoping Plan, could be enormous. For example, research cited in a WRI review of the technology suggests energy requirements for direct air capture systems might average 2.45 MWh/tCO₂.² Scaled to the levels of carbon dioxide removals per year identified in the Proposed Scenario (95 MMtCO₂/year), would require an additional 232,750 GWh/year of new clean energy resources, which is more than all in-state electricity generation today.³

¹ Pg. 156

² https://files.wri.org/d8/s3fs-public/technological-carbon-removal-united-states_0.pdf

³ <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy>

Altogether, the Proposed Scenario would require at least 9 GW/year of new solar and storage capacity to serve grid-connected load growth, an additional ~2 GW/year of behind the meter solar to support hydrogen production,⁴ and an undefined, but likely very significant, capacity expansion to support carbon dioxide removal.

It is clear that California is going to need a dramatic increase in clean energy resources to meet this demand, but state agencies do not appear to be planning for it. For example, while the Scoping Plan suggests California needs to add approximately 11 GW/year of clean energy resources (ignoring requirements for carbon dioxide removal) to achieve carbon neutrality, recent state agency reports and studies do not similarly reflect this estimate. The CEC-led joint agency SB 100 Report only identifies approximately 6 GW/year,⁵ a recent “historic” clean energy procurement requirement by the CPUC of 11,500 MW over 2023-2026 will deliver less than 3 GW/year,⁶ and the CAISO is only currently planning to add 2.7 GW/year of new transmission capacity, with a commitment to increase to 4 GW/year in future planning cycles.⁷ RWE Renewables suggests that the final Scoping Plan include an action requiring state agencies to begin incorporating energy loads needed to achieve carbon neutrality into their planning processes.

Offshore wind offers one of the most promising resources to support significant additional clean energy capacity and generation

While these energy requirements may feel daunting, we are not suggesting California tames its ambition. Quite the opposite – RWE Renewables hopes the final Scoping Plan will set the state on a path to achieve greater decarbonization in the electricity sector than currently envisioned in the Proposed Scenario. Specifically, we support a 30 MMTCO₂e/year planning target for 2030 and a 0 MMTCO₂e/year planning target in the 2035-2045 timeframe – in line with

⁴ <https://ww2.arb.ca.gov/sites/default/files/2022-03/SP22-Model-Results-E3-ppt.pdf>

⁵ <https://www.energy.ca.gov/news/2021-03/california-releases-report-charting-path-100-percent-clean-electricity>

⁶ <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M389/K478/389478892.PDF>

⁷ <http://www.aiso.com/Documents/California-ISO-Board-Approves-Transmission-Plan-for-Next-10-Years.pdf>

President Biden’s nationwide goal and objective of achieving carbon neutrality in California.

Rather than compounding the capacity challenges identified in the Scoping Plan and SB 100 report, RWE Renewables thinks a renewed planning effort around more ambitious greenhouse gas targets for the electricity sector would reveal pathways with lower capacity requirements, costs, emissions and land use impacts than currently identified. This would be especially true if that new planning effort incorporates the complete opportunity provided by offshore wind and other firm zero carbon resources like green hydrogen.

RWE Renewables requests the final Scoping Plan include greater ambition for reducing greenhouse gas emissions in the electricity sector, and commits to create a process for identifying an optimal mix of grid resources to meet the state’s energy and decarbonization goals. This should include the following steps:

- Incorporate energy loads needed to achieve carbon neutrality into all state energy planning processes, including CEC demand forecasts as part of the Integrated Energy Policy Report.
- Incorporate scenarios achieving 0 MMTCO₂e/year by 2035-2045 (and/or de minimis greenhouse gas emissions) into the next SB 100 report and CPUC’s Integrated Resource Planning process.
- Fully evaluate the role of offshore wind and other firm zero carbon resources like green hydrogen to achieve 0 MMTCO₂e/year in the power sector and carbon neutrality statewide in forthcoming evaluations and planning related to SB 423 (Stern) and AB 525 (Chiu).
- Identify new greenhouse gas planning targets for the electricity sector of 30 MMTCO₂e/year in 2030 and 0 MMTCO₂e/year in 2035-2045, pending the evaluations above.

Successfully deploying offshore wind at scale requires California’s commitment and a pathway to market

In addition to planning for new electricity loads and energy resources needed to achieve carbon neutrality, the state needs to take steps to enable these necessary

resources to come online. For offshore wind, as a long lead-time resource, a clear path to market – including an offtake mechanism – is especially important to support the development of these multibillion dollar projects and the port and manufacturing facilities that will be needed to support them. RWE Renewables appreciates and strongly supports the recognition in the Scoping Plan and by the Environmental Justice Advisory Committee⁸ along these lines.

In the final Scoping Plan, RWE Renewables suggests that CARB further highlight the opportunity offshore wind can play in contributing to the state’s carbon neutrality goals, as well as the need to develop offtake mechanisms to support development of this important industry in California. CARB is in the position to make meaningful statements that will support investment in the offshore wind industry in California through the following additions to the text in the final Scoping Plan:

- pg. 163: “Facilitate long lead-time resource development through **offtake and planning** in the IRP and the SB 100 interagency process and through technology development and demonstration funding that includes resources such as **offshore wind**, long-duration energy storage and hydrogen production.”
- pg. 224: “CARB supports strategies identified in the recommendations such as offshore wind to reduce the reliance on fossil fuel generation, **and supports mechanisms to develop this important resource in California.**”
- Proposed new language: “**Offshore wind offers a promising, scalable resource to help California meet the state’s clean energy and carbon neutrality goals. It has been identified in the SB 100 report as an important component of a low-cost, diverse clean energy portfolio, and by developing this industry, will serve as an important driver for significant job creation in the state. Accordingly, the state commits to developing a successful offshore wind industry to drive job creation and achieve targeted greenhouse gas reductions in California.**”

⁸ Preliminary Draft of EJAC Scoping Plan Recommendations, NF19:
<https://ww2.arb.ca.gov/sites/default/files/barcu/board/books/2022/031022/ejacrecsrevised.pdf>

Thank you for the opportunity to comment on the Draft 2022 Scoping Plan Update. RWE Renewables looks forward to working with CARB to advance California's clean energy and climate change goals, including through the development of offshore wind.

Sincerely,

Erin Kester
Director, Government Relations – Offshore, West Coast, U.S.
M +1-503-915-0031
erin.kester@rwe.com

RWE Renewables
www.rwe.com