

Introducing
**DOGGER BANK D
WIND FARM**
WHERE ENERGY MEETS OPPORTUNITY

WELCOME

This is the first phase of consultation on Dogger Bank D, a proposed new fourth phase of the Dogger Bank Wind Farm, the world's largest offshore wind farm.

Located in the North Sea around 210km off the northeast coast at its closest point to shore, Dogger Bank D aims to generate renewable electricity from an offshore wind farm in support of the decarbonisation of the UK energy system.

THE TEAM BEHIND DOGGER BANK D

Dogger Bank D is being developed by a 50 / 50 joint venture between SSE Renewables and Equinor, two of the world's leading companies in the development and operation of offshore wind energy.

Both companies were involved in the design and planning consent of Dogger Bank Wind Farm, the world's largest offshore wind farm.



SSE Renewables is a leading developer, owner and operator of renewable energy projects and assets across the UK and Ireland with a portfolio of around 4GW of operational offshore wind, onshore wind and hydroelectric sites. SSE Renewables has 13GW of upcoming projects in development, including the largest amount of offshore wind developments in the UK and Ireland totalling over 6GW.



Equinor has a long track record of developing offshore wind farms in the UK, having already built and commissioned into operation Sheringham Shoal Offshore Wind Farm, Dudgeon Offshore Wind Farm and Hywind Scotland, the world's first floating offshore wind farm. Equinor has been operating in the UK for 40 years and possesses over 50 years of offshore experience in the North Sea area.



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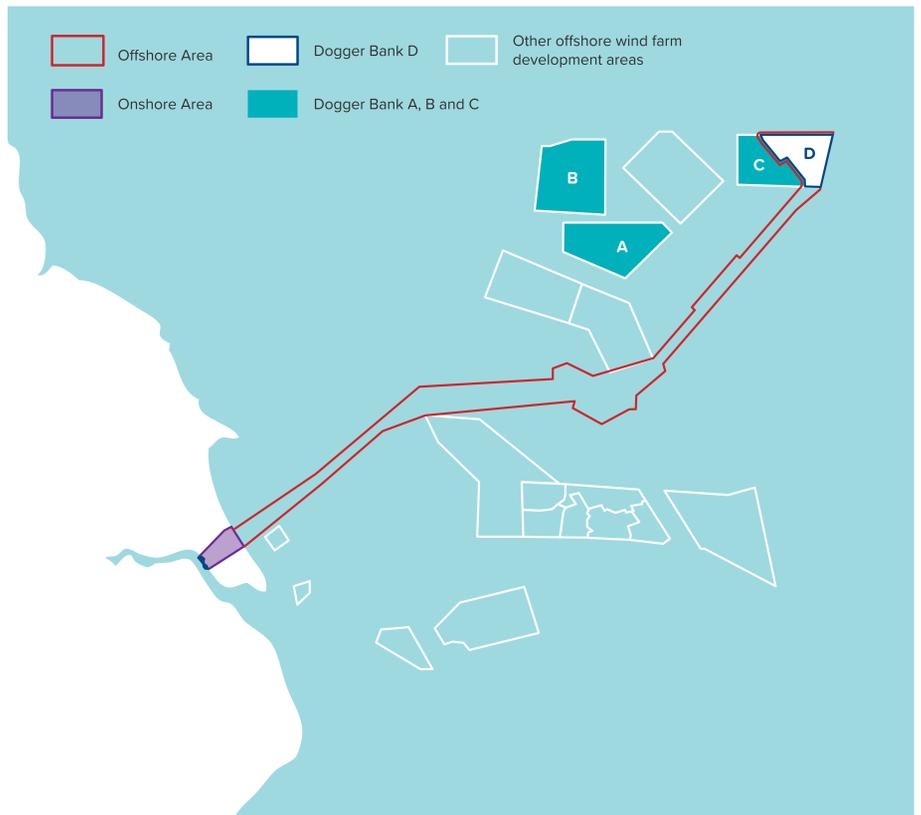
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OUR AMBITIONS FOR DOGGER BANK D

Dogger Bank D is being developed at a crucial time for the UK's energy sector. With advancements in offshore wind technology, the power from homegrown, clean renewables has the potential to ensure the UK can transition to a secure and affordable energy system.

As developers we have a proven track record in responsible delivery and innovation, and we believe that Dogger Bank D can make a considerable contribution to the UK's energy sector.

With ambitious UK Government Net Zero targets and transformational national infrastructure upgrades, it's important that the Project progresses opportunities in parallel which can be pursued alongside the demands and opportunities of a changing energy landscape.



Different opportunities are being explored in parallel to utilise the energy produced by Dogger Bank D. We will assess and progress these opportunities as we progress the Project to give us the highest level of flexibility to deliver a sustainable, secure energy system.



Electrical Transmission

Providing electricity for homes and businesses by linking to the transmission system, either via a connection into the UK national grid or a connection offshore to a wider coordinated network to Europe.



Hydrogen Production

Producing hydrogen in a new large-scale onshore facility in the East Riding of Yorkshire to connect to a wider hydrogen network, for various potential uses such as the decarbonisation of energy-intensive industries in the Humber.

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THE ENERGY LANDSCAPE

The UK is transforming its energy system, building more network infrastructure for electrical transmission and accelerating its journey towards Net Zero.

An important part of this is the Holistic Network Design, a recommended offshore and onshore design for a 2030 electricity network produced by the Electricity Systems Operator. It aims to better integrate offshore wind power and accelerate the build-out of the network required to get energy to where it is consumed across Great Britain.

Another important factor in the energy transition is decarbonisation of sectors that can't be easily electrified. The emergence of a hydrogen economy in the UK can support decarbonisation and contribute to the UK Government's Net Zero ambitions. Because of the UK's geology, infrastructure and technical expertise, a hydrogen economy could become a sector in which the UK is well placed to become a global leader.

The UK Government is aiming to increase offshore wind capacity to

50GW

by 2030.

BY 2035

the UK Government targets a complete decarbonisation of the electricity system, resulting in electricity Net Zero.

By 2030 the UK is aiming for at least

5GW

of hydrogen produced by water electrolysis.

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DOGGER BANK D OFFSHORE FACTS



Up to 128 wind turbines
with associated support structures
and foundations fixed to the seabed



210km distance to shore
at its closest point, off the northeast
coast of England



262km²
is the offshore array area in which the
wind turbines are located



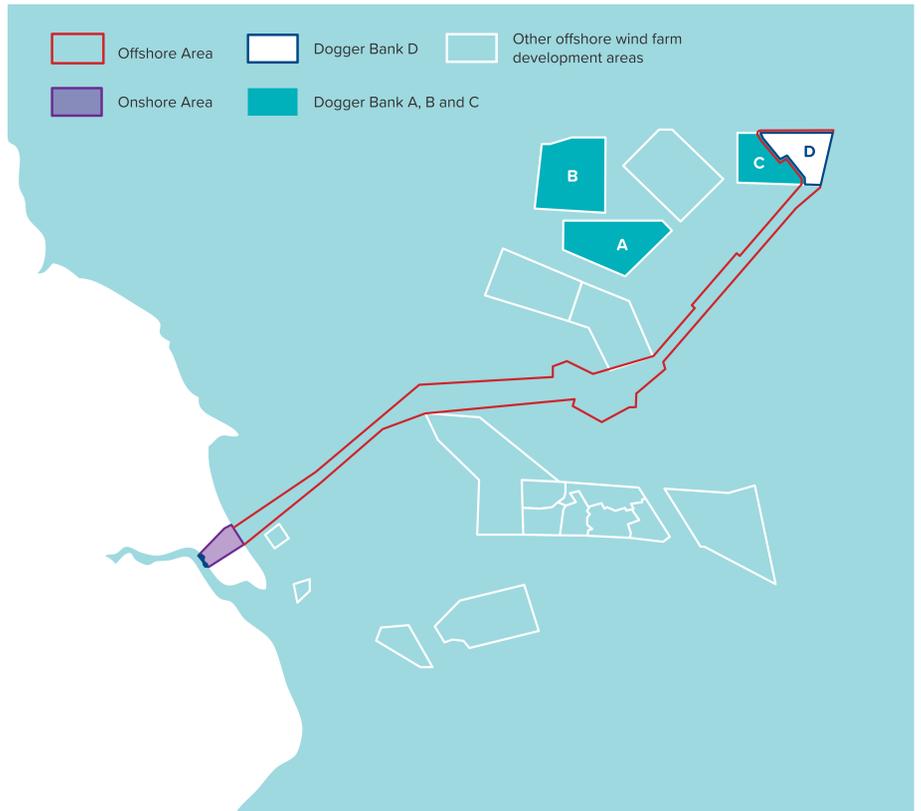
Up to six offshore platforms
with associated support structures and foundations
fixed to the seabed, to facilitate the export of
electricity to an onshore or offshore connection point



Up to six subsea cables
for electricity transmission



A network of subsea cables
linking the individual wind turbines to each other
and to the offshore platforms

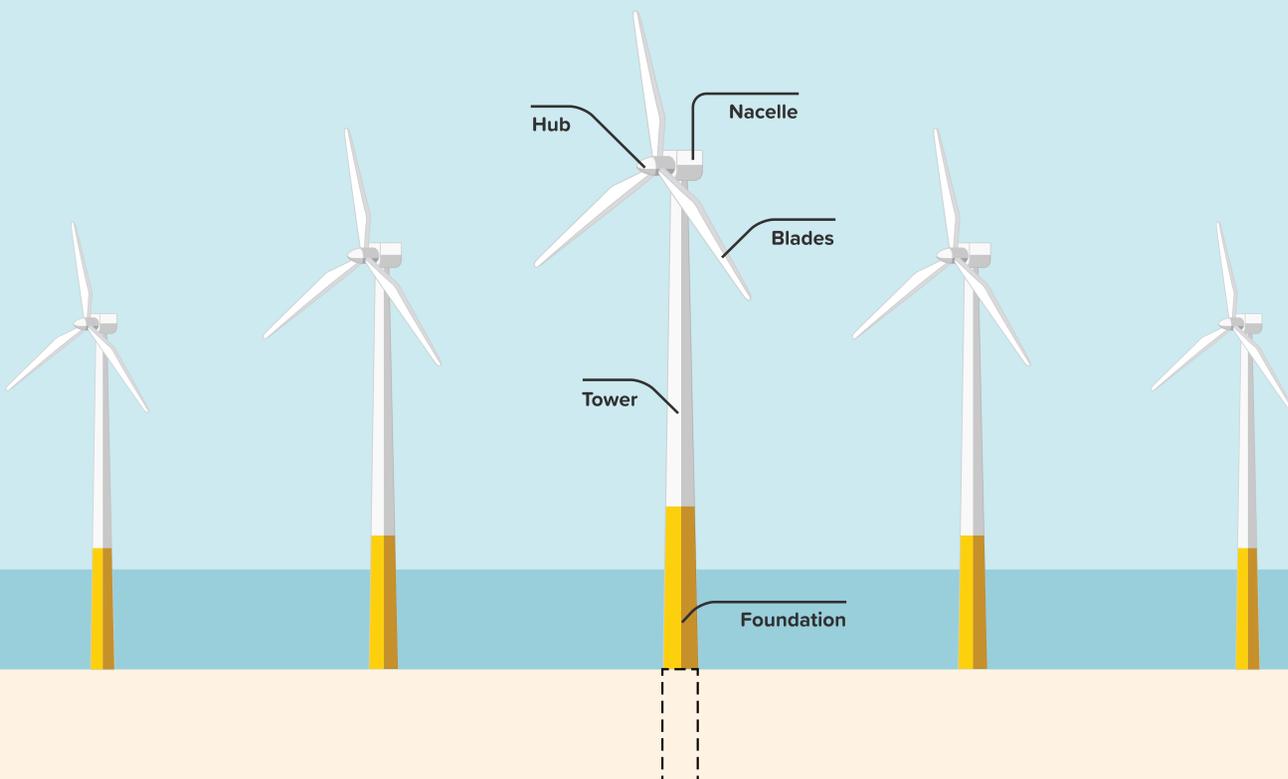


Creating energy from offshore wind

Offshore wind power is the energy taken from the force of the winds out at sea and transformed into electricity.

Offshore wind turbines, positioned within an offshore array area, harness the energy from the wind and transforms it into electricity which is then distributed via a network of subsea cables.

The key components of an offshore wind turbine are illustrated below.



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**ASK US
ABOUT OUR
SITE SELECTION
PROCESS**

THE HYDROGEN OPPORTUNITY

We are exploring an opportunity to use the electricity generated by Dogger Bank D to produce carbon-neutral green hydrogen by splitting water via electrolysis into hydrogen and oxygen.



Our work to identify the onshore hydrogen infrastructure has been underpinned by a series of site selection design principles and engineering requirements.

The work to date has resulted in the refinement of a wider onshore area to two shortlisted broad locations that we have called “Aldbrough” and “Saltend”.

Why hydrogen?

Hydrogen could provide a safe and sustainable way to replace fossil fuels used in energy-intensive industries such as steel and chemicals and in transport such as heavy goods vehicles, ships and planes.

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THE HYDROGEN OPPORTUNITY

**Hydrogen
 production
 facility options**

The site at Aldbrough is within an area southeast of the existing Aldbrough Gas Storage plant. The site at Saltend lies within the Humber International Enterprise Park.

It is currently expected that the total footprint of the site for the Hydrogen Production Facility will be around 55 hectares, subject to further design.

Site selection

One site will ultimately be selected to locate the facility itself whilst associated infrastructure may be required at both sites to support the operation of the facility.

Landfall options

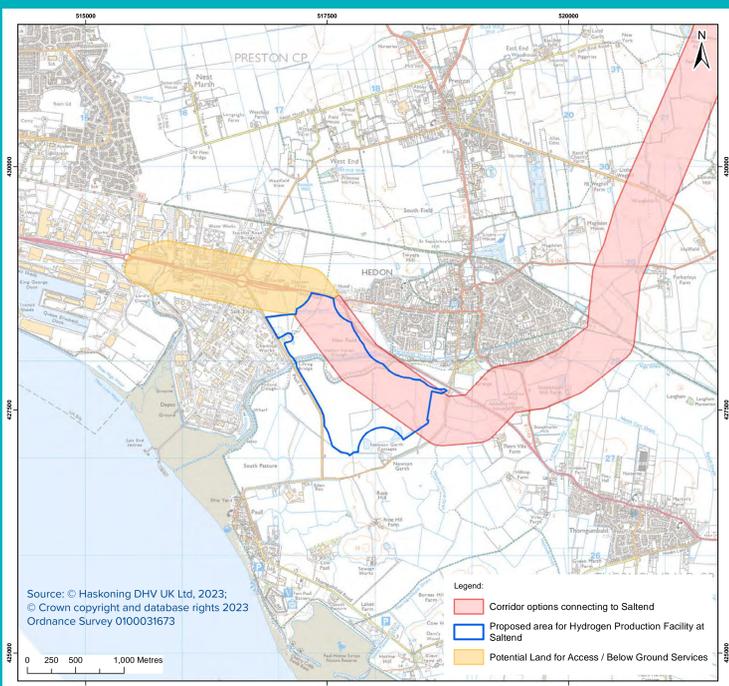
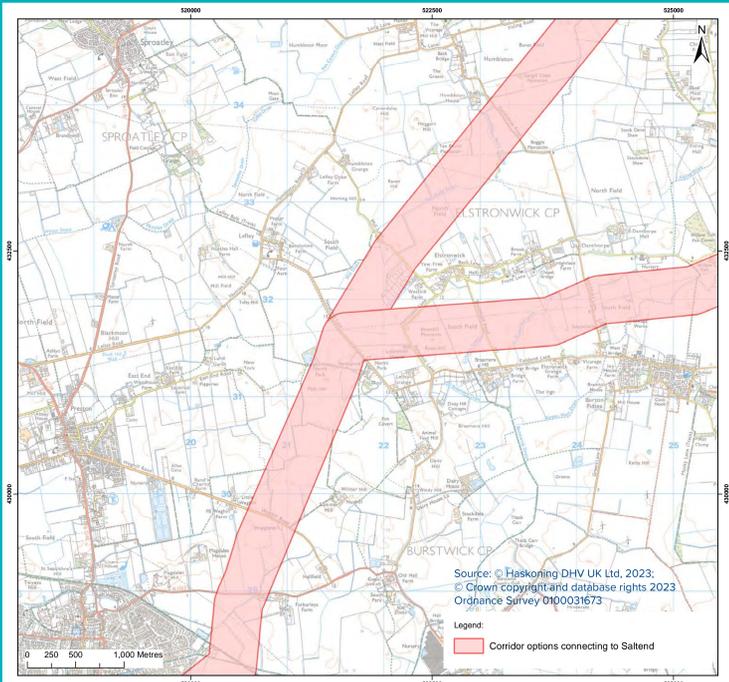
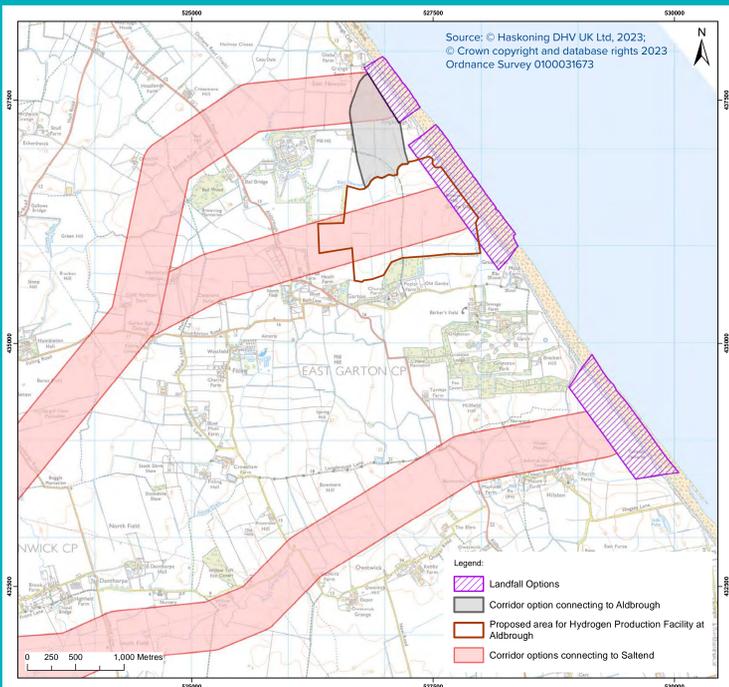
At landfall, the offshore subsea export cables will cross underneath the beach and terminate at underground transition joint bays. Up to six of these transition joint bays will house the connections between the offshore subsea export cables and the onshore underground export cables.

Three potential landfall sites along the Holderness coast have been identified.

Corridor options

The corridor options provide a general indication of a potential route for where we could locate a cable and/or a water pipeline below ground. The corridors have a broad width of 500m and the longest corridor is 16km.

We will develop a preferred route once we have chosen a corridor. The route would be located within a working width of 150m to allow safe construction and installation.



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THE HYDROGEN OPPORTUNITY

What is hydrogen?

Hydrogen is the most abundant chemical substance in the universe and it can play a key role in the route to Net Zero carbon emission targets.

When used as a fuel, hydrogen only emits water vapour into the atmosphere in contrast to petrol, diesel and natural gas which all produce harmful carbon dioxide emissions.

Hydrogen has several properties that make it safer than the fuels commonly used today. It is non-toxic and it dissipates rapidly when it's released, allowing for rapid dispersal in the unlikely event of a leak.

Hydrogen also offers a way to transfer variable wind energy into storable clean energy, an important factor in providing energy security and flexibility.

Handling hydrogen safely

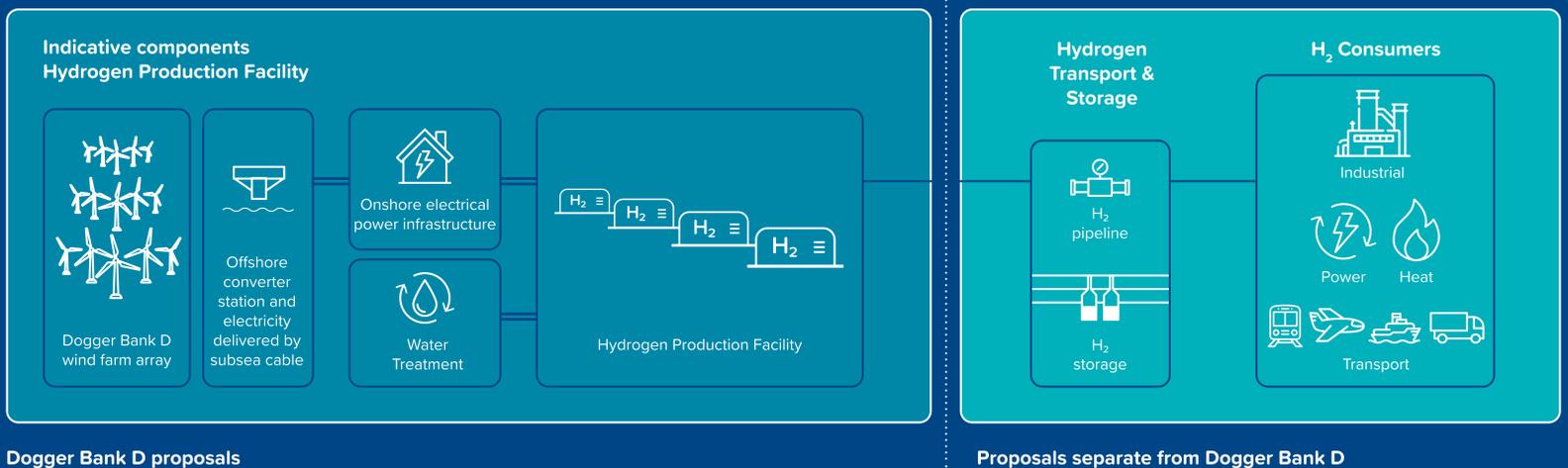
When handled responsibly, green hydrogen is less dangerous than other flammable fuels such as petrol and natural gas that we rely on today.

SSE and Equinor are specialist and safe operators of gas-based plants with long established safety records.

The design of the Hydrogen Production Facility will have safety as a key priority and be subject to strict safety criteria set by the regulators, the Health and Safety Executive.

We will look to site the facility and its elements carefully, apply good design principles and seek to screen it from view as much as possible.

Dogger Bank D Hydrogen Production Value Chain



Making hydrogen through water electrolysis

Electrolysis describes the process of an electrical current flowing through a liquid which causes chemical changes. At the very simplest level, to produce hydrogen through electrolysis you pass electricity through water (the liquid) and this process will split the water molecule (H₂O) into the component parts of Hydrogen (H₂) and Oxygen (O₂).

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THE ELECTRICAL TRANSMISSION OPPORTUNITY

We are also exploring an opportunity in parallel to the hydrogen production opportunity, to bring the energy from Dogger Bank D to an offshore connection point approximately 130km from the coast, from which National Grid Electricity Transmission (NGET) will provide an onward connection for the electricity to directly enter the national grid.

This will require a separate planning application by NGET for the connection to a point onshore and associated infrastructure such as an onshore substation and cables. This opportunity is part of the Holistic Network Design (HND), National Grid's plans to support the large-scale delivery of electricity generated from offshore wind, taking power to where it's needed across Great Britain. The HND supports the connection of 23GW of offshore wind power and the UK Government's ambition for 50GW of offshore wind capacity by 2030. We will develop our proposals in line with the connection opportunities available to us to meet the needs of a clean, secure and fast-moving energy sector.

Emerging opportunities

The North Sea is already a powerhouse for green energy production, but it could also become a hub to increase energy security for the UK. The development of Dogger Bank D could be coordinated with an interconnector between the UK and another country's electricity market to form a multi-purpose interconnector. This would potentially allow the more efficient use of offshore electrical infrastructure, reducing the need to curtail wind farm output in periods of oversupply in the UK, and thereby reducing costs for consumers.

We are exploring the opportunity to combine the production of green hydrogen with a connection to the national grid using the energy produced by Dogger Bank D.



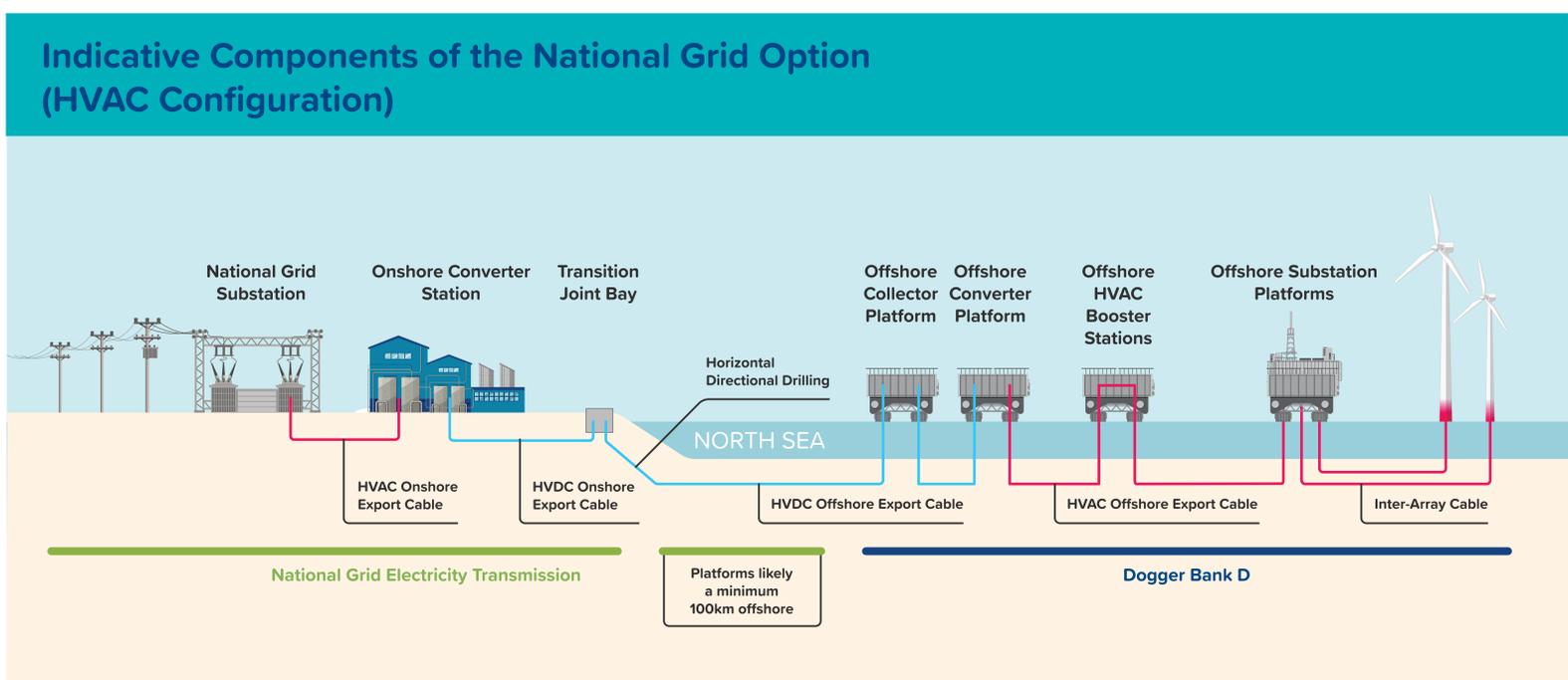
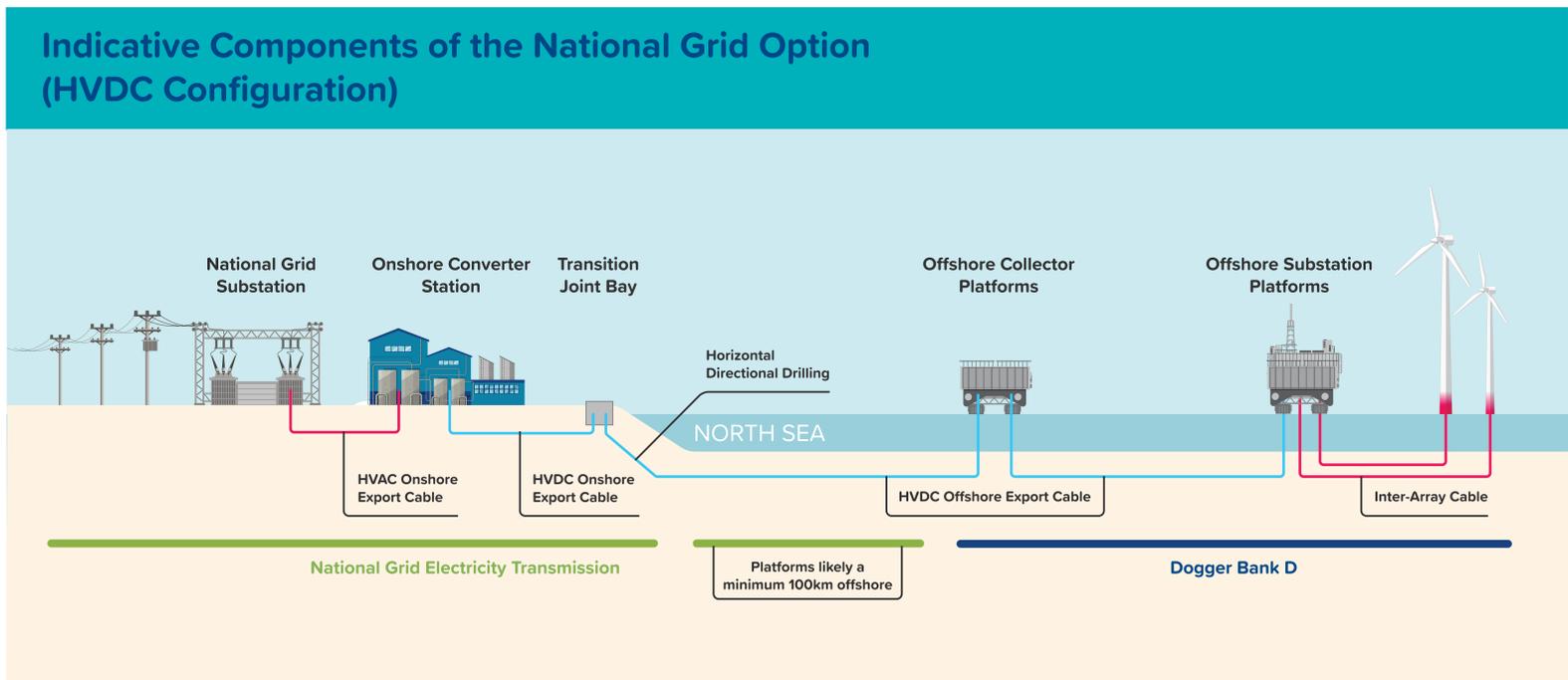
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THE ELECTRICAL TRANSMISSION OPPORTUNITY

The various components of the possible direct connection into the national grid are shown below in the two figures. We could use different ways to transmit electrical power through cabling, these are High Voltage Direct Current (HVDC) and/or High Voltage Alternating Current (HVAC). The area identified for connection will be determined by the National Grid. The Project's current responsibility is to develop Dogger Bank D to a point or platform offshore in accordance with the HND.



PROTECTING AND ENHANCING THE ENVIRONMENT

We will be assessing the potential impacts on the offshore and onshore environment and undertaking an Environmental Impact Assessment (EIA).

This is an important part of the pre-application process and informs how the environment will be protected during the construction, operation and decommissioning phases.

The topics we will assess are listed below.



What we will assess offshore

- Marine Physical Processes
- Marine Water and Sediment Quality
- Benthic and Intertidal Ecology
- Fish and Shellfish Ecology
- Marine Mammals
- Intertidal and Offshore Ornithology
- Commercial Fisheries
- Shipping and Navigation
- Aviation, Radar and Military
- Archaeology and Cultural Heritage
- Other Marine Users



What we will assess onshore

- Soils and Land Use
- Geology and Ground Conditions
- Noise and Vibration
- Ecology and Nature Conservation (including Ornithology)
- Air Quality and Dust
- Landscape and Visual Impact
- Archaeology and Cultural Heritage
- Water Resources and Flood Risk
- Traffic and Transport



What we will assess as project-wide topics

- Climate Change
- Socioeconomics, Tourism, and Recreation
- Major Accidents and Disasters
- Human Health

Water vole



Field of Rapeseed, near Paull,
East Yorkshire



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PROTECTING AND ENHANCING THE ENVIRONMENT

We will be looking at ways to keep disturbance to people and wildlife to a minimum.

To gain feedback on the assessment, a draft EIA will be presented in the form of a Preliminary Environmental Information Report (PEIR) for our next consultation in 2024. This assessment will represent a point in the assessment process when the design of the Project is still in development and the likely significant effects are continuing to be understood. Feedback on the PEIR will be fed into the final EIA which will be documented in an Environmental Statement.

In addition to an EIA, a Habitats Regulations Assessment (HRA) will be produced to consider the Project's impact on the Dogger Bank Special Area of Conservation and other relevant protected areas. We will progress the development of information to support the HRA process in consultation with Statutory Nature Conservation Bodies and relevant stakeholders, including where steps have been taken to avoid, reduce or mitigate impacts.



Common seal

**ASK US
ABOUT HOW
OUR MITIGATION
PROPOSALS WILL FEED
INTO OUR DESIGN
AND APPLICATION
PROCESS**

Harbour porpoise



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THE PLANNING APPLICATION PROCESS

As Dogger Bank D is recognised as a strategic national asset for energy with an expected generating capacity greater than 100MW, it qualifies as a Nationally Significant Infrastructure Project (NSIP).

We will follow the procedures set out in the Planning Act 2008 which provides the framework for how NSIPs are developed.

We will apply to the Planning Inspectorate, an agency responsible for managing the NSIP planning process on behalf of the Secretary of State for Energy Security and Net Zero, for permission to build and operate Dogger Bank D.

The timeline shows key project milestones and where you will have the chance to comment on our proposals.

The project development process

As part of the project development process we are assessing technical and environmental considerations to ensure the opportunities for using the energy generated by the turbines can be built safely and with due consideration of any potential environmental impacts.

We are gathering data, engaging with stakeholders and potential landowners and undertaking offshore and onshore surveys which all help us to understand the natural environment and what matters to those affected by our proposals.

We will use the information from our assessments to inform and develop our proposals alongside feedback received from all stages of consultation.

As project development is a lengthy process, we will speak to our statutory consultees on a regular basis to get their views at various stages of the design of our proposals and to feedback design changes.



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THE CONSULTATION PROCESS

The Planning Act 2008 sets out a list of statutory consultees such as East Riding of Yorkshire Council, Natural England and the Environment Agency who are known as statutory bodies and other stakeholders who have to be consulted on our proposals.

The local community and potential landowners are another important group who can provide useful information and influence the design of our Project.

What matters to you, matters to us

You can help shape our proposals for Dogger Bank D by telling us what matters to you and your local community. This includes ideas to reduce or mitigate impacts during construction and operation and ways we can shape our proposals around your community.

Use the survey form, email or post us your thoughts and we will assess and explore all ideas.

Ideas and suggestions that we take forward will be captured as a commitment in the Dogger Bank D Commitments Register.

View our consultation materials

All consultation materials (a brochure, maps and survey form) are available for download at www.doggerbankd.com.

You can fill in the survey form online and leave feedback on a specific location on the interactive consultation map.

You can view and pick up copies of the brochure, maps, survey form and an envelope to return the form back to us from the Community Access Points below. Please check opening times before your visit.

-  Beverley Customer Service Centre, 7 Cross Street, Beverley HU17 9AX
-  Hedon Library and Customer Service Centre, 31 St Augustine's Gate, Hedon HU12 8EX
-  Hornsea Customer Service and Library, Broadway, Hornsea HU18 1PZ
-  Withernsea Centre, Queen Street, Withernsea, HU19 2HH

Email or call us for a copy of the materials to be sent to you. If you would like materials in an alternative format (such as large-print, alternative language or Braille), please get in touch.

To stay in touch

Sign up to receive email updates by registering your details on the website.



Visit our website:
www.doggerbankd.com



Send us an email:
contact@doggerbankd.com



Call our Freephone information line:
0800 254 5029



Write to us:
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CONTRIBUTING TO COMMUNITIES

Dogger Bank D is committed to supporting the communities close to our proposed development. We believe in making a positive change to the communities in which we operate and we believe local people should be at the heart of this investment.

It is usual for a community benefit programme to be available during the construction phase of a project but we would work on developing the programme separately to the planning process.

We will work with local stakeholders to ensure our package is tailored to local needs.

What is community commitment?

- To support the development of the communities living near our sites
- We take a responsible approach in the areas in which we operate
- We understand that every community is different
- We develop a local package based on local needs

Community programmes

Types of programmes previously supported, with a range of funds available, include:

- **Sustainable communities** - strengthening good quality and sustainable local places and services
- **Healthy lives** - supporting communities which are strong, active and engaged
- **Quality education** - enhancing local economies via good quality education and skills projects
- **Safeguarding culture and heritage** - enriching the local cultural landscape
- **Promoting well-being** - enabling communities to participate and enjoy a range of local activities
- **Protecting the environment** - supporting conservation and community
- **Net Zero** – help communities to successfully make the transition to a low carbon society

To ensure a community commitment package is shaped fairly and led by a community, consultation would be facilitated by independent consultants.

Industry leading practice:

SSE Renewables (as one of the Dogger Bank D parent companies) was the first developer to commit to a minimum package for communities in the UK. The team currently work with over 150 communities on over 50 community commitments and have invested £78m to date (September 2023).

100% of grant recipients would recommend our community programmes.

Our principles for community programmes

Place-based funder - focusing on the areas near our renewable development sites and the specific needs of the communities within these areas.

Community decisions – believing that local people know their community best and ensuring funding decision-making for local funds will be made by community representatives.

Flexible funding - understanding that the environment around projects can change and being able to respond quickly to emerging local issues, changing project priorities and amended budgets.

Social impact – we commit to using proportionate and meaningful measures to report on our impact against the UN Sustainable Development Goals and on our sustainability commitments.



Encouraging wildlife education through the donation of camera nest boxes to local primary schools

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