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December 20, 2024

Regional Assessment Committee
Regional Assessment of Offshore Wind Development in Nova Scotia
Submitted by email: OffshoreWindNS-EolienneExtracotiereNE@iaac-aeic.gc.ca

Subject: NRCan response – Comments on the Draft Regional Assessment report – Regional Assessment of Offshore Wind Development in Nova Scotia

On November 1st, 2024, the Committee for the Regional Assessment of Offshore Wind Development in Nova Scotia (the 'Committee') informed Natural Resources Canada (NRCan) of the 50-day comment period on the draft Regional Assessment Report for Offshore Wind Development in Nova Scotia ('Report'). NRCan officials have reviewed the Report and are providing the below feedback for the Committee's consideration in their Final Report, expected in January 2025.

Pursuant to section 100 of *Impact Assessment Act*, NRCan is reviewing and participating as subject matter expert providing expertise in geosciences, renewable energy, and offshore wind policy development.

General Feedback on the Report

NRCan would like to note its appreciation for the significant amount of work done by the Committee in developing a thoroughly researched and considered draft report of a challenging and multifaceted topic. The Report serves as a significant contribution to the general understanding of potential offshore wind development off the coast of Nova Scotia. or in this regard and the identification of these constraints and factors will help inform governments, regulators, and prospective developers with their planning and decision-making.

NRCan would like to make the committee aware of a regional geological model study that includes the majority of the areas identified in this report. This study was presented at the Offshore Wind R&D forum in Halifax in November 2024 and will likely be fully published before the final RA report is completed. Please find the final, peer-reviewed draft accompanying this response.

The specific objectives of the study are to a) assemble existing geoscience data related to bathymetry, surficial geology, sediment thickness, stability, and geohazards; b) combine all geoscience layers and assign a weight to each geological factor integrated in the model. c) assess the spatial patterns associated with the model results and integrate those results into a broader framework of geological and geographical knowledge. The report provides valuable information on the seabed geological conditions that are relevant in the context of the RA study area, expanding upon previously considered geological analyses in the studies considered in section 2. It also provides a thorough summary of relevant geological parameters that should be considered for offshore wind energy infrastructure and what data is readily available for analyses. The citation of the report is:

Philibert, G., Eamer, J., King, E.L. and Li, M. 2024. Geological model of parameters relevant for offshore wind energy infrastructure in Atlantic Canada; Geological Survey of Canada, Open File xxxx, xxx p. https://doi.org/10.4095/xxxxxxx

Targeted Feedback on the Report

Page 49 – NRCan suggests that the sentence “That work includes an active data collection program in support of the offshore wind industry” be reworded to more precisely define the mandate of NRCan’s data collection campaign, which is to assist decision-making by government and other stakeholders with regards to offshore wind energy.

Page 69 – NRCan indicates that 59 m water depth is the deepest fixed bottom foundation installed by the end of this year (2024). Notably it is not a monopile, either, but rather a jacket foundation (please make this correction on page 73). There are a number of studies suggesting a theoretical possibility of fixed foundations from 60 – 100 m water depth but this should be stated explicitly as theoretical to date.

Page 92 – NRCan suggests that the sentence “Slumped deposits resulting from periodic mass sediment failures along the shelf slope (Mosher *et al.*, 2004)” should be moved to the following paragraph as it refers to the continental slope – oceanward of the shelf edge.

Page 93 – NRCan indicates that glauconite hardens under stress and points the committee to https://doi.org/10.4095/p4vptgc1s2 - “Under stress related to monopile driving, the glauconite sand may transform into a non-penetrable clay-like substance” - and references therein.

Page 93 – NRCan indicates that although recency may be an issue, there is a fair amount of publicly available data on the geology of the southeastern Gulf of St. Lawrence, including surficial geology maps and bedrock geology (https://doi.org/10.4095/222864), geotechnical and scour assessments (e.g., for the Confederation Bridge - https://www.proquest.com/scholarly-journals/bridge-pier-scout-assessment-confederation/docview/213339136/se-2?accountid=28163), geomorphological interpretations (http://dx.doi.org/10.4095/326514), etc.

Page 171, in section 5.5.6 – NRCan suggests that the committee refer to the Geological Survey of Canada – Atlantic’s seabed disturbance modelling work (https://doi.org/10.4095/331499), which can quantify the risks associated with seabed disturbance. For additional context, this model has been incorporated into the geological model described on page 1 of this response. It can also be noted that a joint Geological Survey of Canada – Atlantic & Fisheries and Oceans Canada collaborative study aims to upscale these modelling efforts to approximately the scale of a wind energy lease offer, with regional assessment of sediment and bedform mobility by comparing model results with field-based data collection. These efforts will be complete in 2028.

Page 222 – NRCan requests that the sentence “Information obtained from recent geotechnical program indicates that the depth of sediment may be insufficient for monopiles” should be attributed to NRCan / Geological Survey of Canada – Atlantic (not NS DNRR), with contact information provided for follow-up. In addition, NRCan suggests that more detailed analyses to determine the engineering (foundation) conditions associated with the geology at each site would be required to better understand and characterize the implicated future foundation type with regards to viability and cost.

Page 313, section 9.3.7 – NRCan indicates that subsea cables are also particularly vulnerable in sediments with high organic content – something present in an unknown distribution on the Scotian Shelf yet has been sampled in several locations. These sediments are typically associated with areas that experienced subaerial conditions during the postglacial sea-level

changes. This is discussed at length in the report accompanying the geological model described on page 1 of this response, including references to work performed in the North Sea.

Conclusion

NRCan would like to thank the Committee for the opportunity to provide feedback on the Draft Final Report. If you have any questions, comments, or concerns, please contact Colter.Kelly@nrcan-rncan.gc.ca.

Sincerely,

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