FLOATING WIND JOINT INDUSTRY PROJECT

Reference Designs - Overview ITT

Background

In 2020, The Carbon Trust commissioned Ramboll to create Reference Designs for four different floating platform designs – Tension Leg Platform (TLP), Spar, Semi-Submersible and Barge. Each was designed with two different mooring line materials - steel catenary moorings and a 'chain - polyester fibre – chain' design (or synthetic ropes in the case of the TLP). These reference designs are intended for use by contractors in future FLW JIP projects, both to streamline project delivery and to make the results of different FLW JIP projects more comparable to each other.

The four designs are based on 'moderate' site conditions and included definitions of a reference WTG, tower, floater and mooring concepts.

What's included

Metocean conditions (design bases) for Benign, Moderate and Harsh sites are provided. These include information on the wind, wave and current conditions, weather windows and water levels. There is a PDF document and Excel file for each site type. There is also a separate PDF report on soil conditions which are assumed to be the same across all three sites. *The Moderate site conditions were used in the design of the reference cases.*

The **model files** are organised by platform type. Within each folder are the OrcaFlex and OpenFAST files for the steel catenary mooring configuration and the synthetic mooring configuration.

Conceptual design report. This provides an overview of the metocean design bases used to develop the designs, and details of the designs themselves. As noted above there are eight designs in total (four platform types combined with two different mooring line materials). The Annex of the conceptual design report provides key data points for each of the designs. These are also available in an Excel document

Reference design upgrades

In 2023 the Semi-Submersible reference mooring system catenary mooring and a 'chain - polyester fibre – chain' designs (four designs) were upgraded to consider Fatigue Limit State (FLS) as well as Ultimate Limit State (ULS) and in some case (ALS).

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