



## Project overview

**With a nominal capacity of up to 1350 MW, Cenosis is a pioneering offshore windfarm project aiming to electrify and decarbonise offshore oil and gas platforms in the North Sea, and provide electricity to the UK grid.**

Set to be delivered as part of Crown Estate Scotland's Innovation and Targeted Oil and Gas (INTOG) leasing round, once complete Cenosis will be one of the world's largest floating offshore windfarms, providing up to 5.5 TWh of renewable power to the UK grid each year.

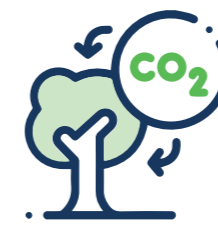
Cenosis provides an opportunity to cement Scotland and the UK as a world leader in floating offshore wind.

### What Cenosis delivers:

- The project will play a key role in helping deliver UK Government targets for offshore wind power capacity, and specifically floating offshore wind
- Contributes to Scotland's 2045 net zero target
- Supporting the North Sea Transition Deal in reducing offshore oil and gas sector emissions



Up to  
**1350MW**  
capacity

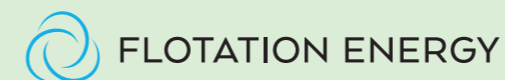


Decarbonising  
**Oil & Gas**  
platforms



**5.5TWh+**  
renewable power  
annually to the UK grid

### Project partners



**Flotation Energy** headquartered in Edinburgh, Scotland, sits at the heart of the energy transition and is determined to support the big switch to sustainable, clean and affordable energy through the application of innovative offshore wind technology.

An ambitious offshore wind developer, Flotation Energy has a 13GW portfolio that covers both fixed and floating developments globally, with projects in the UK, Ireland, Taiwan, Japan and Australia. Whilst Flotation Energy develops projects independently, it also recognises the strategic value of partnership and collaboration to deliver proven, cost-effective solutions.



**Vårgrønn** is an agile, Norway-based offshore wind company powering the energy transition through development, construction, operation, and ownership of offshore wind projects and related infrastructure. Vårgrønn is a joint venture between the energy company Plenitude (Eni) and the Norwegian energy entrepreneur and investor HitecVision.

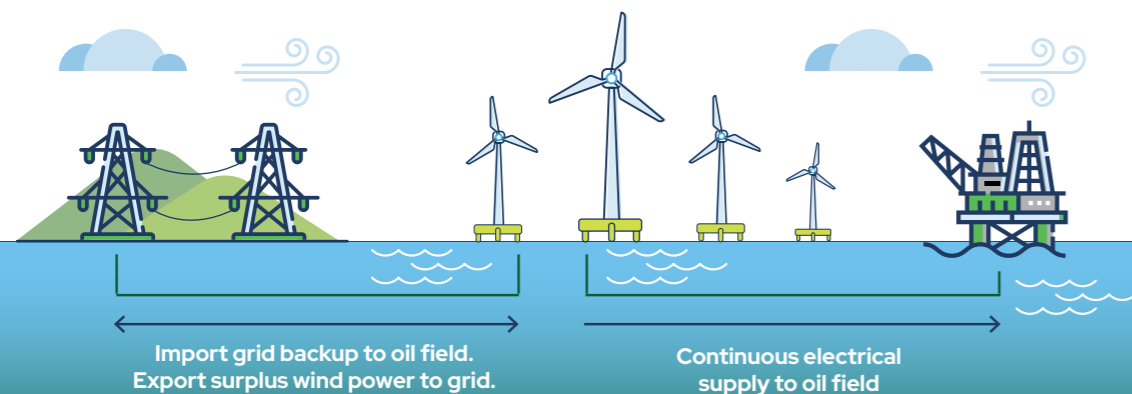
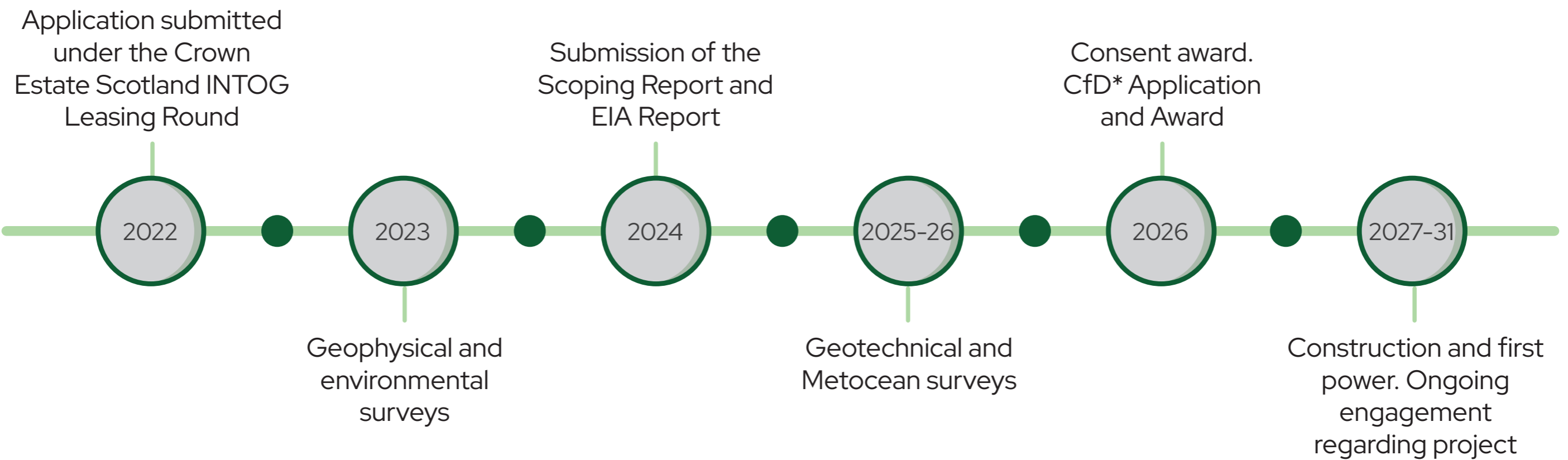
Vårgrønn's current pipeline of projects and prospective projects spans England, Scotland, Ireland and Norway in addition to early-stage initiatives in the Baltics. Vårgrønn holds a 20% share in Dogger Bank, the world's largest windfarm under construction.

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# Timelines



\*Contract For Difference

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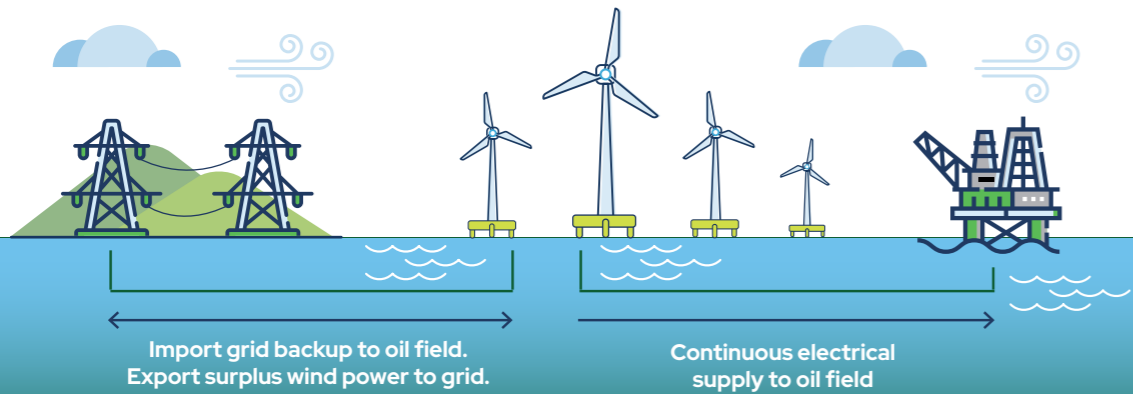
# Landfall

Landfall at cliffs between Boddam and Long Haven

Horizontal Directional Drilling (HDD) will be utilised at landfall

The cable tunnel will start approximately 190m from the cliff where the water depth is 26m

There will be 3 boreholes drilled: one for each of the High-Voltage Direct Current (HVDC) cables; and one for the fibre optic cable



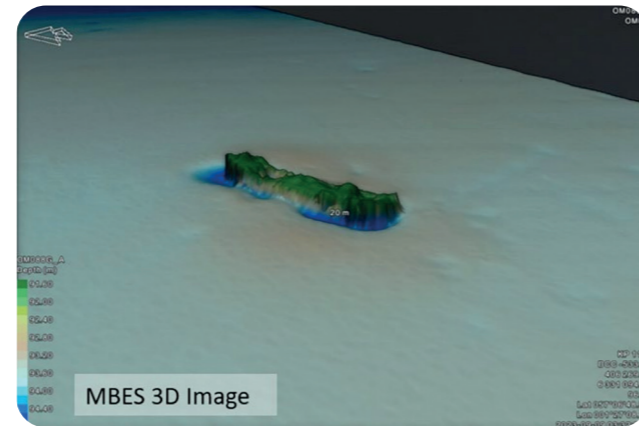
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## Survey work

Digital Aerial Survey for birds and marine mammals within Array Area



- Vantage point and time lapse camera surveys for seabirds at landfall
- Inshore Geophysical cable corridor survey

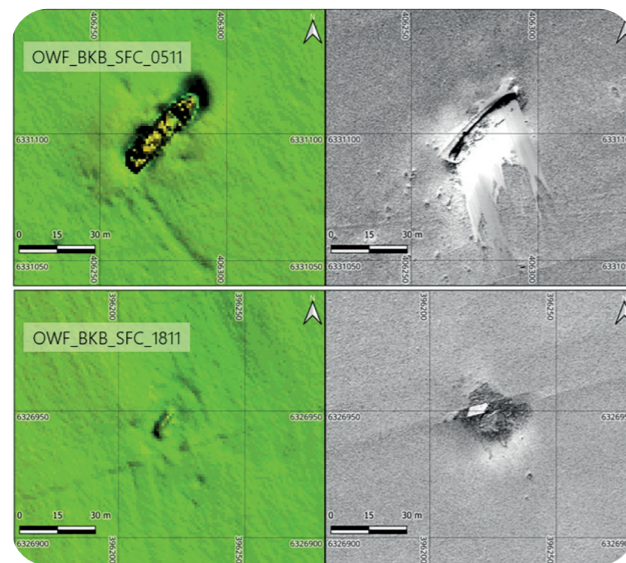


2021-23

2023

2024

2025-26

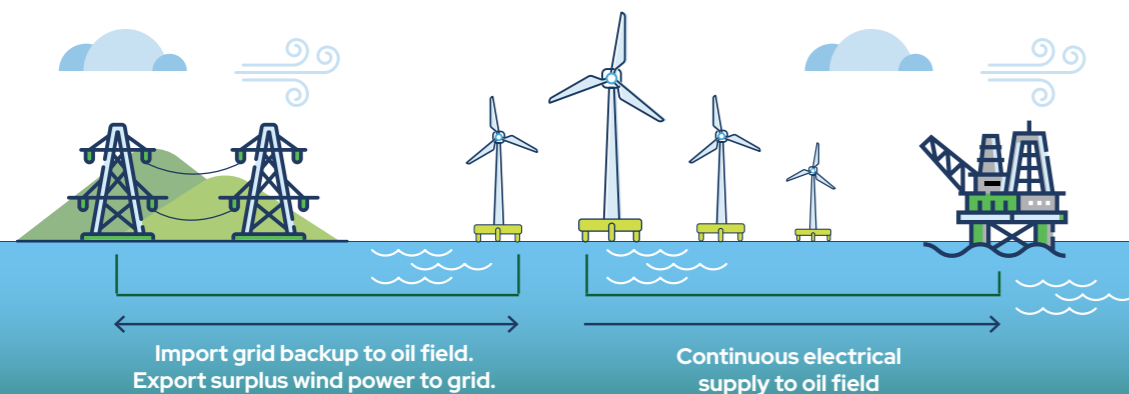


Geophysical & Environmental Survey

– Array & Cable Corridor

- Offshore Environmental Baseline, Habitat Assessment and Geophysical surveys
- Grab samples and drop down videos taken throughout the array and cable corridor

Array and Cable Corridor Geotechnical and MetOcean surveys



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## Environmental and social considerations

We are currently preparing an application for offshore consent, which will be supported by an Environmental Impact Assessment (EIA). We are considering the environmental and social impacts of the project, including the following:

- Benthic ecology
- Ornithology
- Coastal processes
- Fish ecology
- Socioeconomics & tourism
- Marine archaeology
- Marine mammals
- Commercial fisheries
- Civil and military aviation
- Carbon and greenhouse gases
- Sediment and water quality
- Shipping and navigation
- Infrastructure and other users



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# Consents and Impact Assessment



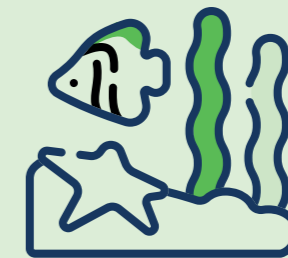
## Onshore

The onshore infrastructure connecting Cenosis to the grid has been consented through NorthConnect. All overlapping environmental and social impacts will be assessed where relevant.



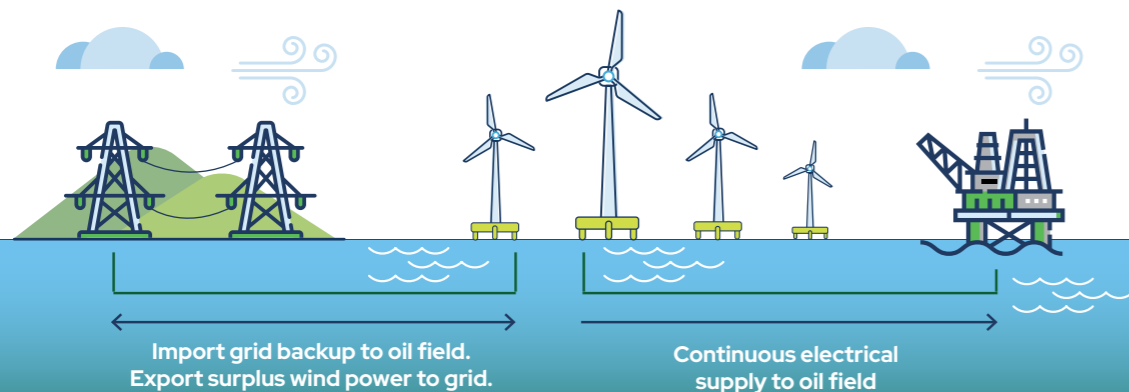
## Offshore

We are in the process of applying for the necessary offshore licences to construct the windfarm and its associated infrastructure.



## Impact Assessment

An Environmental Impact Assessment (EIA) is being undertaken which serves to identify any potential impacts resulting from the Project.



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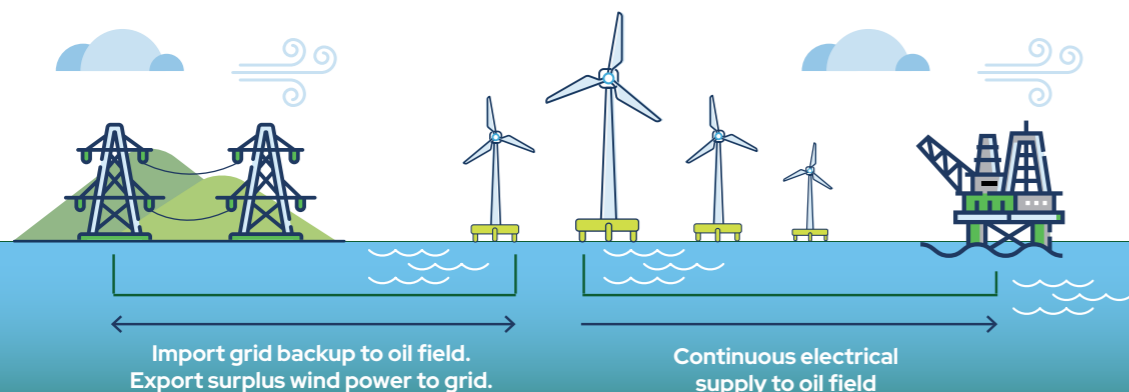
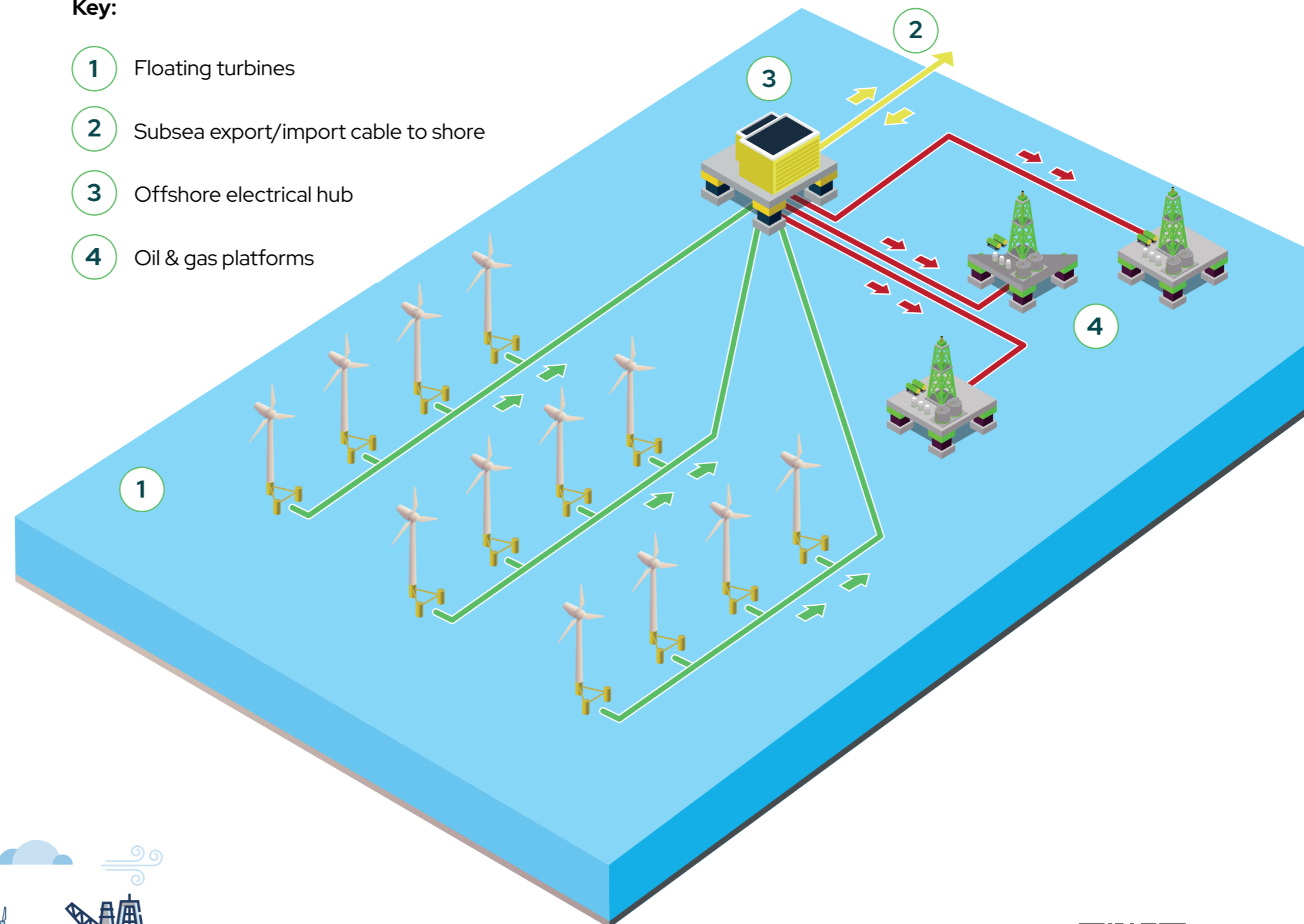


## What is INTOG

Cenos is being delivered as part of Crown Estate Scotland's Innovation and Targeted Oil and Gas (INTOG) leasing round for offshore wind projects. It allows the Cenos Offshore windfarm to help reduce emissions by powering oil and gas platforms in the North Sea. This helps cut carbon emissions and supports the energy transition towards renewable sources.

Key:

- 1 Floating turbines
- 2 Subsea export/import cable to shore
- 3 Offshore electrical hub
- 4 Oil & gas platforms



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## Array area

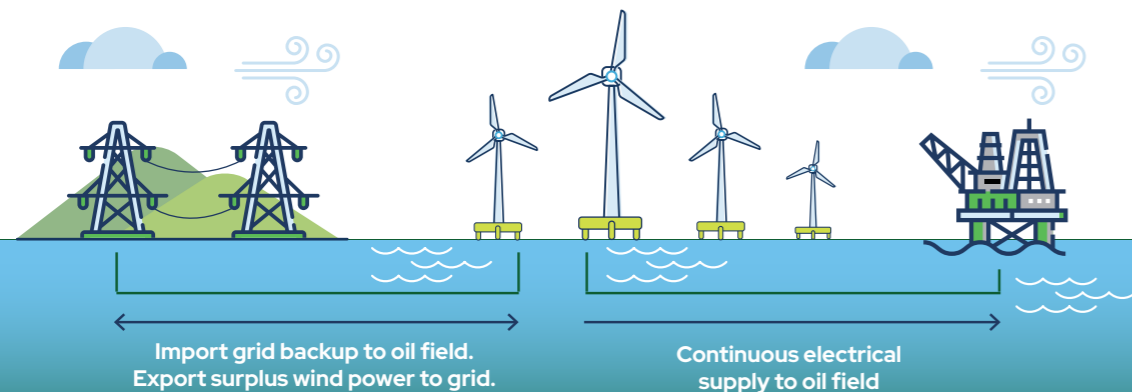
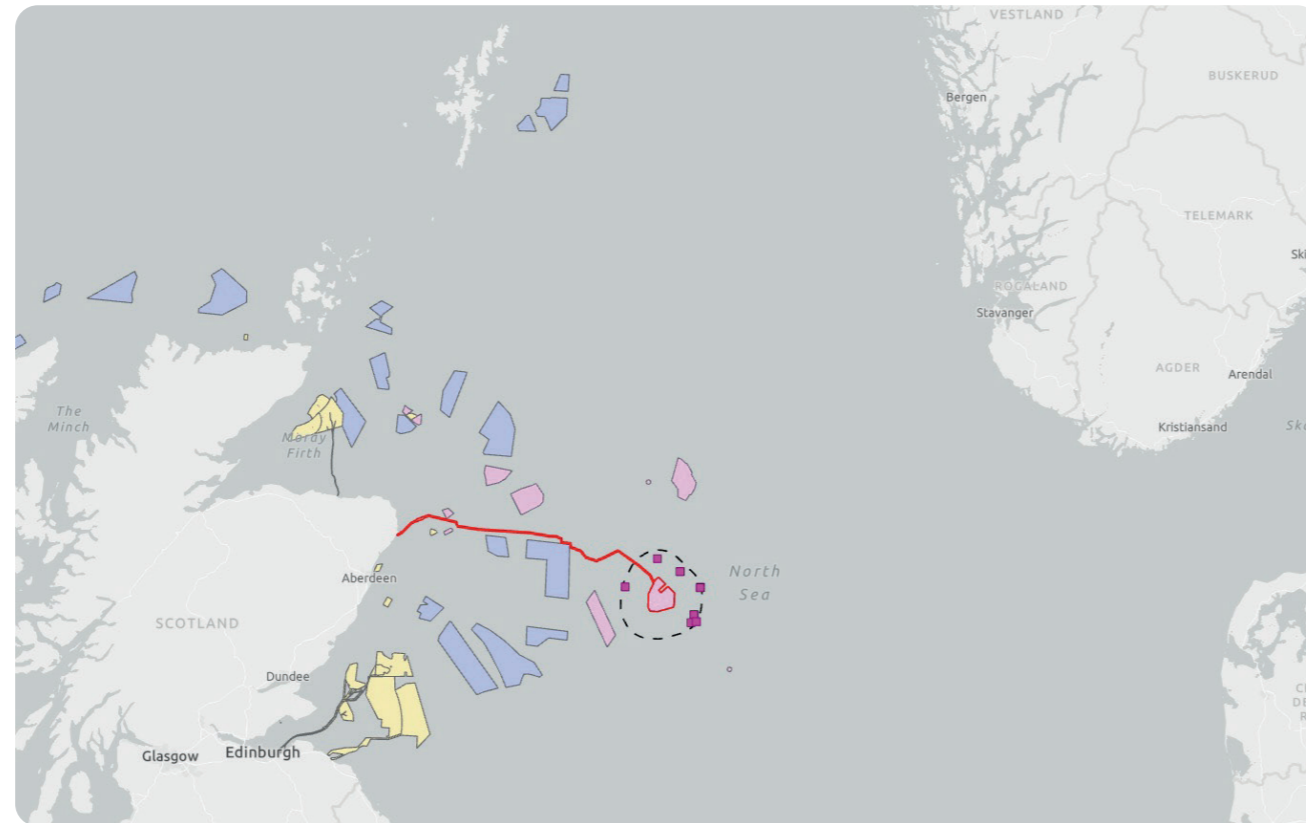
The CenOS Offshore Windfarm is located over 200 km from the Aberdeenshire coastline, well beyond the visual horizon, ensuring no adverse effects on coastal landscapes or visual amenities.



Up to  
**95 Turbines**  
with no visual impact



Up to  
**1350MW**  
capacity



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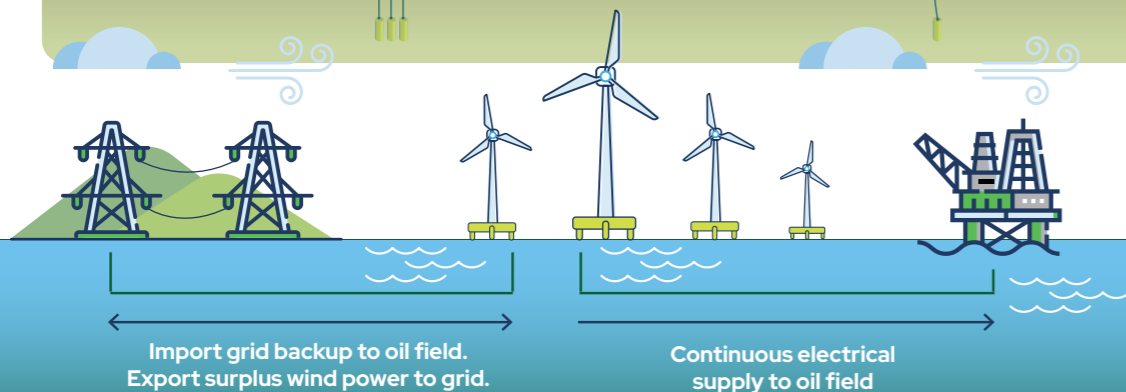
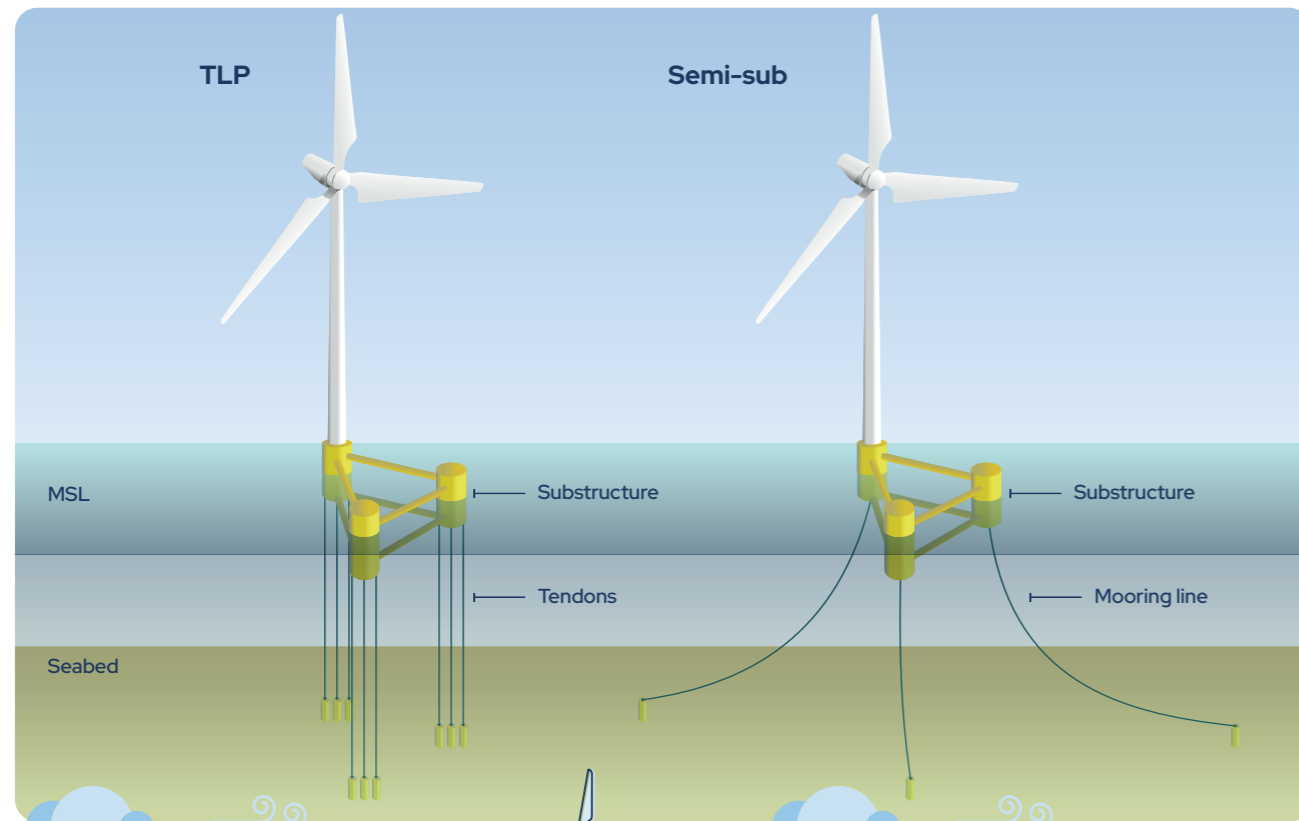
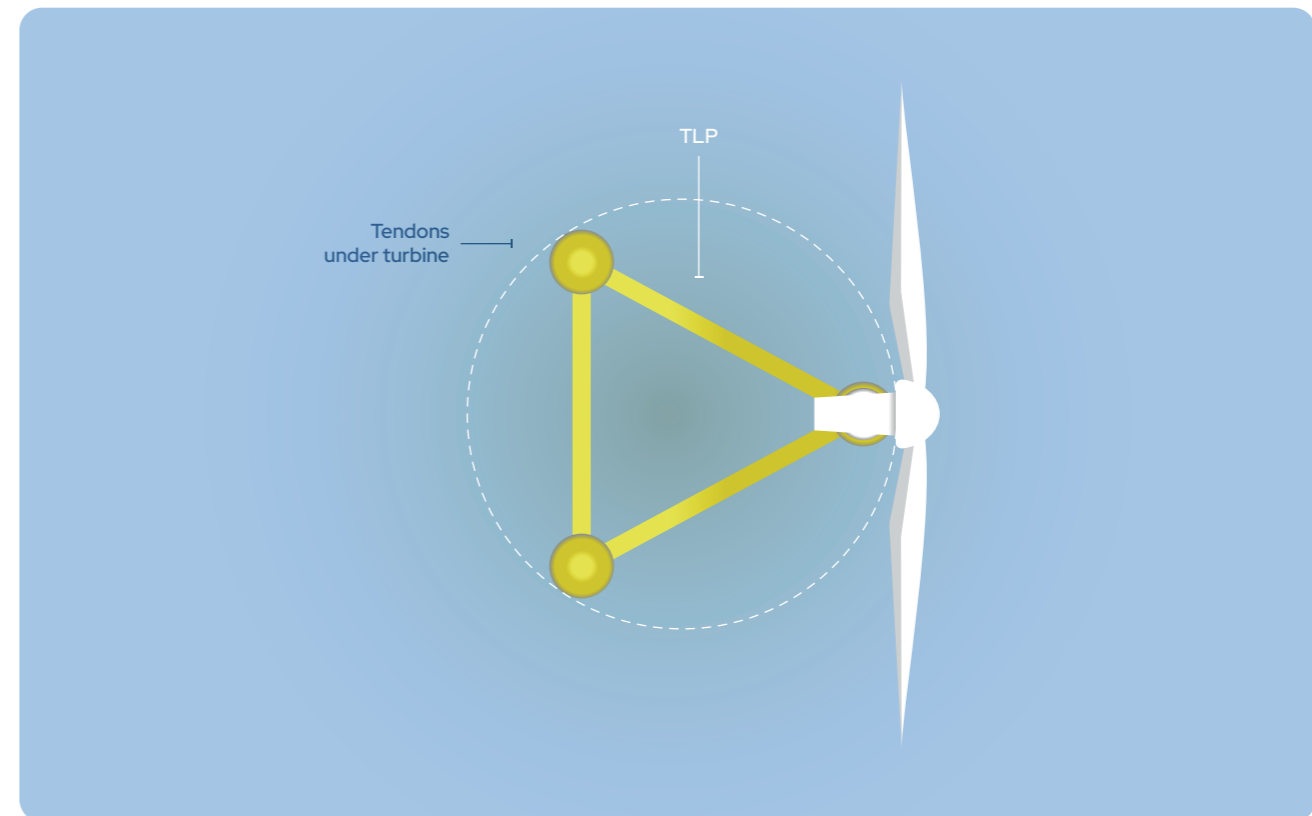
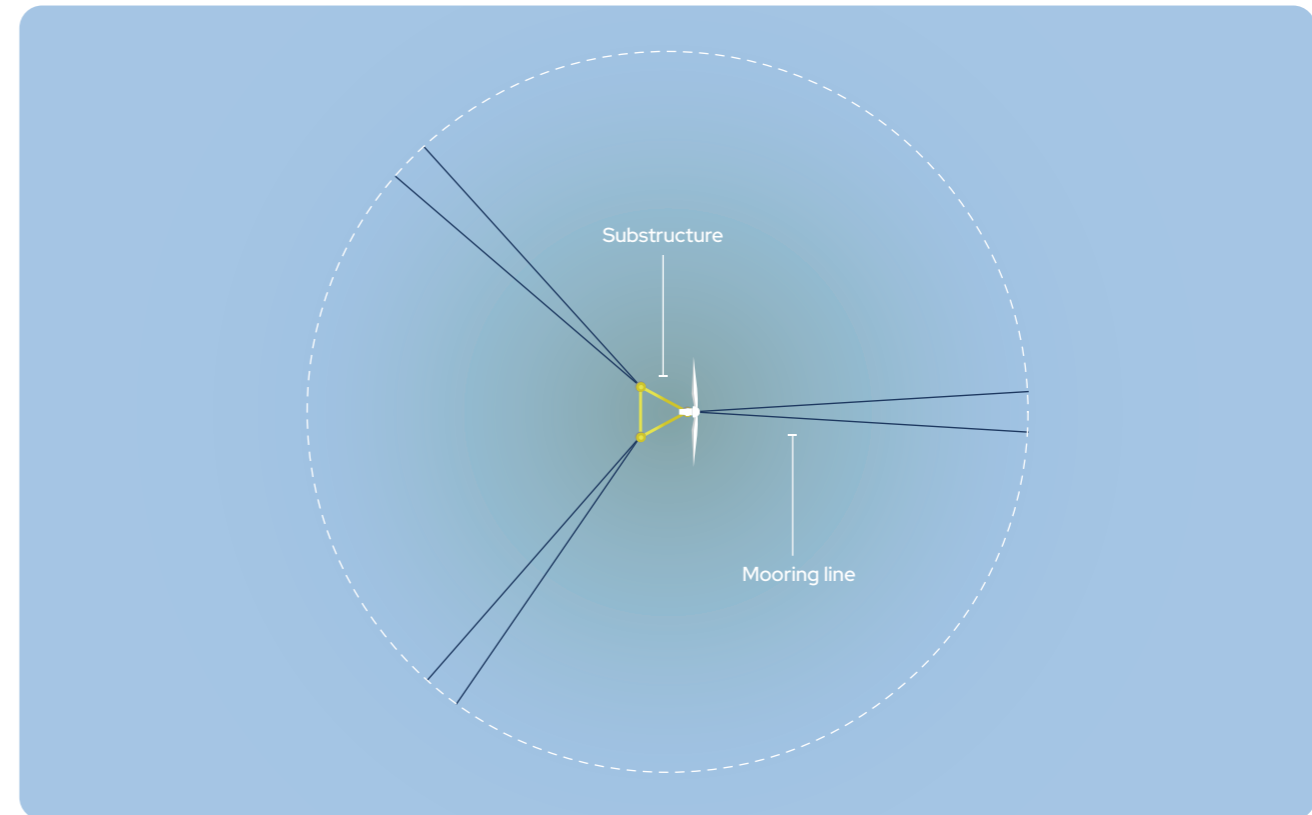
# Floating wind turbines

Floating substructure supports the wind turbine in deeper water.

## Substructure types under consideration:

**Semi-submersible:** This design has three columns and a mooring system to keep the structure stable and in place.

**Tension-Leg Platform (TLP):** This design uses three or more columns/legs and strong cables (tendons) to keep the structure stable and anchored.



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# Mooring and anchoring

Floating substructure supports the wind turbine in deeper water.

## Mooring configurations for floating turbines:

### Semi-submersible floating turbine:

- **Mooring types:** Semi-taut or taut moorings
- **Number of mooring lines:** About 6 lines per turbine

### Tension-leg platform (TLP) floating turbine:

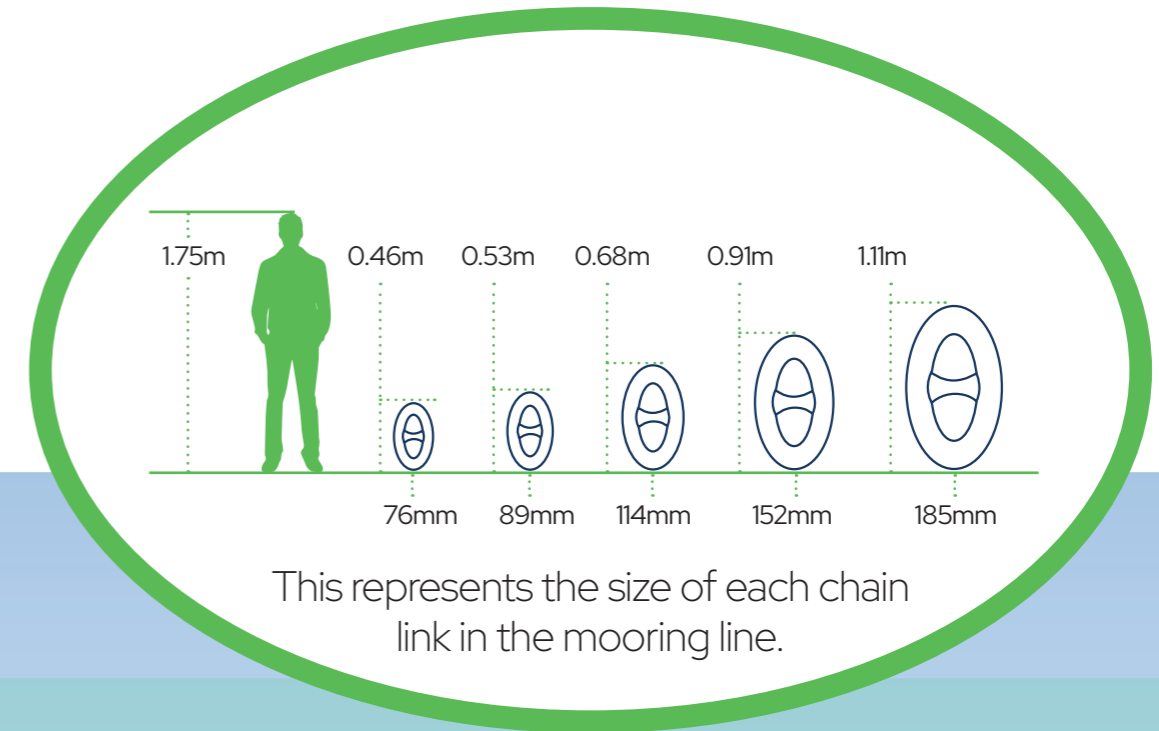
- **Mooring types:** Vertical tendons
- **Number of tendons:** About 9 tendons per turbine

### Mooring line composition:

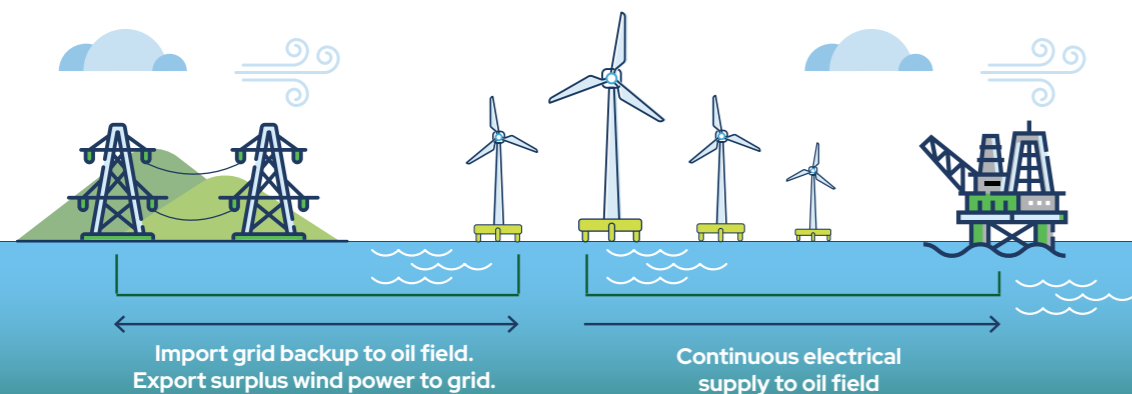
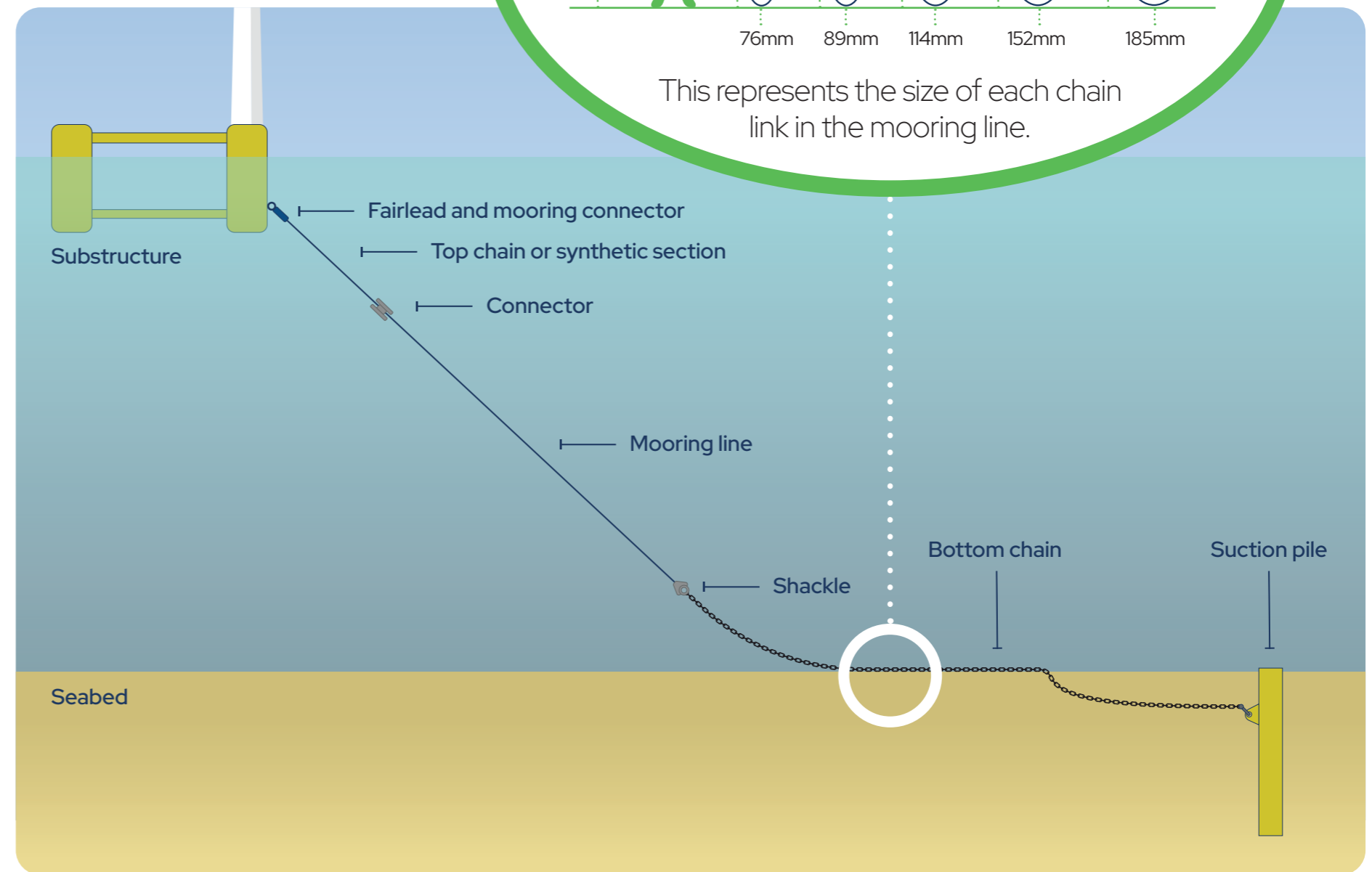
- **Materials used:** A mix of steel chains, steel wire ropes, and/or synthetic ropes

### Anchor types:

- **Considered options:** Driven or suction piles, and novel piling solutions
- **Not considered:** Drag embedment anchors



This represents the size of each chain link in the mooring line.



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# Cables

## Array cables for the project:

**Voltage:** The cables will operate at 66kV to 132kV AC

## Types of Sections:

- **Static Sections:** Run along the seabed from the offshore substation
- **Dynamic Sections:** Hang in the water between the seabed and the floating turbine, with extra protection

**Dynamic Cables:** Have additional layers for protection and need special features like bend protection and buoyancy

**Design:** All cables are three-core and use High Voltage Alternating Current (HVAC)

**O&G Interconnector Cables:** These will be similar to the static array cables and connect from the substation to oil and gas platforms

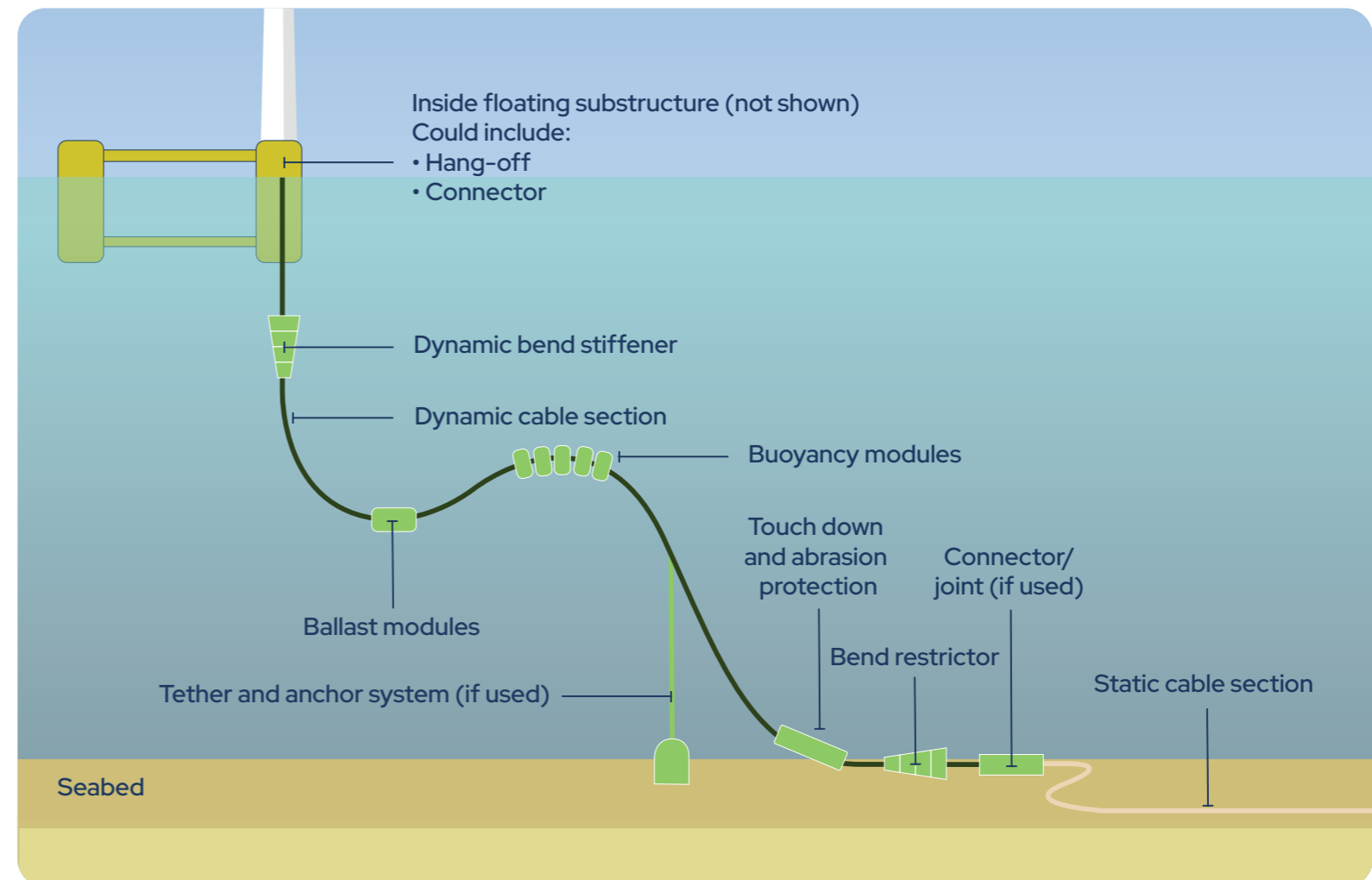
## Export cables for the project:

**Voltage:** Will operate from 320kV to 520kV DC

**Cable Setup:** Two static cables will run from the offshore substation to the shore

**Length:** Each cable can be up to 230km long

**Design:** The cables are single-core and use High Voltage Direct Current (HVDC)



Static HVAC cable



Dynamic HVAC cable

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## Cables

### Offshore Substation with fixed jacket foundation

**Foundation:** Fixed jacket foundation.

**Function:** Converts AC power from the wind turbines into DC power for transmission.

**Voltage:** Increases the voltage from the generation level to the transmission level.

### Cable Burial

**Cable Placement:** Buried along the export cable route.

**Protection:** If the cable can't be buried deep enough, rocks will cover it for about 600 meters.

**Rock Volume:** Approximately 766 cubic meters of rock will be used for protection.

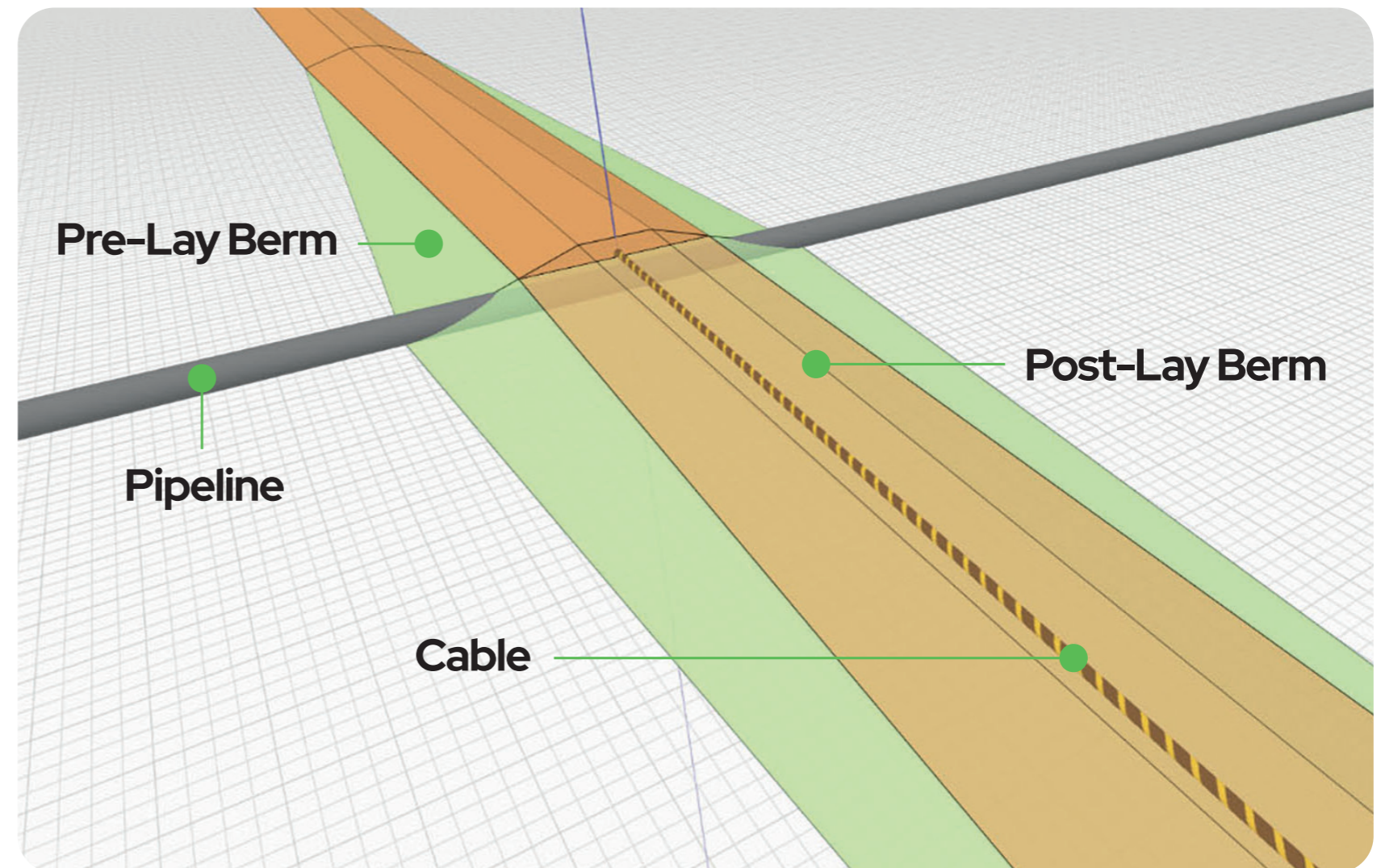
### Crossings

**Number of Crossings:** About 15 cables and pipelines will be crossed along the export cable route.

**Protection:** Rocks will be used to protect both the existing cables/pipelines and the new export cable at each crossing.

### Rock Volume:

- For Cable Crossings: 2,879 cubic meters.
- For Pipeline Crossings: 2,934 cubic meters.



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## Peterhead Developers Forum

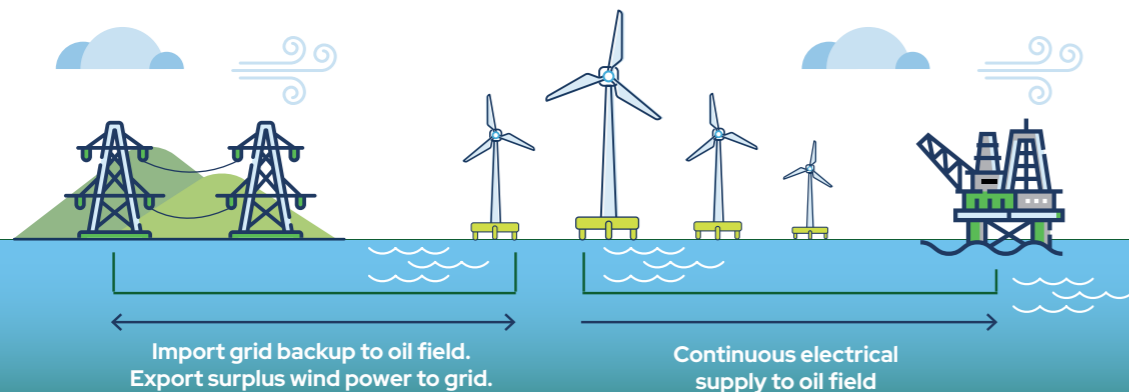
As offshore activity increases to meet the UK's Net Zero targets, the demand for seabed space continues to grow. With several major infrastructure projects underway in the Peterhead area, efficient use of marine space is more important than ever. Cenoss plays an active role in the Peterhead Developers Forum, working collaboratively to ensure successful project delivery by focusing on:

### Aims:

- Share understanding between developers and asset owners with projects making landfall, or potentially making landfall in the Peterhead area
- Consider the possibility of collaborating in relevant areas

### Objectives:

- Reducing disruption caused to the local community and other affected stakeholders
- Expediting delivery of clean energy projects
- Reducing overall cost of delivery and operation of clean energy projects



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# Socioeconomic and community impact

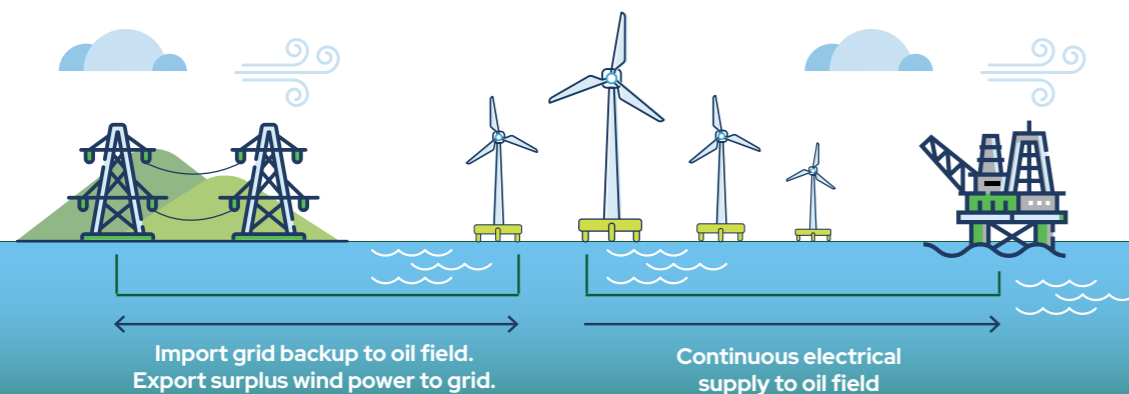
We are working with Scottish community & economic consultants Glic to conduct detailed socioeconomic assessments to help us understand the project's potential impact on local communities and economies.

These assessments look at factors like job creation, local spending, and community benefits, while also identifying potential challenges.

## Key socioeconomic and community impact areas

- Economy – direct and indirect
- Sociocultural values
- Local services
- Education and training
- Community capacity
- Tourism
- Job creation

Consequences will be assessed, in both positive and negative directions. Direct stakeholders will be engaged to ensure a complete understanding of potential effects.



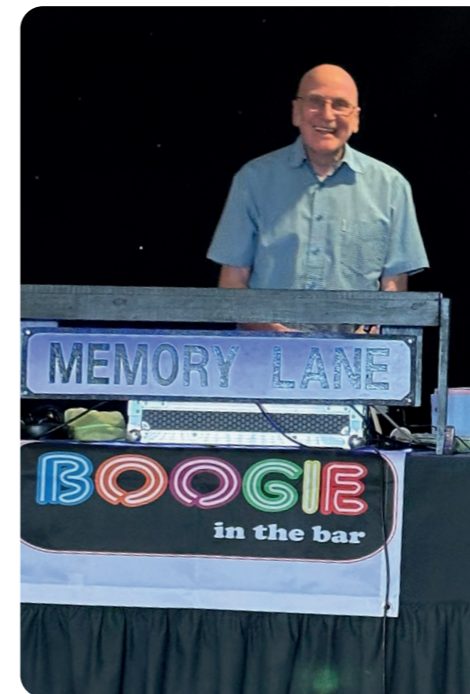
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# Community engagement



Provide educational resources and support for schools along the cable route

Apex Community Café

Boogie in the Bar

Peterhead Community Trust (PACT)

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## Commercial fisheries

### Inshore fisheries – within 12nm

- Static gear – e.g. creel pots
- Mobile gear – e.g. scallop dredgers, demersal trawlers

### Offshore fisheries – outwith 12nm

- Static gear – limited
- Mobile gear – e.g. demersal trawlers, seine nets and pelagic trawlers

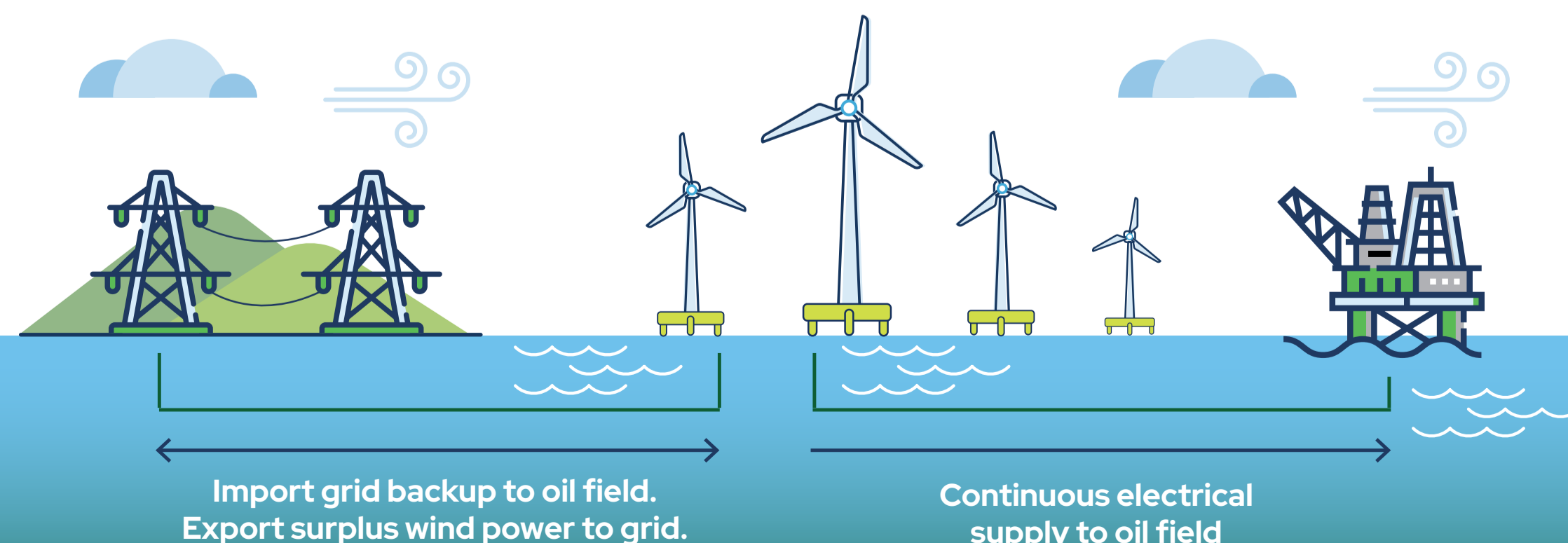


#### Consultation:

Ongoing engagement throughout project development

#### Local representatives:

Scottish Fisherman's Federation (SFF)  
Scottish White Fish Producers Association (SWFPA)  
North East Coast Regional Inshore Fisheries Group (NECRIFG)



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