

Modular Offshore Grid – ELIA

Permitting challenges &
Environmental concerns

22.01.2019



Agenda

I. Project introduction

- MOG I
- MOG II

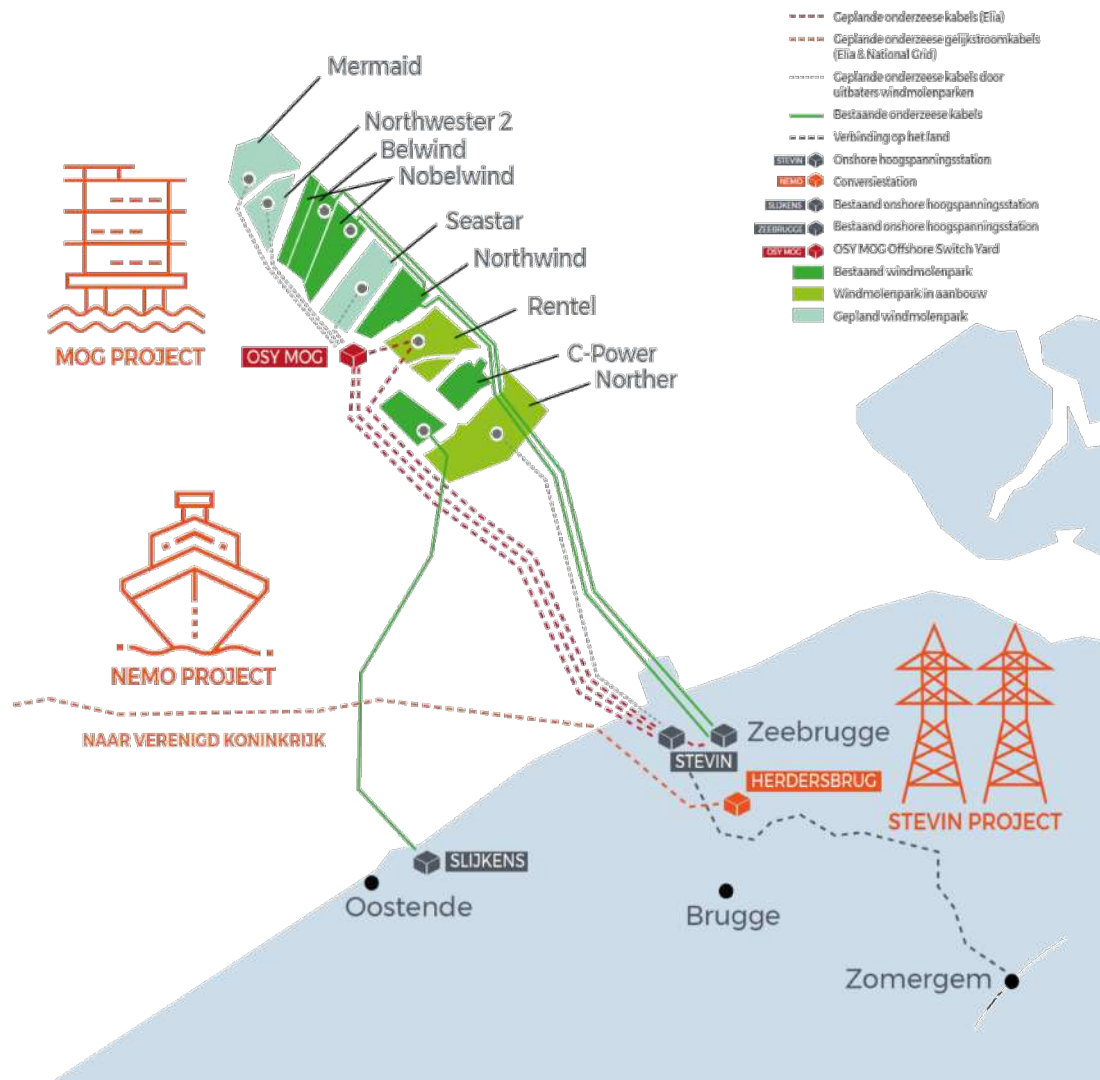
II. Permitting challenges

III. Environmental concerns

I – Project introduction

Modular Offshore Grid

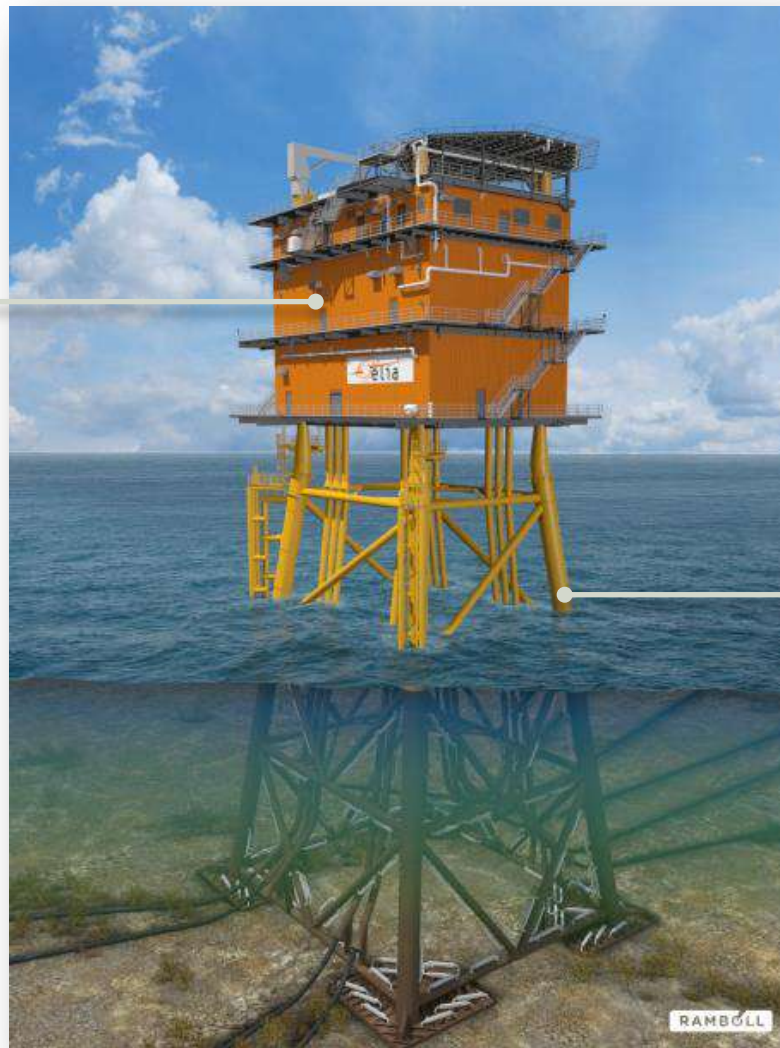
- Belgian part of the North Sea
- Offshore platform 40 km from the coast
- Bundles of cables of 4 windfarms
- Operational end 2019



OSY platform

Topside

- Weight : +/- 2000mT
- H-deck : 41m above water
- BxL : 17x27m



Jacket

- Weight : +/- 1500mT
- Height : 48m
- Water depth : 34m
- Top leg span : 20x15m
- Bottom leg span : 31x26m

Jacket

Boat landing

- In total 2 boat landings
- Access platform with CTV

Anodes

- Corrosion protection

J-tubes

- Ducts for cable pull in



Offshore cables

Conductor

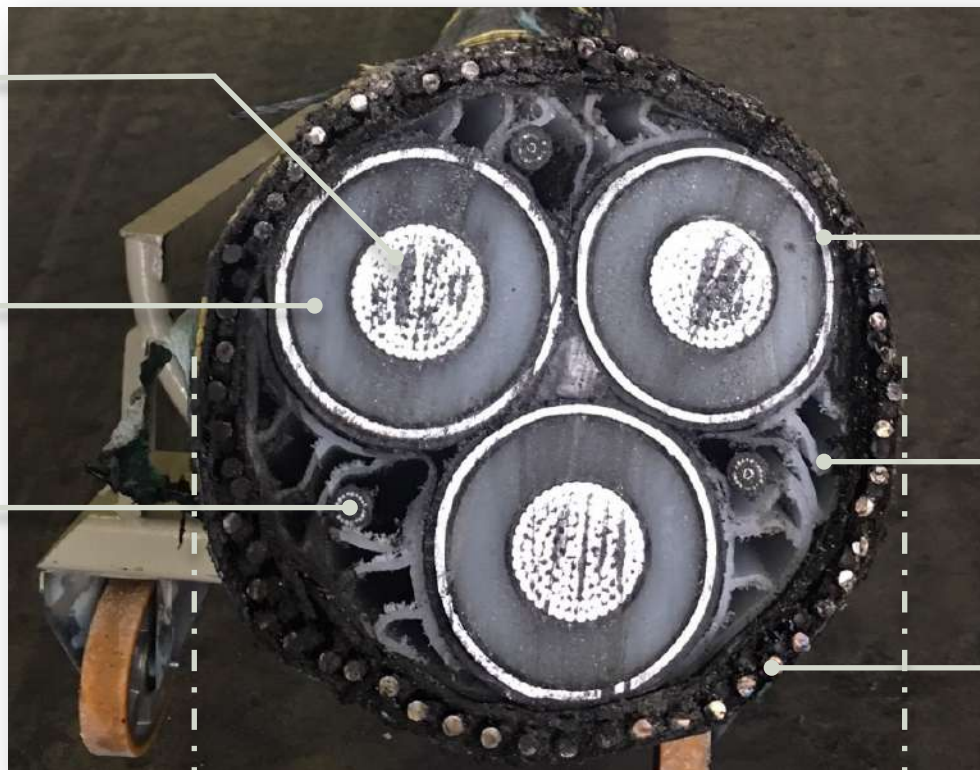
- 1800mm² Alu

Insulation

- 220kV

Optical fibre

- Mainly for communication purposes, but also for temperature measuring



Outer sheath

- Lead + SCPE

Profile fillers

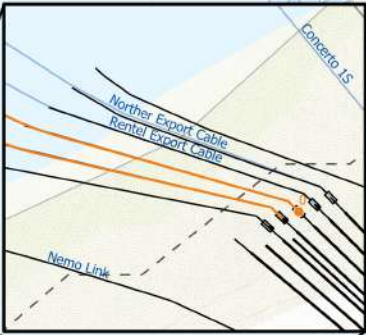
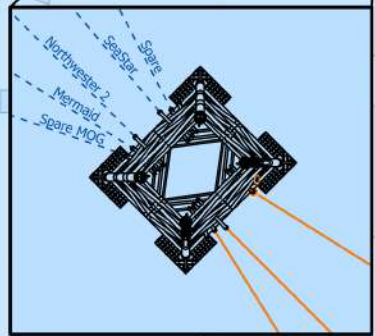
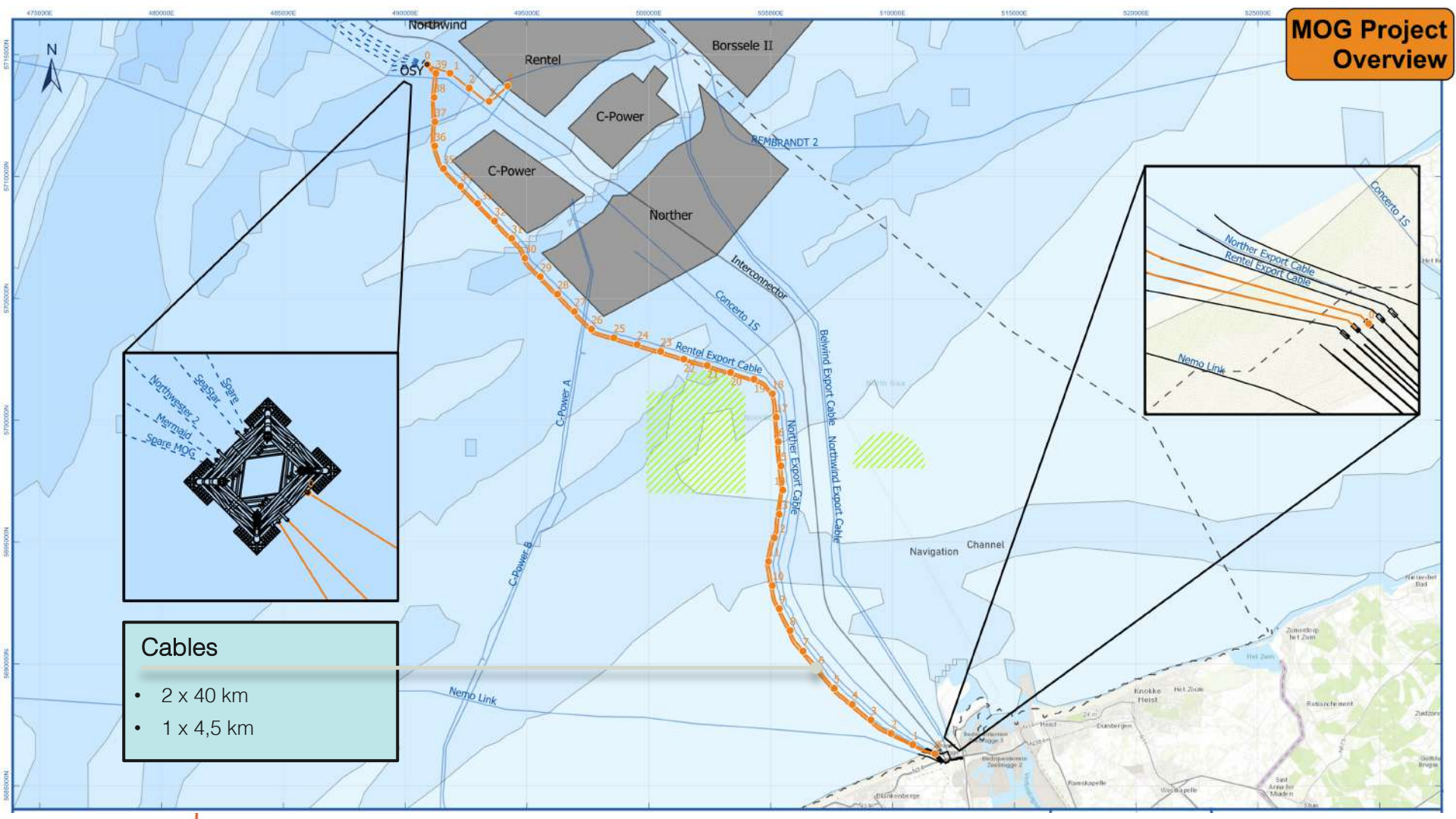
- To fill gaps between cables

Outer armour

- Stainless steel / plastic wires

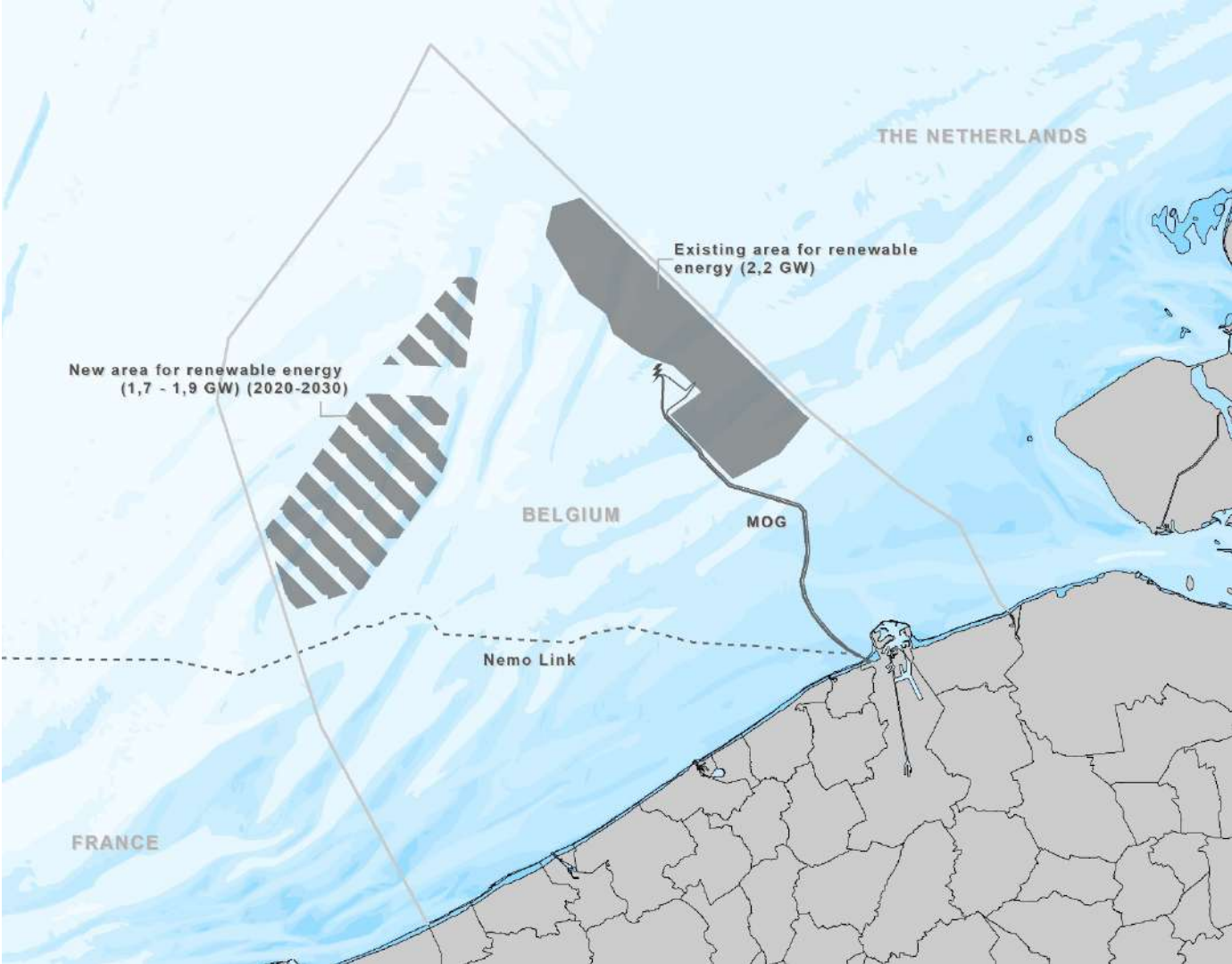
28cm - 107kg/m

MOG Project Overview



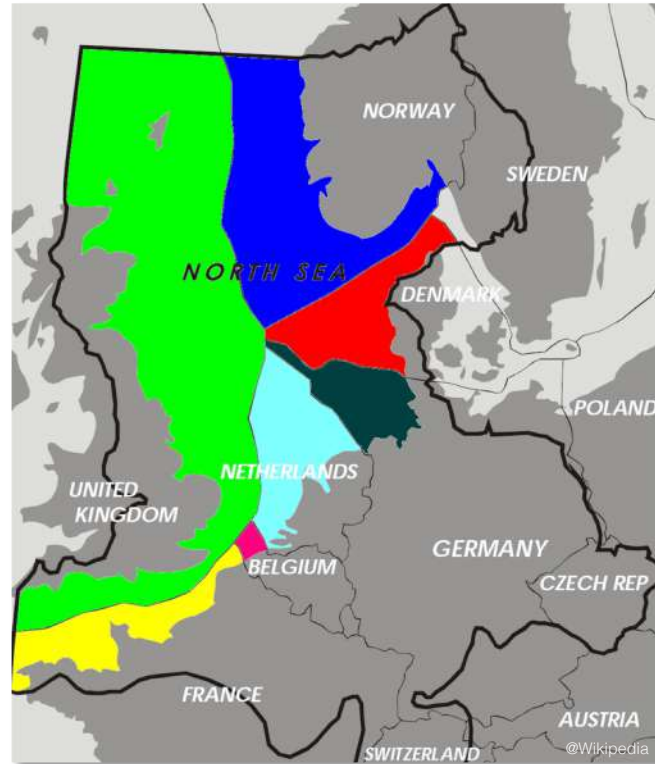
- ### Cables
- 2 x 40 km
 - 1 x 4,5 km

MOG II



II – Permitting Challenges

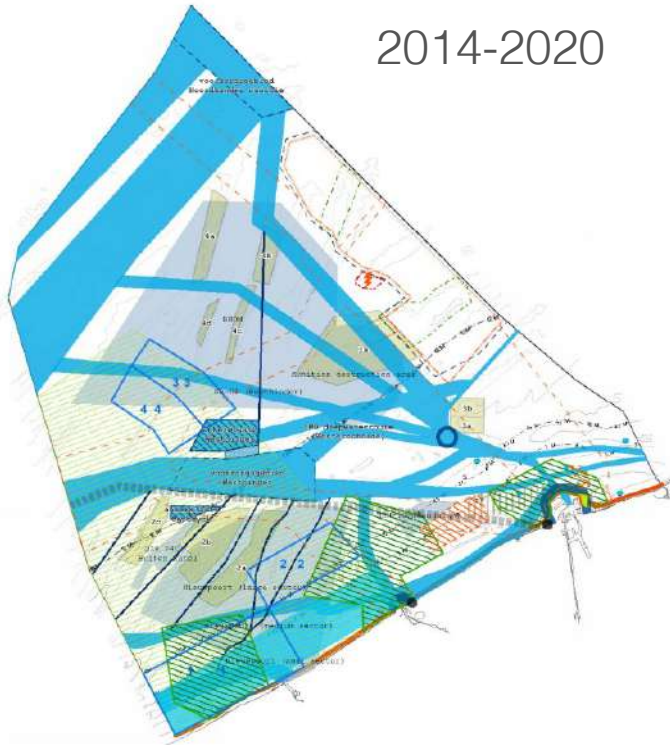
Availability of space



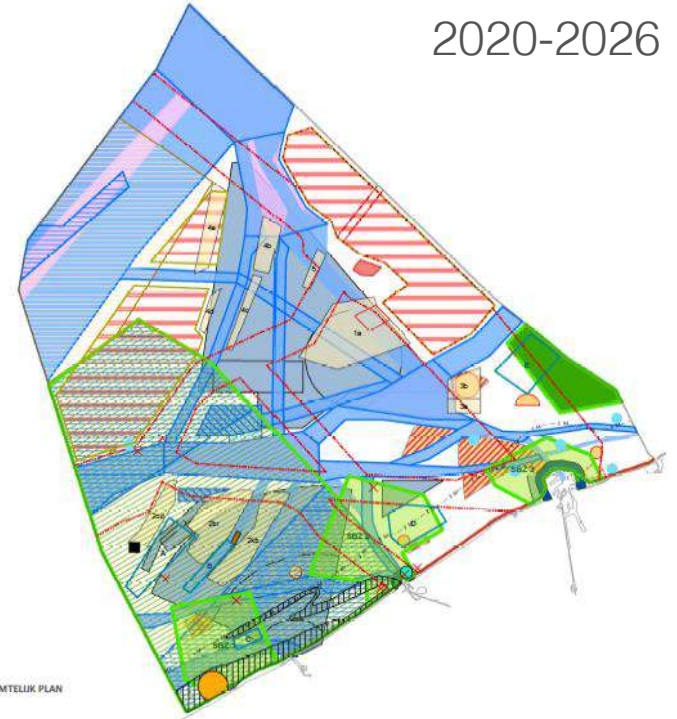
Availability of space

Belgian Marine Spatial Plan

2014-2020



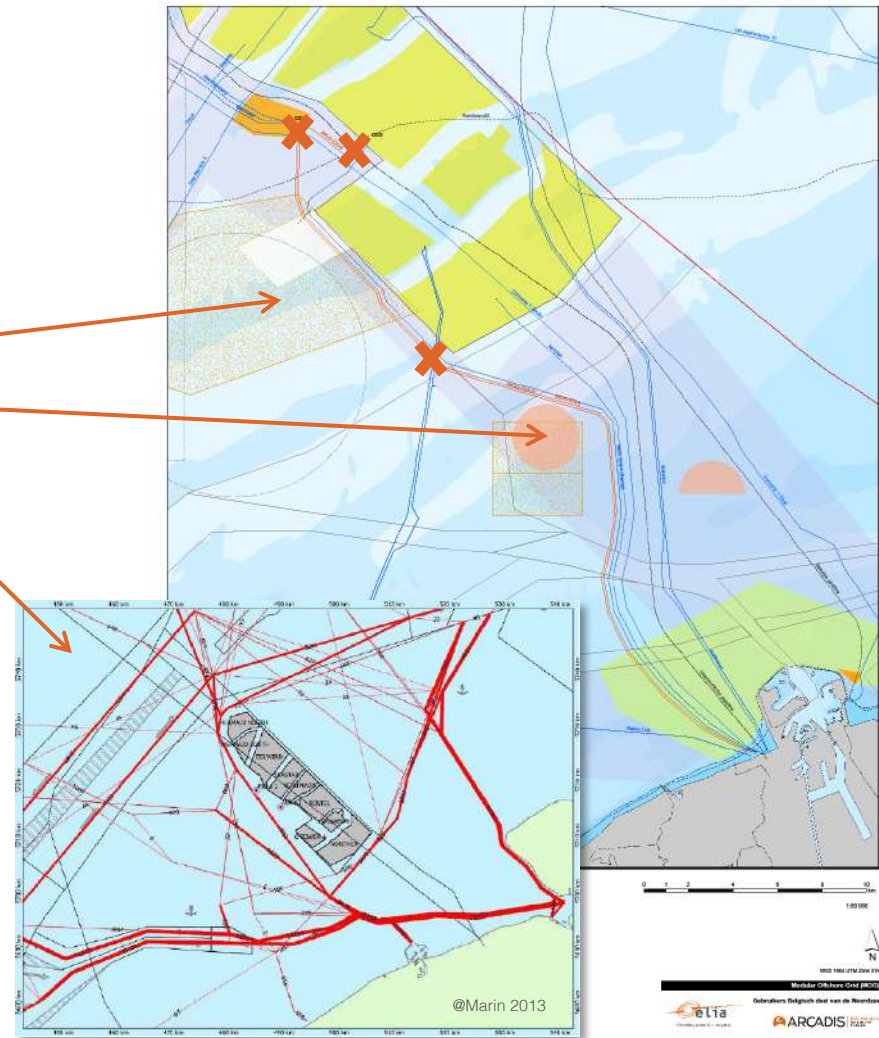
2020-2026



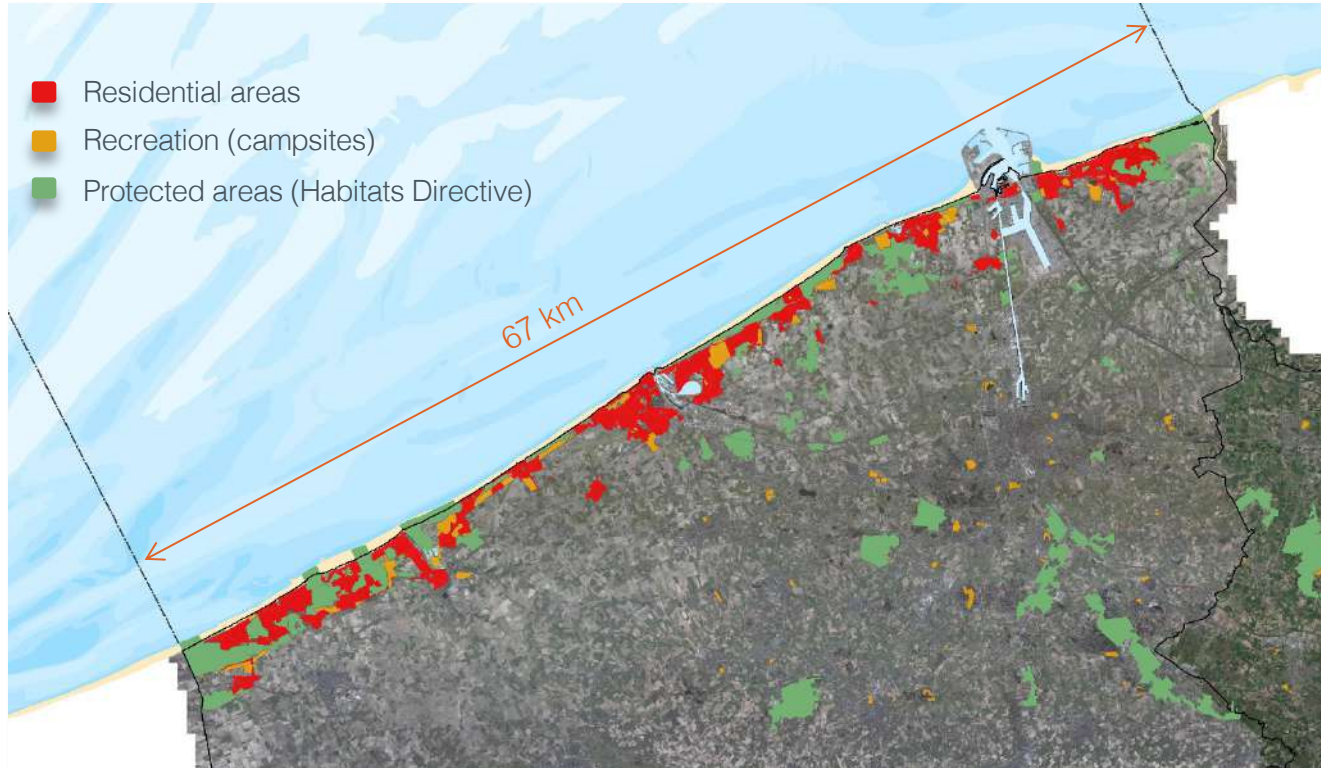
MARIEN RUIMTELIJK PLAN
VISIE

Availability of space

- For routing cables
 - Overlap with sand extraction area
 - Close to spoil dump area
 - Shipping lanes (used intensively)
 - Proximities and crossings with other cables and pipelines
 - No conflicts with fisheries
- Challenging during construction

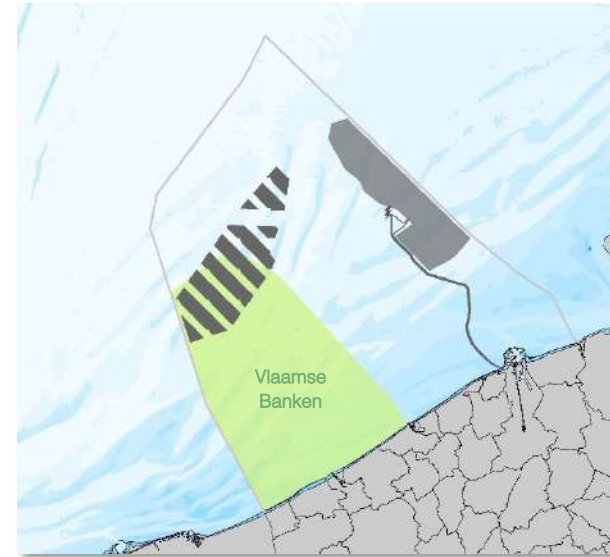


Availability of space for landing



Other permitting challenges

- ✓ MOG concept implemented at late stage in offshore wind development
- ✓ Permitting authorities:
 - Split competences: Federal (national) - Flemish
 - Large amount of authorities
- ✓ Availability of sand → Island alternative less favorable
- ✓ MOG II : SAC Flemish Banks (Habitats Directive)



Best practice approaches (1)

- Communication & Public acceptance
 - ✓ Contractor familiar with the area
 - Requirement in beach permit
 - ✓ Main language: English
 - However Dutch speaking contact person has advantages in discussions with authorities
 - ✓ Regular updates to all third parties and authorities
 - ✓ Being in contact with other project developers
 - Being aware of schedule and activities of similar projects
 - Joint communication
 - ✓ Flyers, posters, films, open communication

Elia

BELANGRIJKE MEDEDELING

Zomer 2018

Elia zoekt naar onontpofte munitie nabij Zeebrugge

Hoogspanningsnetbeheerder Elia voert in de zomer van 2018 een UXO-campagne uit nabij Zeebrugge. UXO staat voor 'unexploded ordnances' en verwijst naar onontpofte munitie die in de kustregio achtergebleven is.

Om de veiligheid te allen tijde te garanderen, is het belangrijk dat het personeel dat deze benadering uitvoert, zoals duikers, niet gestoord wordt in hun activiteiten.

OPPOELET WERFZONE

We willen ook jullie medewerking vragen, door een voldoende grote afstand te houden tot deze werkzaamheden.

WAARVOOR DANK!

Deze werken worden uitgevoerd voor het MOG project van Elia. Het Modular Offshore Grid is het eerste zonnepark van Elia op zee en ligt op ongeveer 40 km van de kustlijn in Zeebrugge. Het MOG zal de geproduceerde energie van de zestien zonnepanelen in de Noordzee bundelen en landinwaarts vervoeren. Via het Olen-hoogspanningsstation in Zeebrugge wordt de energie aangesloten op het hoogspanningsnet van Elia.

www.elia.be/projct/01 @01wvnsrncn@elia.be 0800 11 000

Best practice approaches (2)

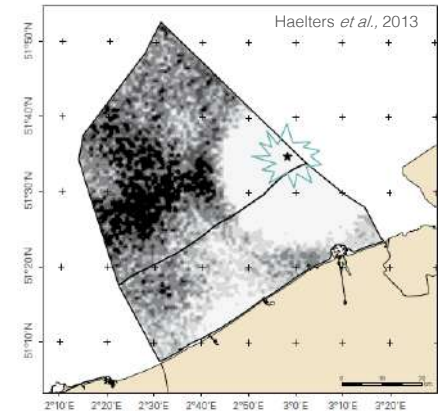
- Use of rocks from regional origin (North Sea area)
- Safeguarding most valuable gravel beds



III – Environmental concerns

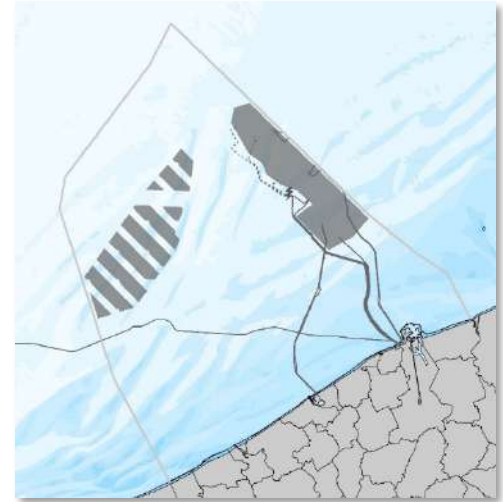
Environmental concerns (1)

- Noise → pile driving
 - ✓ Slow start
 - ✓ Bubble curtain
 - ✓ Acoustic Deterrent Devices (ADD)
 - ✓ 1 January - 30 April: prohibition of piling
 - ✓ Simultaneous piling operations preferred
 - Rather than 1 piling period each year



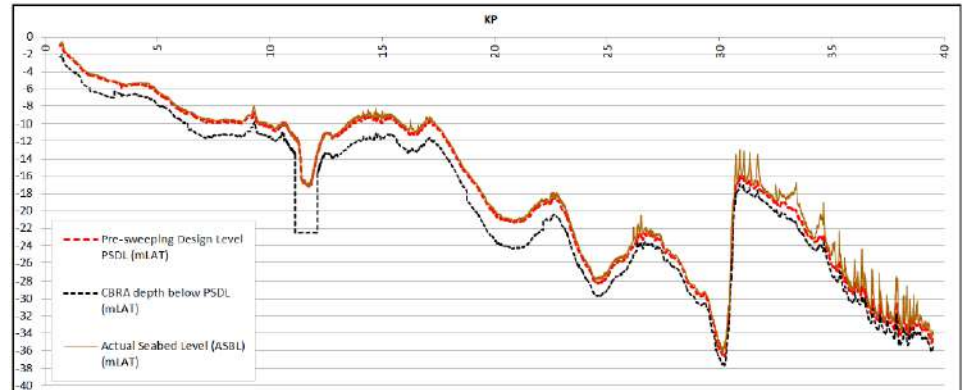
Environmental concerns (2)

- Electromagnetic Fields (EMF) → cumulative impact?
 - Bundled cores
 - Only additional passive loops at jointing pit
- Gravel beds → Flemish Banks
 - Habitat destruction
 - Impact dredging (sedimentation)



Environmental concerns (3)

- Mobile sand waves → pre-sweeping along cable routes
- Island alternative also permitted, however not preferred
 - Sand availability
 - Erosion, bottom shear stress changes
 - Turbidity
 - Shipping safety (collision risk)



Environmental concerns (4)

- Compensating measures
 - Financial or material contribution
 - MOG: yearly payment
- Provision for restauration of the site after decommissioning

Environmental concerns (5)

➤ Monitoring

- Elia:
 - ✓ Metocean conditions
 - ✓ Cable burial depth
- MUMM (authorities):
 - ✓ Piling noise
 - ✓ Benthos and fish: soft and hard substrate, fouling communities



