SHEPHERD+ WEDDERBURN

Submission on behalf of (1) Barrow Offshore Wind Limited (ref: 20048546) (2) Burbo Extension Ltd (ref: 20048544) (3) Walney Extension Limited (ref: 20048542) (4) Morecambe Wind Limited (ref: 20048547) (5) Walney (UK) Offshore Windfarms Limited (ref: 20048545) (6) Ørsted Burbo (UK) Limited (ref: 20048543) (the "Ørsted IPs")

In response to Action Point 22 of the Action Points arising out of Issue Specific Hearing 4 [EV6-006], the Ørsted IPs have submitted copies of the documents referred to in their submission REP3-103, and outlined in the index below.

Index of Documents Concerning Assessment of Wake Effects provided at Deadline 4	
Models	
1.	Sanchez Gomez M. et al. Can mesoscale models capture the effect from cluster wakes offshore? Journal of Physics: Conference Series 2767 (2024) 062013
2.	Stoelinga M. et al 'Estimating Long-Range External Wake Losses in Energy Yield and Operational Performance Assessments Using the WRF Wind Farm Parameterization'
3.	P. Baas et al. Energy production of multi-gigawatt offshore wind farms. Wind Energ. Sci., 8, 2023.
4.	Sara C. Pryor, Rebecca J. Barthelmie, Tristan J. Shepherd. Wind power production from very large offshore wind farms. Joule 5, October 20, 2021.
5.	R. Borgers et al.: Mesoscale modelling of North Sea wind resources with COSMO-CLM. Wind Energ. Sci., 9, 2024
6.	Akhtar, N., Geyer, B., Rockel, B. et al. Accelerating deployment of offshore wind energy alter wind climate and reduce future power generation potentials. Sci Rep 11, 11826 (2021).
7.	D. Rosencrans et al.: Seasonal variability of wake impacts on offshore wind plant power production. Wind Energ. Sci., 9, 2024.
SAR & Aircraft	
8.	Hasager, C.B.; Vincent, P.; Badger, J.; Badger, M.; Di Bella, A.; Peña, A.; Husson, R.; Volker, P.J.H. Using Satellite SAR to Characterize the Wind Flow around Offshore Wind Farms. Energies 2015, 8.
9.	Platis, A., Siedersleben, S., Bange, J. et al. First in situ evidence of wakes in the far field behind offshore wind farms. Sci Rep 8, 2163 (2018).
10	Platis, A et al. Long-range modifications of the wind field by offshore windparks – results of the project WIPAFF. Meteorologische Zeitschrift Vol. 29 No. 5 (2020)
Scanning LiDARs	
11	B. Cañadillas et al.: Offshore wind farm cluster wakes as observed by long-range-scanning wind lidar measurements and mesoscale modelling. Wind Energ. Sci., 7, 2022
12	J. Schneemann et al. Cluster wakes impact on a far-distant offshore wind farm's power. Wind Energ. Sci., 5, 2020
Orsted SCADA Presentation	
13	Presentation by Nygaard, Nicolai at wind Europe Technology Workshop (June 2023): "Wind farms interacting with the boundary layer: Impact of long-distance wakes between offshore wind farms assessed using operational data".