

Offshore wind turbines in Fécamp

Study on the behaviour of the gravity foundations

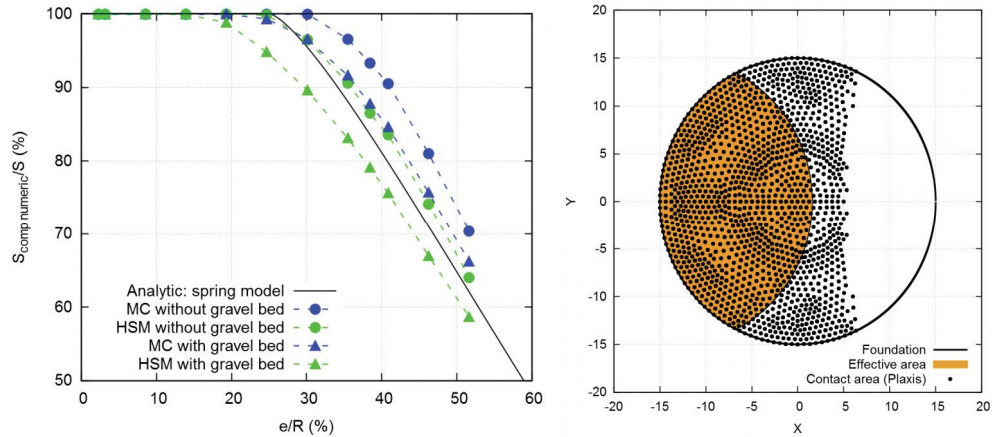
2016



FRANCE -
Normandie - Fécamp
Client

EDF ENERGIES
NOUVELLES

Owner
EDF ENERGIES
NOUVELLES



The Project

TERRASOL has conducted an in-depth study for EDF-EN on the behaviour of the gravity foundations for offshore wind turbines.

The aim of the study was to characterise the disbond, stiffness and stability of gravity foundations, considering various combinations of loads, stratigraphies and foundation geometries (circular or annular with various internal diameters).

Key features

- Study of the behaviour of gravity foundations
- Comparison of several calculation approaches and parametric study
- Comparison of the results with existing recommendations

Our Services

Several calculation approaches were applied: analytical, semi-analytical using Foxta, and numerical with finite elements using Plaxis.

The influence of the constitutive models used in the finite-element calculations was also studied. The results obtained were compared with the existing recommendations on the topic (DNV, GLW guideline, Eurocodes, research papers, etc).

The parametric study highlighted the relevance of the analytical approaches compared with over-simplified finite-element numerical approaches.

However, when the site stratigraphy is not suitable for application of the analytical methods from the literature, simplified numerical or semi-analytical methods are nevertheless of interest for setting the calculation models.