

DOCKETED

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Comments on Wind Energy Research of Preliminary Draft Utility-Scale Renewable Energy Generation Research Roadmap

Additional submitted attachment is included below.



29 July 2019

Ms. Silvia Palma-Rojas
California Energy Commission
Dockets Office
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Subject: Docket No. 19-ERDD-01 – Comments on Preliminary Draft Utility-Scale Renewable Energy Generation Research Roadmap

Dear Silvia:

We are pleased to provide comments on the topic of onshore and offshore utility-scale wind energy development to your preliminary draft utility-scale renewable energy generation research roadmap. WSP USA has a genuine interest in advancing renewable energy in the United States. WSP is one of the world's leading engineering and professional service firms with more than 45,000 employees worldwide and 9,500 employees in 150 offices across the United States including about a dozen offices in California. WSP has been providing professional services for offshore wind projects in the United Kingdom and the United States since 2008 and is currently providing detailed design of wind turbine foundations for the Vineyard Wind Offshore Wind Farm in Massachusetts, the first large-scale offshore wind project in the United States. Despite the pioneering character of this project, it will already provide cost-effective electricity to the state of Massachusetts, and we believe that offshore wind will become a decisive contributor to renewable energy on the east and west coasts.

Comment to Initiative 4.1: Onsite Assembly Improvement by Advancing Crane Technologies

We suggest that this initiative is made more inclusive by looking at the entire logistics challenge of wind turbine component fabrication, transportation, and installation. New tower technologies, in combination with tower erection and turbine installation methods, to reduce the need of large site equipment need to be considered. Such technologies can efficiently increase hub height and include

- Self-erecting tower/turbines (such as telescopic towers)
- Climbing cranes that climb up the partially built tower to add new tower segments and finally turbine to the tower

- Additive manufacturing or automated shotcreting of tower in combination of climbing technologies

Comment to Offshore Wind Research Initiatives 5.1 to 5.3

Generally, we concur with the comments provided by the Business Network for Offshore Wind regarding the combination of applicable floating wind turbine technologies with the manufacturing capabilities and available infrastructure in California (Docket Number 19-ERDD-01, TN# 228948). There are many floating wind turbine technologies in various stages of development, with leading technologies in the prototyping stage and first smaller wind farms. To develop a new floating wind turbine technology would be time consuming and expensive. The time and capital are better spent by working with these leading technologies to adapt them for the California market and to move to a prototype installation as quickly as possible.

California's current maritime manufacturing industry is concentrated at major ports, and there are only a few other locations that would provide ideal manufacturing conditions for offshore wind floating substructures as they typically require a large yard (ideally greater than 50 acres), a wharf, marginal pier, or even dry dock directly at or near deep waterways. Staging and turbine installation would be done at the same site or at a nearby installation site and would also require deep waterways and ocean access with high clearance. California's deep ports are already crowded and land prices are high. It will be challenging to develop cost-effective manufacturing sites in California for the offshore wind industry.

A research and development initiative could focus on fabrication and installation studies in collaboration with existing floating wind turbine technologies. This initiative could be concurrent with an infrastructure study of potential floating structure fabrication and turbine installation sites. There is a need for innovative fabrication and turbine installation methodologies that can match the existing fabrication industry at the California coast.

Further development of mooring technologies for floating offshore wind turbines will also be needed, in particular, for large arrays of turbines.

General Comments on Offshore Wind Research Plan

Economy of scale is an essential driver for Offshore Wind to build cost-effective wind plants. The state will have to offer a commitment and a clear path forward for Offshore Wind in order for the offshore wind industry to invest in California. California must develop and commit to an offshore wind masterplan similar to the State of New York's plan. Research initiatives should focus on the broad understanding of the effect of offshore wind on environmental and socioeconomic conditions that can build the basis for a mitigation plan, public outreach, and policy making. Areas to investigate include the impact on sensitive ecosystems, maritime traffic, tourism, fishing, boating, and military operations. An economic study should be conducted that investigates what would be the minimum growth rate of offshore wind development needed in order to incentivize the development of a domestic manufacturing industry and what would be

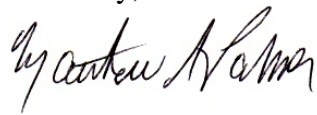
Ms. Silvia Palma-Rojas
29 July 2019
Page 3

the limit. Only with a clear plan forward with supporting policies will the offshore wind industry invest in initial prototype turbines and small test plants needed to initiate growth.

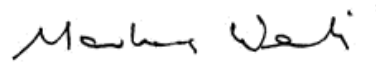
CLOSING

Thank you for inviting us to comment on your research roadmap for renewable energy. We are looking forward to continue our support to help California reach its renewable energy goals. For further questions or input, you can reach Markus Wernli (markus.wernli@wsp.com) who can connect with our vast pool of experts in the renewable energy field.

Sincerely,



Matthew A. Palmer, PE
Vice President, Offshore Wind Manager



Markus Wernli, PhD., PE
Senior Project Manager, Maritime Division

MAP:MW:dls