

Project identification

Princess Elisabeth Island (PEI) / Modular Offshore Grid 2 (MOG2) energy island

Type of project
Engineering Design



Client
Contractors consortium TM Edison consisting of Jan De Nul & DEME Infra NV

In co-operation with
Haskoning Nederland BV

Project assignment
Detailed design of 8 concrete caissons for the MOG2 energy island

Country
Belgium

Location
North Sea

Project duration
2023-2025

Project phase
Detailed design

Construction cost
On request
(excl. VAT)

Consultancy fee
On request
(excl. VAT)

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Engineering Design

Project description

The Princess Elisabeth Island project involves the development and construction of new offshore transmission infrastructure to connect future wind farms in the Belgian part of the North Sea to the onshore electricity grid. The total target connection capacity is up to 3.5 GW.

The energy island will include the following key components:

- Net Useful Grid Area
- Cable Buffer Area
- Drainage Buffer Zone, also serving as a ring road
- Perimeter Protection, including caissons, primary seawall, secondary wave wall, and revetments
- Scour Protection
- CTV Port, including a permanent jetty
- Quay Wall Area on the eastern side
- Integrated Cable Landing System within the island's perimeter



The Perimeter Protection safeguards the reclaimed land and the integrated grid infrastructure from environmental loads such as waves, flooding, and significant overtopping. It consists of 23 reinforced concrete caissons.

Scope of work

TEC acted as a sub-consultant to Haskoning Nederland BV and was responsible for the detailed design of the 8 West caissons and 2 of the North caissons. The scope included:

- Development of Basic Design, Final design and Detailed Design including preparation of all structural and geotechnical design reports.
- Preparation of a full 3D BIM model including implementation of all temporary structures for the transportation and placement of the caissons
- Preparation of geometry drawings taken from the 3D model
- Preparation of 3D rebar models that accommodate the advanced climbing formwork execution methodology and are reflected in 2D reinforcement drawings, including Bar Bending Schedules
- Coordination with all relevant design disciplines
- Integration of Passive Infrastructure and Transport & Installation (T&I) equipment
- Site engineering support during project execution

