



## University of Liverpool - Division of Civil Engineering

[Register here](#)



[Register here](#)

Tuesday 15 September 2020 12.00 BST (13.00 CET)

### FOUNDATIONS FOR OFFSHORE WIND TURBINES

*Dr Britta Bienen, University of Western Australia*

#### ABSTRACT

Offshore wind farm developments are growing rapidly and entering new markets globally. The majority of offshore wind turbines (OWTs) are supported by monopiles, which are typically impact-driven into the seabed. Alternative installation and foundation solutions include vibro-driven piles and suction buckets. Irrespective of the selected solution, successful installation is critical to the in-service performance of the foundation. This requires the mechanisms to be understood in detail. The installation process itself has the potential to significantly change the soil state. OWTs are dynamically sensitive systems, with the foundation stiffness contributing to the overall response. OWTs are also sensitive to out-of-verticality, requiring the accumulation of displacements to be predicted. This presentation discusses recent research of monopile and suction bucket installation, the changes of soil state resulting from the installation process and the in-service performance of these OWT foundations.

#### SPEAKER BIO

Britta Bienen is an Associate Professor at the Centre for Offshore Foundations Systems within the Oceans Graduate School at the University of Western Australia. Britta received her Dipl.-Ing. from RWTH Aachen, Germany, in 2002 and her PhD from UWA in 2008. Britta was appointed Lloyd's Register Foundation (LRF) Chair in Offshore Foundations, leading this Centre of Excellence 2018-2020. Britta is the 2020 John Booker medal recipient, awarded by the Australian Academy of Science, for her contributions to the development of practical predictive methods for soil-structure interaction problems. Current research interests focus on challenges related to foundations for offshore wind turbines. She is actively involved in the development of industry guidelines.



Optum<sup>CE</sup>

Sponsored by Optum Computational Engineering