

Project overview

Morgan, Mona, and Morven

Disclaimer

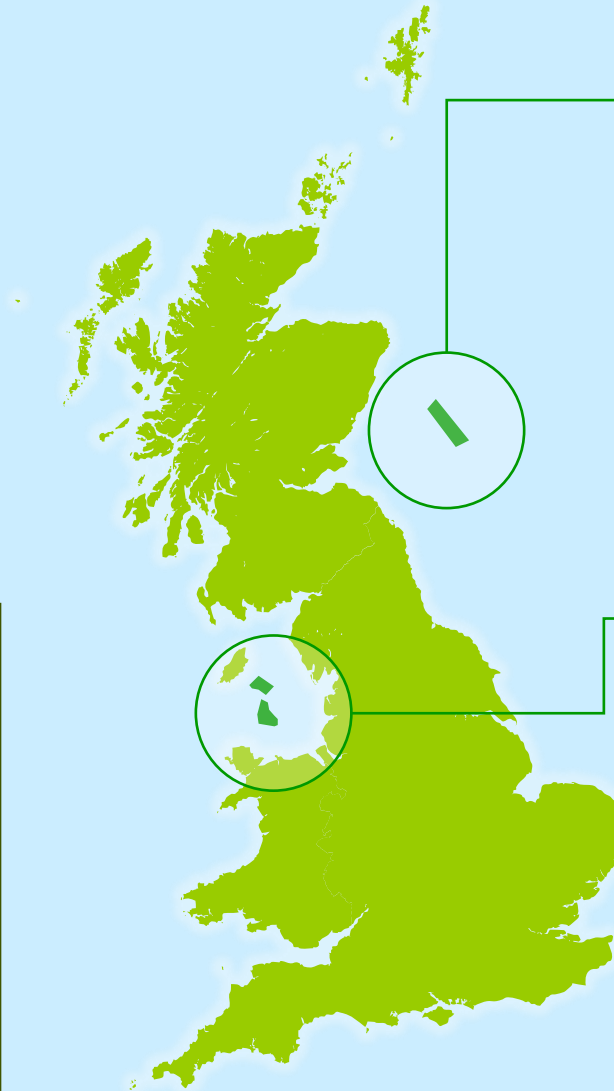
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We're developing offshore wind farms in the Irish and North Sea, contributing to the UK's 50GW and Scotland's 11GW offshore wind targets for 2030.



The combined potential generating capacity of **5.9GW** is sufficient to power the equivalent of around **6 million UK households with clean electricity**



Morven

Location:

60km off the coast of Aberdeen

Water depth:

65 – 75 metres

Area:

~860km²

Potential generating capacity:

2.9GW – sufficient to power the equivalent of c.3.0m UK homes

Morgan and Mona

Location:

20 – 30km from the coast

Water depth:

35 – 45 metres

Area:

Morgan ~300km² Mona ~450km²
= half the size of Greater London

Potential generating capacity:

3.0GW – sufficient to power the equivalent of c.3.4m UK homes

Morgan and Mona timeline

Habitats Regulations
Assessment commenced by
The Crown Estate (TCE)

Agreements for
Lease signed with
The Crown Estate

Contracts for Difference
(CfD), TCE Lease

First grid connection for
power export commissioning
of offshore substations

2021

2022

2023

2024

2026

2027

2028

2029

Habitats Regulations
Assessment concluded by
The Crown Estate (TCE)

Application for Development
Consent Orders (DCO),
Marine Licences

Expected Final
Investment Decision (FID)

Expected start:
Commercial
Operation Date (COD)

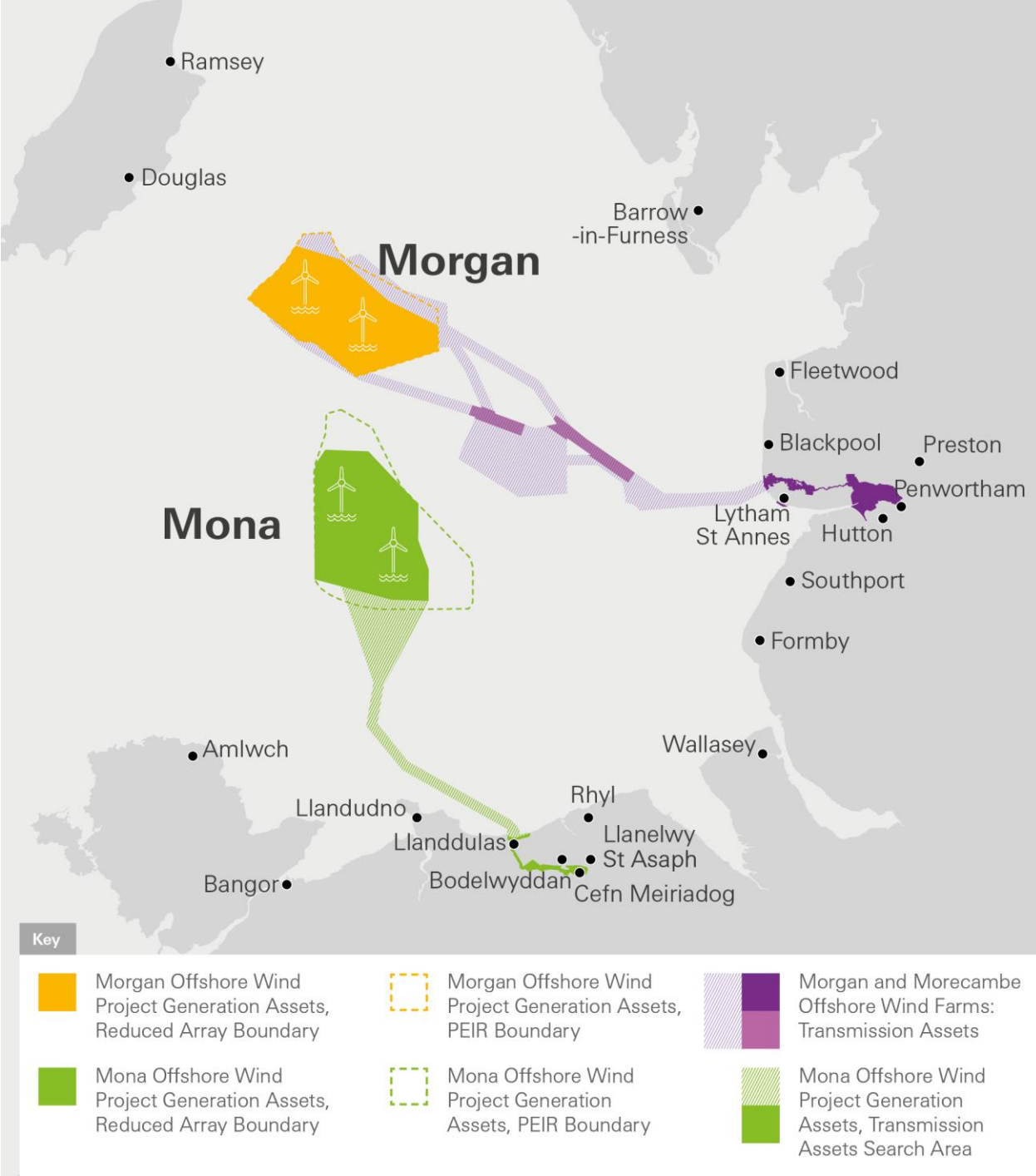
All dates indicative

Morgan and Mona grid connection overview

Following the Offshore Transmission Network Review (OTNR), National Grid issued a minded to decision as follows:

- **Mona** will connect to the UK grid near **Bodelwyddan** in North Wales
- **Morgan** will connect to the UK grid near **Penwortham** in Lancashire, NW England

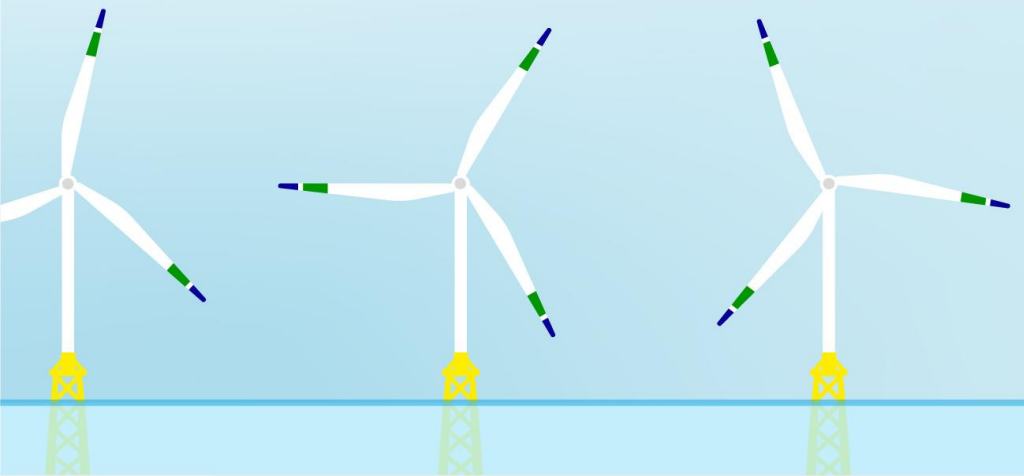
We are evaluating and optimising the cable routing to minimise the offshore and onshore footprint, while collaborating on Morgan with adjacent wind farm operator Morecambe.



Morgan and Mona reference case scope

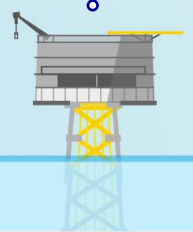
1 Turbines

Up to 107 turbines per project (max height to blade tip = 324m, Max rotor diameter = 280m)
Range of foundation types under consideration



3 Offshore Substations

Up to 4 offshore substations per project to transform electricity to a higher voltage



2 Inter-array cables

Carry electrical power to offshore substation(s)
Approx 200km of cables per project

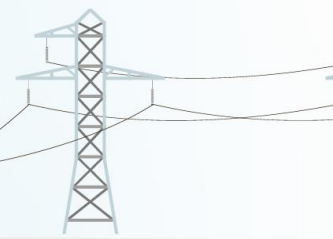
4 Export Cables

Morgan and Mona – up to 4 offshore export cable bundles and 12 onshore export cables (buried)
Morgan will seek to collaborate on the cable corridor with adjacent wind farm operator Morecambe

● Planned new infrastructure ● Existing infrastructure

7 Connections

2 x connections to National Grid (1 per project) (400 kV)



5 Landfall

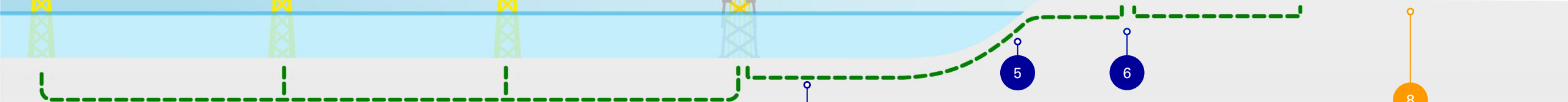
1 x landfall location per project

6 Onshore Substations

Mona – 1 onshore substation required, up to 15m in height
Morgan – scope being determined, with possible collaboration with other projects/operators

8 National Grid

National Grid scope under development



Morven timeline

Signing of option award
Environmental Impact
Assessment (ESIA)

Submission of
consents and
planning applications

Contracts for Difference
(CfD) auction for power
off-take agreement

First grid connection
for power export
commissioning of
offshore substations

2022

2023

2024

2025

2026

2027

2028

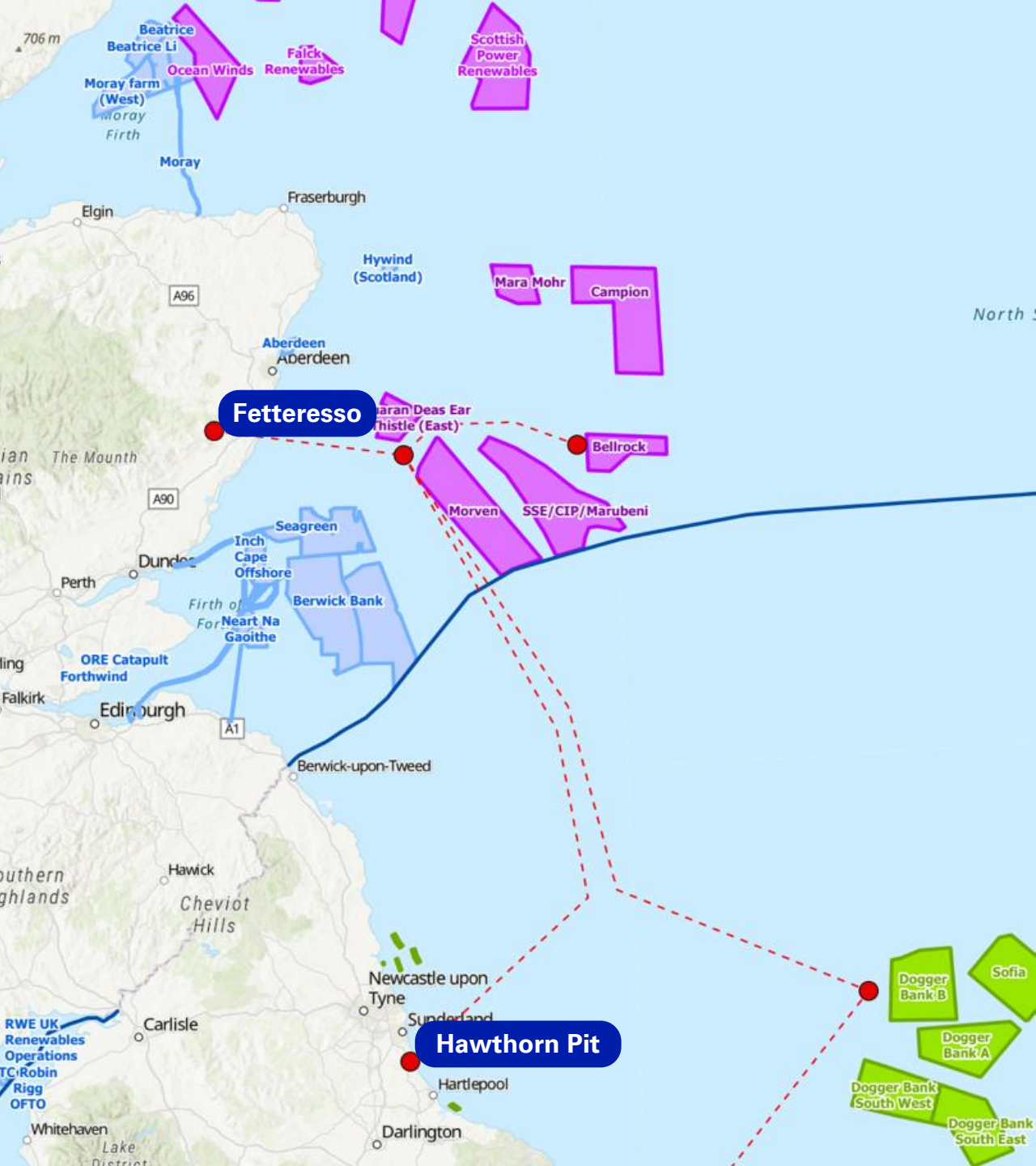
2030

Scoping

- Commence construction
- Expected Final Investment Decision (FID)

Expected start:
Commercial
Operation Date (COD)

All dates indicative



Morven grid connection overview

Based on the recommendation of the Holistic Network Design (HND) phase 1, as part of the Offshore Transmission Network Review (OTNR):

- Morven’s first connection to the UK grid will be near **Hawthorn Pit** in Northeast England as part of the coordinated offshore network, which also connects Fetteresso in Scotland, Creyke Beck and the Lincolnshire Connection Node in England.
- Details of the delivery model are published as part of OFGEM asset classification publication and link to Hawthorn Pit, currently classified as a Coordinated Offshore Regime delivery model.

We are currently evaluating cable routes from lease areas to a potential connection point and working with other offshore wind developers to minimise the onshore footprint. HND phase 2 is expected to provide further clarity in early 2024.

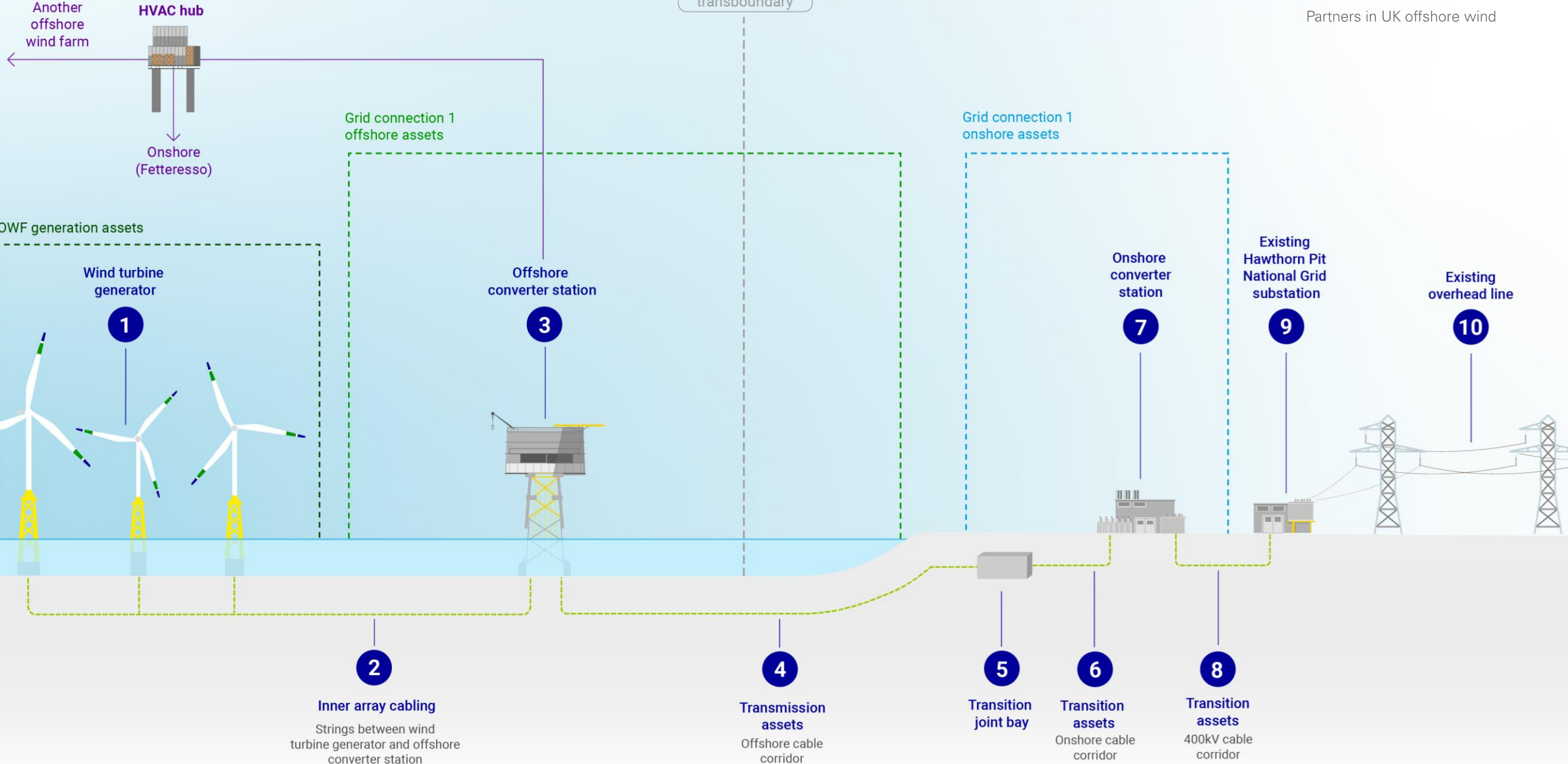
Morven project scope



Scotland/England transboundary



Partners in UK offshore wind



Another offshore wind farm

HVAC hub

Onshore (Fetteresso)

Grid connection 1 offshore assets

Grid connection 1 onshore assets

OWF generation assets

Wind turbine generator

1

Offshore converter station

3

Onshore converter station

7

Existing Hawthorn Pit National Grid substation

9

Existing overhead line

10

2

Inner array cabling

Strings between wind turbine generator and offshore converter station

4

Transmission assets

Offshore cable corridor

5

Transition joint bay

6

Transition assets

Onshore cable corridor

8

Transition assets

400kV cable corridor

Morven: a Scottish champion

EnBW and bp see many opportunities to deepen our commitment to Scotland's people and industry.

We believe our proposals can assist a just transition and support Scotland as a global energy leader.



Green hydrogen

Committing to produce green hydrogen, **bp** is supporting the decarbonisation of public and heavy-duty transportation in Scotland by providing a hydrogen refuelling hub, as well as the potential to export hydrogen from Scotland in the future.



Supporting Scotland's woodlands

bp plan to invest an additional £10m in Future Woodlands Scotland, to expand native woodland in rural and urban areas.



Accelerating EVs in Scotland

bp plans to grow its EV charging network in Scotland by 3,500 charge points by 2030, resulting in skilled jobs and investing over £50m.



Innovation

bp ventures is guiding the investment in Scottish low carbon innovation and entrepreneurship.



Education and skills in Scotland

bp and EnBW plan to expand current support for Scottish schools, colleges, universities and apprenticeships by investing in a new offshore wind apprenticeship programme, and establish an academic centre of offshore wind R&D and expertise at a Scottish university and a new skills capability accelerator developed by energy consultancy Xodus.



Global offshore wind operations centre of excellence

bp plans to establish its global offshore wind O&M Centre of Excellence in Aberdeen. Taking advantage of the highly skilled workforce and CoE location, **bp and EnBW** plan to locate the Remote Operations Centre for both ScotWind and UK Round 4 projects here.



Port investments

bp and EnBW plan to invest in Scottish ports, including investment in the regeneration of the Port of Leith, enabling ports to modernise and support the offshore wind industry develop sites for marshalling and operations.



Low carbon marine operations

bp and EnBW are working with others to explore viable routes to net zero operations, from battery powered hybrid vessels to hydrogen.



Community fund

bp and EnBW plan to set up a community investment fund of £200,000 per year to support sustainability and net zero goals across Scotland.



Ships built in Scotland

bp and EnBW plan to build vessels for its UK wind farms in Scotland. Two large Service Operating Vessels and two Crew Transfer Vessels.

Key contacts



Duncan Ayling

Senior Supply Chain Manager

d.ayling@enbw.com



Ricky Gray

Scotland Supply Chain Lead

ricky.gray@bp.com

Supplier registration portal: www.enbw-bp.com/suppliers

EnBW and bp



Statement regarding EnBW and bp partnership:

- EnBW and bp hold Agreement for Leases on two 60-year leases in UK Offshore Wind Round 4.
- EnBW and bp have formed a 50:50 joint venture to jointly develop and operate the leases to contribute to the UK's 50GW target for 2030.
- EnBW and bp plan for the first of the two wind farms to be operational by 2030.
- EnBW and bp have been awarded a lease option off the east coast of Scotland in the ScotWind leasing round.
- The three projects offer a combined potential generating capacity of 5.9 gigawatts and could have capacity sufficient to power the equivalent of approximately 6 million UK households with clean electricity.

About bp:

bp is an integrated energy company aiming to be a global leader in offshore wind. Its global pipeline includes two sites offshore Germany with a potential generating capacity of 4GW.

bp has formed a partnership with Equinor to develop projects in the US, including Empire Wind and Beacon Wind off the East Coast that have a planned potential 4.4GW generating capacity. It has also formed a strategic partnership with Japanese conglomerate Marubeni to explore offshore wind opportunities in the country and acquired a 55% stake in a portfolio from Deep Wind Offshore in South Korea, which includes four projects with a potential generating capacity of up to 6GW.

About EnBW:

EnBW Energie Baden-Württemberg AG is one of the largest energy supply companies in Germany and Europe, with a workforce of 27,000 employees supplying energy to around 5.5 million customers. Installed renewable energy capacity will account for 50 percent of EnBW's generating portfolio by the end of 2025. EnBW was among the pioneers in offshore wind power with its Baltic 1 wind farm in the Baltic Sea. EnBW has developed, constructed and operates four offshore wind farms in Germany with a total installed capacity of 945MW. Another 960MW from the offshore wind farm He Dreiht are currently under development; the final investment decision in March 2023 cleared the way for the start of construction.