D2-7

Nederwiek Zuid (NL) Integrated Ground Model: Discipline-Led Approach, Optimising Offshore Wind Site Characterisation Products

C. Smith[1], S. Eaton[1], T. Bizzotto[1], N. Dakin[2], P. Moran[3], P. Cox[4], E. Dalgaard[5], J. Bronkhorst[6]

Arup[1]; British Geological Survey[2]; Inosys[3]; Rockwave[4]; SolidGround[5]; Netherlands Enterprise Agency (RVO)[6]

Summary

The rapid roll out of offshore wind projects requires robust, integrated site characterisation processes to reduce the timeline of consenting, engineering design, construction, and commissioning. A globally-renown case-study promoting the effective site characterisation to reduce ground condition risk can be found in the Netherlands; with the Netherlands Enterprise Agency (RVO) responsible for providing geophysical, geotechnical, geological and metocean data to offshore wind developers ahead of seafloor leasing rounds. This has led to a push for innovation in site characterisation practice and increased competitiveness of offshore wind tenders.

By 2030, the Netherlands through 'The Climate Agreement (2019) and the Additional Offshore Wind Road Map (2023) have a commitment in law to maintain the growth of offshore wind and reach a target of 21GW in operation. This has resulted in eight offshore Wind Farm Zones consisting of multiple sites in various phases of planning, site characterisation, engineering design, construction, and operation. The demonstration of iterative approaches in data quantity, type and presentation methods have generated a world-class dataset across the NL Exclusive Economic Zone, that can be similarly considered by other countries to realise clean energy production ambitions.

We present an ongoing case-study for Nederwiek (zuid) Wind Farm Zone (NWWFZ IA) site characterisation phase, with interlinked disciplines delivering representative site characterisation products as part of an integrated ground model (IGM) and geotechnical interpretative report (GIR). These disciplines are a) geology/geophysics, b) geotechnics, c) geophysical reprocessing, c) quantitative seismic inversion, d) digital. By presenting a unified methodology based on a thorough understanding of the underlying geological ground model, we identify where optimisation is possible; in areas such as geotechnical location planning, laboratory test strategies, geophysical interpretation, laboratory test assignment and the use of digital enablers. Importantly, we explore the route from data acquired in the field to ground conditions risk reduction for offshore wind developers.