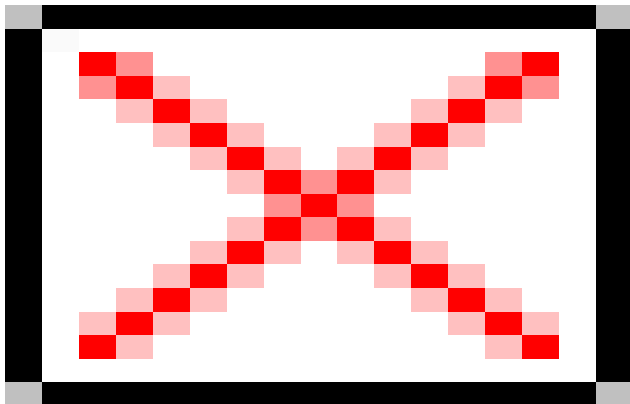


IMDC
Metocean monitoring
Blue energy
Off shore structures
Location:
Belgium
Client:
Eldepasco



Project Contact Information

For more information about this project, contact:

ports@imdc.be

monitoring@imdc.be

offshore@imdc.be

Offshore wind farm Eldepasco

Project description

Eldepasco received a concession permit for the building of a wind farm in the North Sea. The wind turbines will be located on the 'Bank Zonder Naam', situated around 35 km from the North Sea coast. In view of the preliminary design phase Eldepasco, IMDC participated in the set up of the design basis and the workability analysis.

Hydrodynamic site conditions

Based on historical measurements at the Belgian and Dutch Continental Shelf a statistical analysis is performed to determine the design parameters for waves and water levels. The MLLWS was taken as the project reference level to which all levels other levels are referred.

The normal wave conditions, i.e. wave height ($H_{m,0}$) and period (T_p) are determined and presented as scatter diagrams, directional wave distribution tables and wind-wave misalignment tables. For different return periods the wave characteristics and the maximum wave height is determined. Extreme water levels were identified based on an extreme value analysis, while extreme current velocities were described based on knowledge of the combination of tidal and the wind driven current components.

Analysis of the bank morphological

The study of the bank morphology was based on the currently available morphodynamic conditions and determined the morphological environmental parameters at the project area.

The analysis was translated into the definition of a reference seabed level (RSBL). This RSBL at a given foundation location is defined as the minimum level that can be guaranteed during the lifetime of the foundation, considering the mobility of the sand dunes and natural erosion and accretion expected in the project area.

Workability analysis

Workability graphs and tables for different wave heights and wind speeds are determined for a set of time

windows. These tables provide the basis to estimate the weather downtime costs that are related to the construction phase.

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