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CHBC Comments on Staff Workshop on Research and Development Opportunities for Floating Offshore Wind

Additional submitted attachment is included below.

Comments by the California Hydrogen Business Council on Staff Workshop on Research and Development Opportunities for Floating Offshore Wind

I. Introduction

The California Hydrogen Business Council (CHBC)¹ appreciates the opportunity to submit these comments on the March 4 workshop on Research and Development Opportunities for Floating Offshore Wind. To summarize our comments:

- **We strongly support *Draft Report on Research and Development Opportunities for Offshore Wind Energy in California (Draft Report)* recommendation to facilitate advanced hydrogen and other technologies to integrate offshore wind into the grid.**
- **We recommend including to the research database additional studies and projects related to coupling offshore wind and hydrogen technologies, such as those mentioned below.**

II. Comments

- A. We strongly support Recommendation 3 in the Draft Report, which call for developing “technical solutions to integrate offshore wind to the grid, including facilitating technologies like advanced hydrogen and subsea storage.”²**

We agree with supporting the three opportunities cited in the report, namely

¹ The CHBC is comprised of over 100 companies and agencies involved in the business of hydrogen. Our mission is to advance the commercialization of hydrogen in the energy sector, including transportation, goods movement, and stationary power systems to reduce emissions and dependence on oil. The views expressed in these comments are those of the CHBC, and do not necessarily reflect the views of all of the individual CHBC member companies. CHBC Members are listed here: <https://www.californiahydrogen.org/aboutus/chbc-members/>

² p. 57, Draft Report



- Developing partnerships and initiatives with research institutes studying storage opportunities unique to offshore wind.
- Researching the technical feasibility of hydrogen production offshore or at suitable onshore facilities using power generated by offshore wind facilities.
- Conducting a value study quantifying potential benefits to the state grid from offshore wind plus storage.³

B. We recommend including to the research database additional studies and projects related to coupling offshore wind and hydrogen technologies, such as the following.

Examples of projects and research that we recommend be added to the database are:

- *Dolphyn project*, which is pairing floating wind turbines with electrolyzers in the UK⁴
- *ITM/Orsted UK project*, which is developing 100 MW of electrolyzers powered by Orsted's Hornsea One offshore wind project (2020)⁵
- *North2 feasibility study*, the first step in the North2 project, which aims to use GW scale offshore wind power to produce green hydrogen at scale in the Netherlands (Shell, Gasunie, Groningen Seaports, 2020)⁶
- *Gigastack feasibility study*, the first step in the Gigastack project, which aims to demonstrate delivery of bulk, low cost, zero carbon hydrogen produced using electricity GW scale PEM electrolysis powered by offshore wind (Orsted, ITM, Element Energy, 2019)⁷

³ Ibid.

⁴ <https://www.greentechmedia.com/articles/read/orsted-among-the-winners-as-uk-backs-hydrogen-demos>

⁵ <https://www.rechargenews.com/wind/germany-eyes-new-offshore-wind-farms-dedicated-to-green-hydrogen-production/2-1-748198>

⁶ <https://www.gasunie.nl/en/news/europes-largest-green-hydrogen-project-starts-in-groningen>

⁷ <https://www.sciencedirect.com/science/article/pii/S1464285919303803?via%3Dihub>

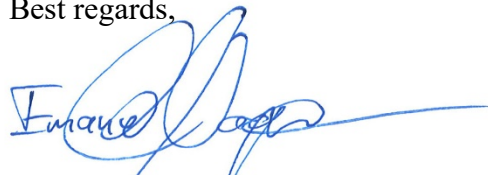
- *Optimizing investments in coupled offshore wind -electrolytic hydrogen storage systems in Denmark* (Stanford, US DOE, NREL, BTECH Aarhus University, 2016)⁸

We also recommend tracking potential projects in Germany, which reportedly is looking fund offshore wind to hydrogen production projects, as part of its multi-billion dollar national strategy to scale renewable hydrogen.⁹

III. Conclusion

We fully agree that offshore wind shows great potential in California, as part of the state's effort to transition to renewable energy and achieve economy-wide carbon neutrality, and that hydrogen can plan a key role in making offshore wind feasible. We thank you for your consideration of these comments and welcome your contacting us with any questions.

Best regards,



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⁸ <https://web.stanford.edu/group/efmh/jacobson/Articles/Others/17-Hou-JPowSources.pdf>

⁹ <https://www.rechargenews.com/wind/germany-eyes-new-offshore-wind-farms-dedicated-to-green-hydrogen-production/2-1-748198>