

# National Grid Ventures (NGV) Written Response to East Anglia One North and East Anglia Two Examinations Deadline 9

15<sup>th</sup> April 2021

NGV IP reference numbers: 20024636 (East Anglia ONE North) and 20024639 (East Anglia TWO)

## **NGV Comments on the 'Extension of National Grid Substation Appraisal' Document Reference: ExA.AS-32.D8.V1**

### **Introduction**

The 'Extension of National Grid Substation Appraisal' Document (referred to hereafter as the 'Appraisal Document') submitted by the Applicant at Deadline 8, gives consideration to the cumulative effects assessment of the potential future extensions to the proposed NGET substation at Friston. Extension/s to the proposed NGET substation which forms part of the applications for EA1N and EA2 would be required to accommodate the Nautilus and/or EuroLink projects should the proposed substation at Friston be identified as a feasible connection location by NGV.

As per the Examining Authorities Question 2.0.14 and NGV's Deadline 6 response, NGV are willing to work in consultation with the Applicant to help inform their cumulative effects assessment.

### **Progress since options presented in Nautilus Briefing Pack (July 2019)**

Paragraph 10 of the SPR Appraisal Document refers to NGV's 'initial site appraisal work' and footnote 1 provides a link to the Nautilus Briefing Pack (July 2019). Since publishing the Nautilus Briefing Pack (July 2019) NGV have undertaken significant further feasibility work identifying and assessing siting and routeing options and have sought feedback on proposed methodologies from a range of technical stakeholders to inform yet further feasibility work, which is ongoing. It is NGV's intention to present site and route options identified to date as part of a non-statutory public consultation in late Summer 2021. Following the non-statutory consultation, NGV will be working towards an early 2022 submission date for an EIA Scoping Report.

A Project Update document (April 2021) has been added to the Nautilus project website which makes reference to the planned non-statutory consultation and provides an updated project timeframe. A

copy of the Nautilus Project Update document (April 2021) is appended to this written representation (Appendix 1).

### **Parameters for NGV's proposed infrastructure**

The Nautilus Briefing Pack (July 2019) sets out the infrastructure required (project elements) to enable connection of the proposed interconnector to the National Transmission System (NTS). In addition to the NGET substation extension bays which would be required to accommodate Nautilus and/or EuroLink, both Interconnector projects would need a converter station (per interconnector) in proximity to any substation. For each project, underground HVDC cabling would be required from the landfall point to the converter station and HVAC cable from the converter station to the NGET substation.

As explained in the Nautilus Frequently Asked Questions document (May 2020)<sup>1</sup> Interconnectors use HVDC lines. The link between the UK and Belgium will exceed 100 miles end to end. The use of HVDC cables to transport 1400 megawatts (MW) over this distance is proven to be more efficient for losses and will require a smaller number of cables than HVAC. Other technologies also use HVDC technology; including offshore wind projects such as EA1N/EA2. It is the common use of HVDC for interconnectors and offshore wind that allows for consideration of increased co-ordination and the potential for integration, potentially via Multi Purpose Interconnectors (MPIs) (please see Appendix 2), as is being considered for the BEIS Offshore Transmission Network Review (OTNR).

While NGV cannot provide further detail on the location of the landfall, converter station/s and routeing of underground cables for Nautilus or EuroLink at this stage, the project components and parameters (e.g. site size, potential infrastructure dimensions etc) have previously been set out in both the Nautilus Briefing Pack (July 2019)<sup>2</sup> and the Nautilus Frequently Asked Questions document (May 2020). The nature of this type of linear infrastructure and associated technology means that there is early clarity on fixed project elements, these are unlikely to change except for refinement of parameters; project variability is related to siting and routeing, and associated mitigations. Therefore, the key project elements and assumptions set out for the Nautilus project (in the documents referred to above) are also applicable to the EuroLink project. NGV continue to work to these project components and parameters while progressing feasibility work.

As set out in NGV's Deadline 6 response, both Nautilus and EuroLink would require a separate converter station. A typical overall footprint for a converter station site covers an area of up to five hectares (12 acres), with the converter building itself approximately 230m x 210m. The converter station building would have a maximum height of up to 24 metres. The exact size, height and layout will depend upon the specific proposals for mitigation and construction and technology provider factors.

The converter station/s would need to be located within a 5km radius of the NGET substation. The search radius for the converter station site is limited to 5 km as beyond this distance NGV would need to increase the size of the converter station building. Locating the converter station further away from the substation has an impact on the voltage level needed to transmit the power, thereby requiring additional equipment to be installed at the converter station to maintain the required voltage level.

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<sup>1</sup> <https://www.nationalgrid.com/document/132456/download>

<sup>2</sup> <https://www.nationalgrid.com/document/125601/download>

Four different landfall options (A to D) are set out in the initial site appraisal work on page 5 of the Nautilus Briefing Pack (July 2019). Landfall option D is in the same location as the landfall proposed for both the EA1N and EA2 applications.

NGV have been engaging with SPR to inform ongoing feasibility work and to understand SPR's proposals for EA1N and EA2. NGV will continue to engage with SPR as proposals for Nautilus and EuroLink develop in order to work collaboratively and to minimise disruption and effects where possible.

# Appendix 1

**Copy of the Nautilus Project Update document (April 2021)**





# Nautilus Interconnector

Proposed by National Grid Ventures

April 2021

**nationalgrid**



# Introducing Nautilus Interconnector

**At National Grid Ventures (NGV), we are bringing forward plans for Nautilus, a new interconnector in East Suffolk that could supply enough electricity to power around 1.4 million UK homes.**

Nautilus could connect 1.4 gigawatts (GW) of offshore wind to the transmission systems of Great Britain and Belgium through a sub-sea electricity cable called an interconnector. The project would include underground cabling works and onshore infrastructure, which would be located in East Suffolk.

We are also bringing forward proposals for a second interconnector in East Suffolk, currently known as EuroLink. Both projects are early in their respective feasibility stages, and EuroLink is currently less advanced than Nautilus. You can read more about EuroLink on Page 11.

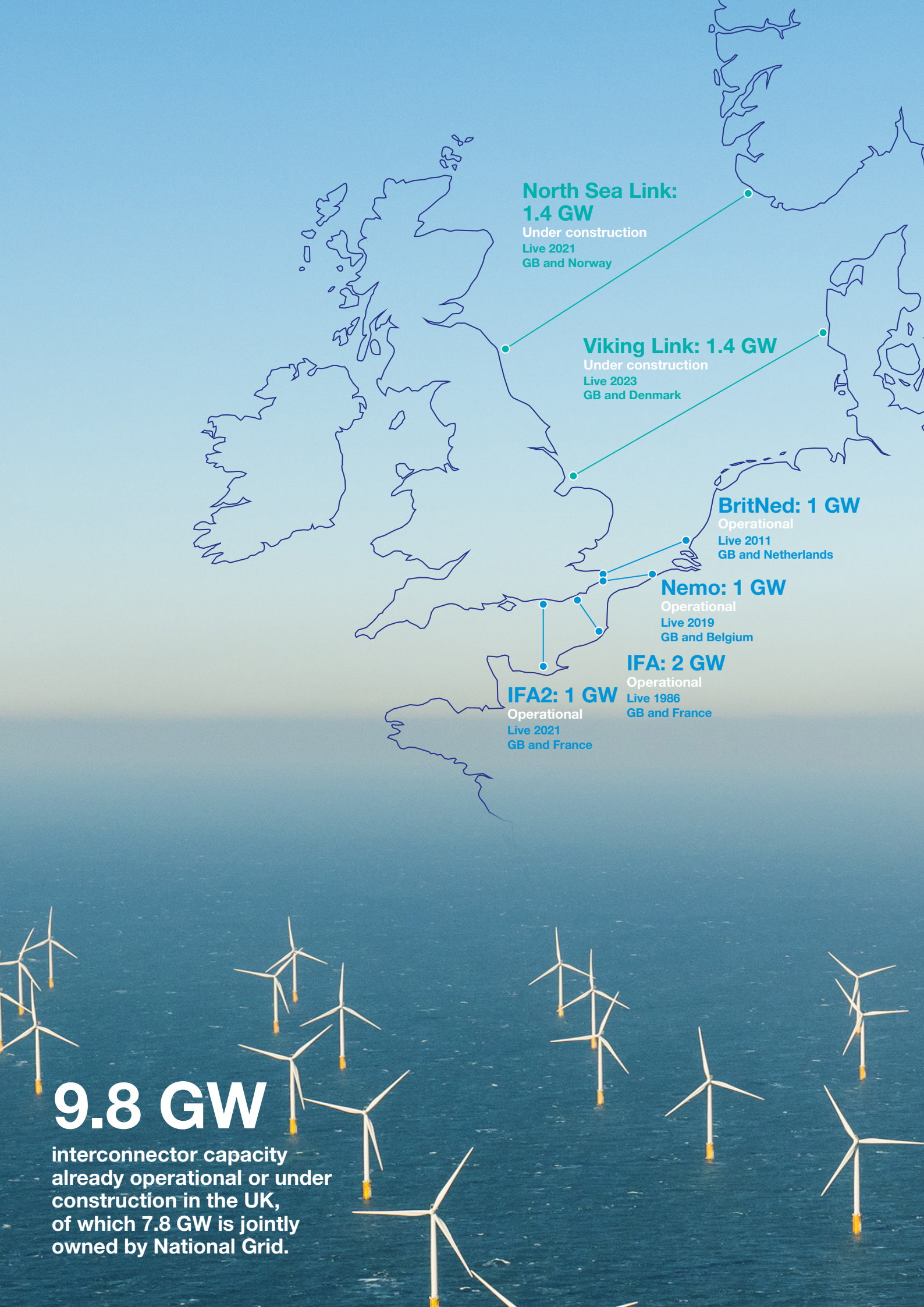
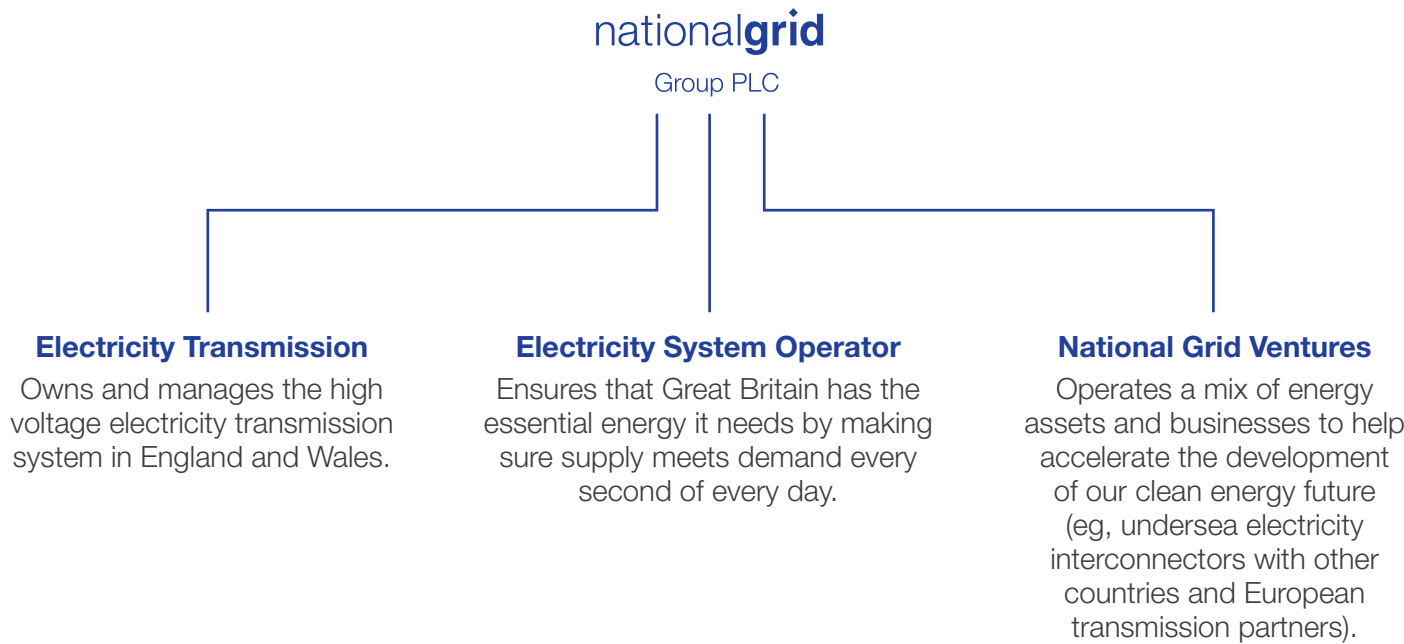
This Project Update has been produced to provide you with the latest information on Nautilus Interconnector, and to let you know what we have planned for 2021.

## National Grid Ventures (NGV)

Proposals for Nautilus are being developed by NGV and our respective joint venture partner in Belgium, Elia.

NGV is the competitive division of National Grid. It operates outside of National Grid’s core regulated businesses in the UK and US where it develops and operates energy projects, technologies and partnerships to make energy cleaner, more secure and more affordable for consumers.

There are three distinct business entities under the umbrella of National Grid plc in the UK, as detailed in the diagram below, all with different roles and responsibilities. The separation between NGV and National Grid Electricity Transmission (NGET) stipulates that NGV is treated the same way as any other energy project promoter.



**9.8 GW**  
interconnector capacity  
already operational or under  
construction in the UK,  
of which 7.8 GW is jointly  
owned by National Grid.



# Connecting for a cleaner future

**Electricity interconnectors are the perfect tool to deliver a cleaner, more secure and affordable energy system for consumers. By 2030 around 90% of electricity imported to Great Britain will be from zero-carbon sources. Interconnectors are helping to create a smarter energy system by transporting low carbon electricity from where it is produced, to where it is consumed.**

Sub-sea cables, sharing energy between the UK and Europe, have helped to lower electricity prices, increase the security of supply and stabilise energy in the GB transmission network.

Connecting to other energy systems reduces the need to build new infrastructure and is a quick way to access affordable, low carbon electricity, while offering a market to export excess renewable energy generated in the UK.

The UK Government recognises the value of interconnectors in keeping supplies secure, reducing costs to consumers, and providing long-term sustainability. There is also a clear benefit to the UK economy in terms of skilled jobs, investment in clean energy and the ability to export electricity in support of economic growth.

**Nautilus will:**



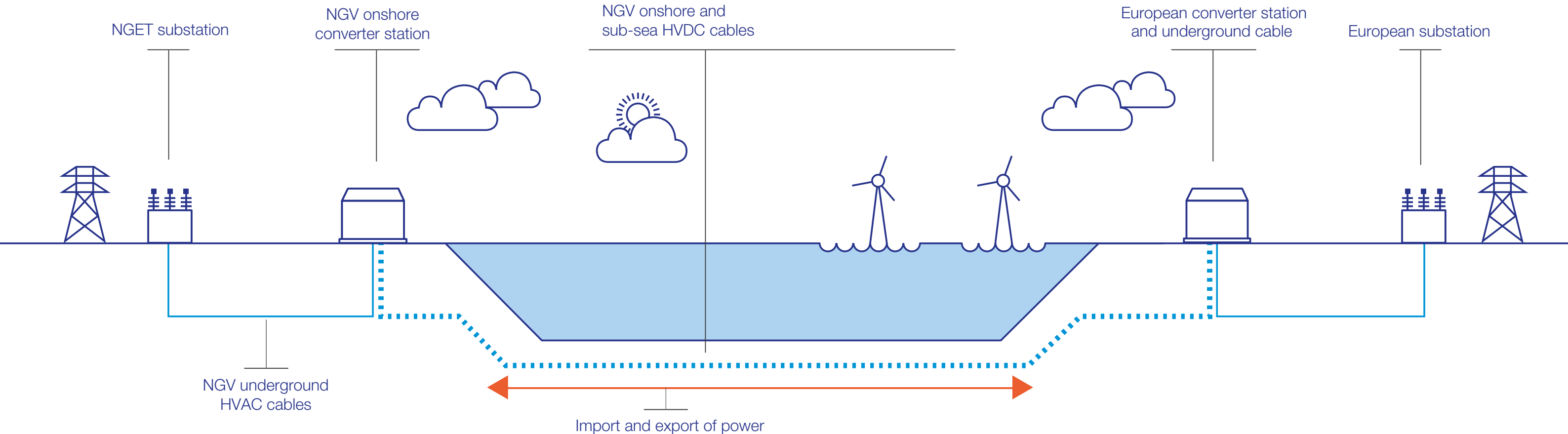
Help to increase efficiency across Europe and reduce reliance upon oil and gas imports by providing 1.4 GW of flexible capacity between the GB and Belgian networks.



Increase security of supply by ensuring energy flows between Britain and Belgium from where it is being generated in large quantities to where it is needed most.



Provide access to more affordable energy for UK consumers.





# The next generation of interconnectors

**Building on our experience as one of the World’s leading developers of sub-sea interconnectors, we have been working closely with our partners, Elia, to develop a vision for Multi-Purpose Interconnectors (MPI), the next generation of interconnector technology.**

## Listening and responding to the local community

In 2019, we commenced engagement with local councils, parish and town councils and community groups across East Suffolk. It was clear that there is a strong desire for increased coordination and cooperation between energy developers in the region. We have listened to this feedback, and as a result, we are developing our vision for a new generation of interconnectors – the MPI solution.

We heard how host communities are supportive of renewable energy and combatting climate change, but the current approach is not working for them or their local environment. Our vision for the MPI solution seeks to address this by supporting the delivery of offshore wind whilst reducing the impact on coastal communities.



## The vision for Multi-Purpose Interconnectors

Instead of individual wind farms connecting one by one to the onshore network, MPIs would allow offshore wind farms to be connected offshore through the MPI.

At present, offshore wind and interconnectors operate alongside each other. MPIs will enable offshore wind and interconnection to work together. This will help to

- Support the UK’s ambition to meet 2030 and 2050 climate targets.
- Reduce impacts on coastal communities with fewer individual connections and less construction works needed.
- Provide significant cost reductions and minimise environmental impacts by using shared assets and clusters of connections.
- Combine the delivery of low carbon energy created in the North Sea by offshore wind and other technologies in Europe.
- Make greater use of the cables and buildings required to connect renewable electricity, reducing the impact on our environment – both onshore and offshore.

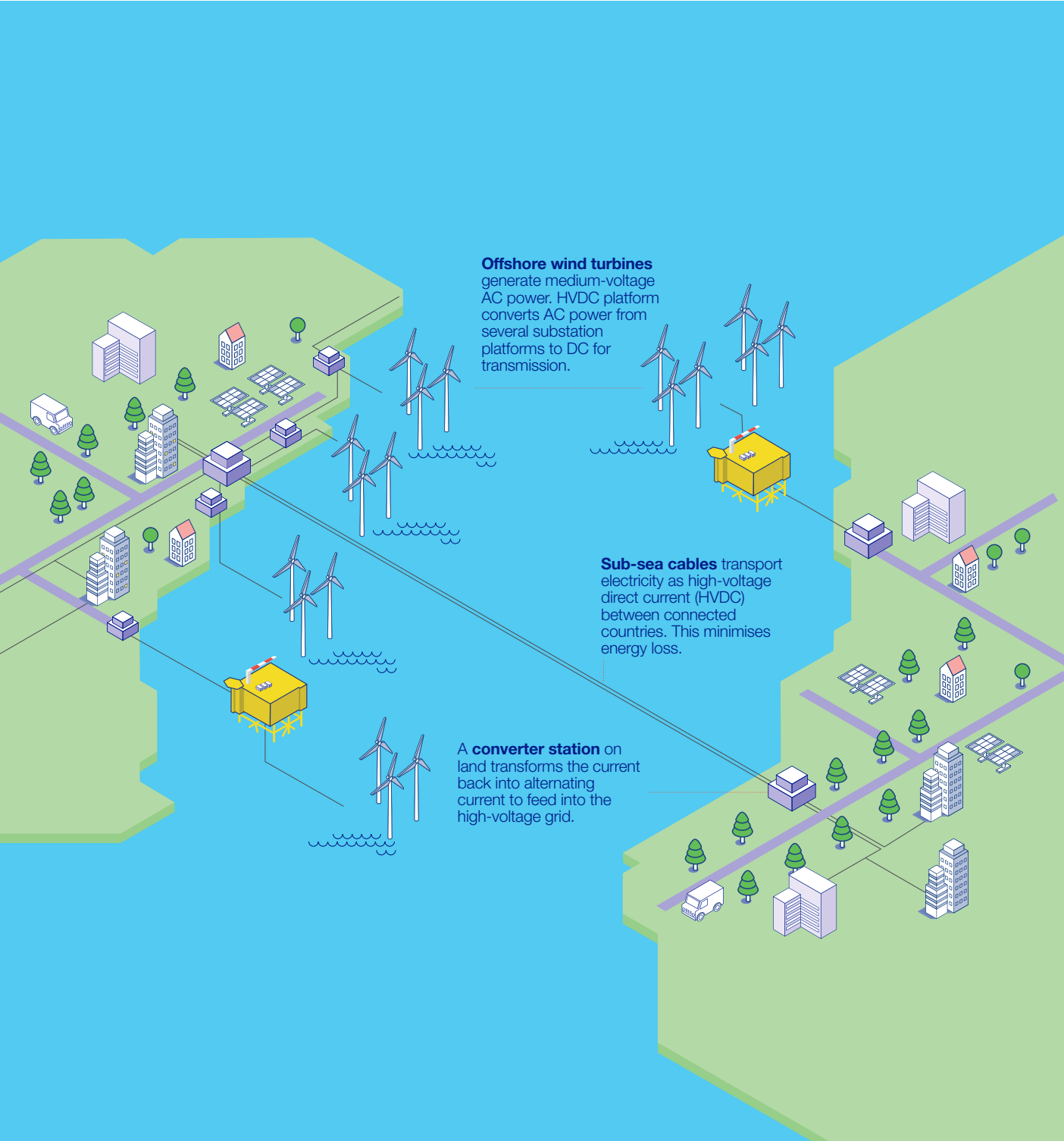
To make this become a reality, above all, we need to take a coordinated approach, ensuring all stakeholders collaborate. This includes:

- Working with the UK government and Ofgem as part of the Offshore Transmission Network Review (OTNR) to influence emerging policy on MPIs.
- Support and input from the offshore wind and interconnector community.
- Support and input from High-Voltage Direct Current (HDVC) technology providers and the total supply chain.

Read more about how MPIs could help Great Britain unlock the potential of offshore wind by visiting [nationalgrid.com/mpi](https://nationalgrid.com/mpi)

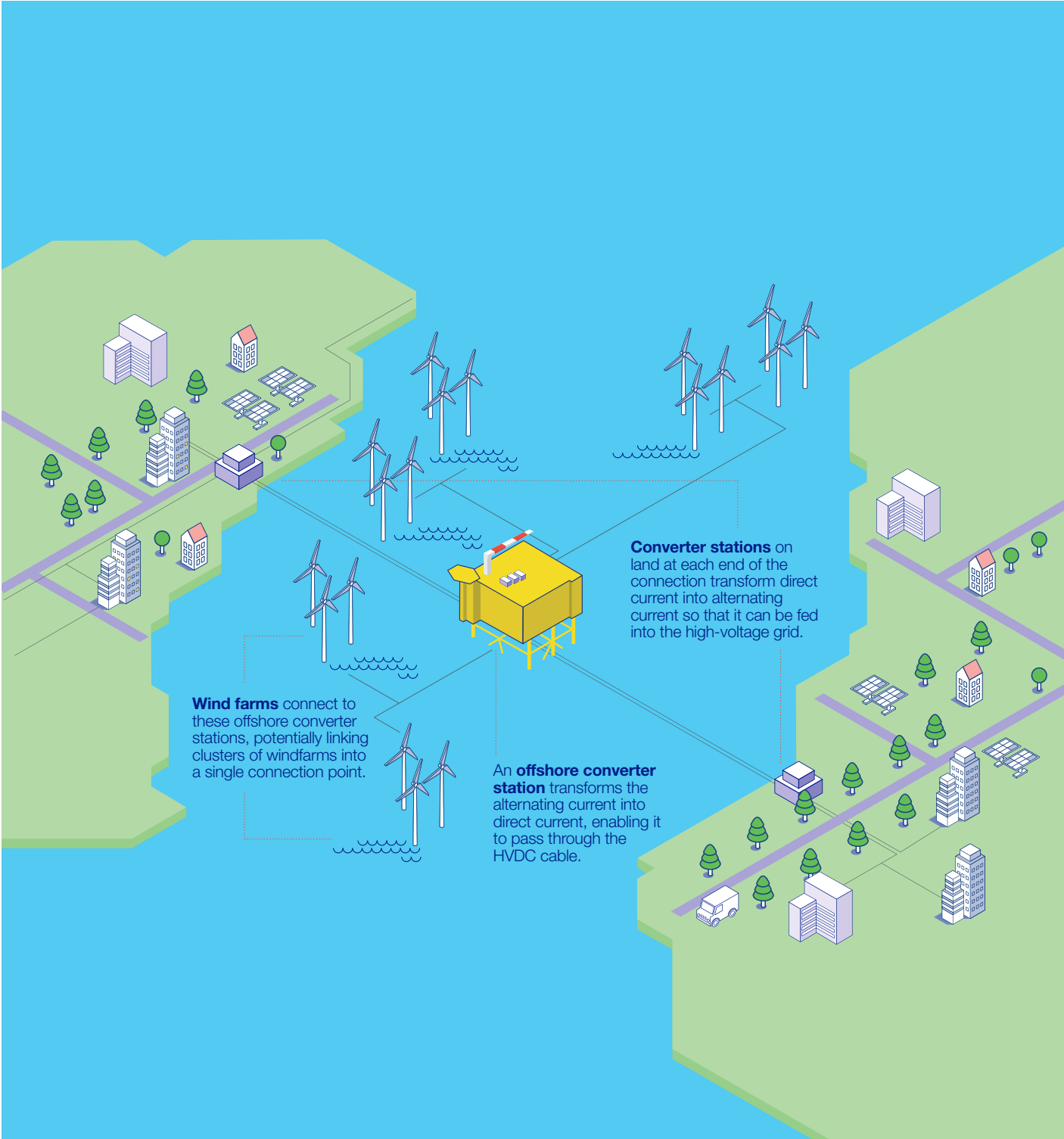
# Today: offshore wind and interconnectors connect separately

At present, offshore wind and interconnectors operate alongside each other.



# Tomorrow: offshore wind and interconnectors in harmony

In the future, MPIs could enable offshore wind and interconnection to work together as a combined asset.





# About the projects

## Nautilus Interconnector

Nautilus will transport clean energy under the North Sea to East Suffolk via high voltage sub-sea cables. These will come ashore at a point known as ‘landfall’ and be buried underground before connecting into an onshore converter station and then, via a NGET substation, to the National Transmission System.

Options for the underground onshore cable route, landfall and converter station on the East Suffolk Coast are currently being assessed for feasibility. The siting and routeing options which will come out of this process will be shared publicly as part of the non-statutory consultation planned for late summer 2021.

Nautilus is currently at an early stage of its development. Should the project be progressed, a rigorous Environmental Impact Assessment (EIA) and pre-application consultation process will take place and a final application for a Development Consent Order (DCO) could be submitted in 2023. Should consent be granted, a Final Investment Decision is planned for 2024/25. Following this, construction would commence, and the project could be operational by 2028.

## Why was East Suffolk chosen?

We applied for connection points for Nautilus and EuroLink to National Grid ESO. National Grid ESO then undertook an appraisals process to identify a point of connection on its network for each application, which included an assessment of environmental, technical and cost factors.

As a result of this process, they have provided grid connection offers (for both Nautilus and EuroLink) to a new 400 kilovolts (kV) substation located close to the Sizewell 400kV network, provisionally referred to as ‘Leiston 400kV’.

Our connection offer refers to an area rather than an exact location, and we are currently assessing options available in the Leiston area in line with these connection agreements. However, our working basis continues to be that, given the advanced nature of the proposals, this substation could be the proposed NGET substation in Friston which SPR is currently seeking consent for – through its DCO applications for the East Anglia One North and East Anglia Two offshore windfarms.

As part of ongoing feasibility work, we are also considering scenarios whereby the NGET substation is not approved through SPR’s applications.

## EuroLink

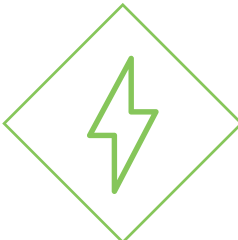
We are also bringing forward proposals for another interconnector, currently known as EuroLink, to provide a connection between Great Britain and the Netherlands that could provide enough electricity to supply around 1.4 to 1.8 million UK homes.

If built, EuroLink could unlock 1.4 to 1.8 GW of offshore wind and connect this to the transmission systems of Great Britain and the Netherlands through a HVDC electricity link. EuroLink is currently less mature than Nautilus but would also provide electricity by transporting it under the North Sea via high voltage sub-sea cables.

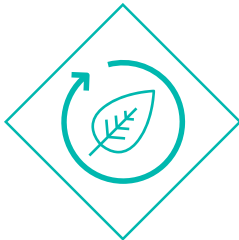
As with Nautilus, these will come ashore at a point known as ‘landfall’ and buried underground before connecting into an onshore converter station and then via a NGET substation, to the National Transmission System. This project will also be subject to the same rigorous EIA and pre-application consultation process as Nautilus.



Enough energy to power  
**1.4 million homes**



**1.4 gigawatts (GW)**  
of secure, sustainable  
energy for consumers



More interconnectors help  
the transition to a **zero  
carbon future**, by  
providing energy systems  
with access to renewable  
energy



# What we've done so far



## Engagement

- During 2019 and 2020, the project team met with local authorities, parish and town councils, community groups and technical stakeholders to introduce the projects.
- We have been working with the Department for Business, Energy and Industrial Strategy (BEIS) and the industry regulator, Ofgem, to provide our expertise into the emerging policy framework surrounding coordinated solutions for offshore transmission. This includes our membership on the working group for the Offshore Transmission Network Review.
- We have continued to meet regularly with other developers and the Local Planning Authorities (LPAs), individually and collectively.



## Developing our siting and routeing options

- We began with a desk-based initial site appraisal, which was shared in our Briefing Pack (July 2019).
- We have since been undertaking feasibility assessments on siting and routeing options and have continued to engage with technical stakeholders and LPAs to seek their feedback on our methodologies.
- We will present the results and options at our non-statutory consultation stage later this year.



## Engaging in ongoing ScottishPower Renewables and EDF Examinations

- We have been actively engaging in the ongoing Examinations for the East Anglia ONE North and East Anglia Two Offshore Wind Farms, including responding to requests to attend hearings or to answer written questions.
- We have also registered as an Interested Party for the upcoming Sizewell C Examination.



# What's next on Nautilus Interconnector

As the most advanced of the two interconnector projects, we will be undertaking a series of activities in 2021 to continue to develop our understanding of the area and to progress our siting and routeing options for Nautilus.

### Continued engagement

In the first part of 2021 we have been meeting with local representatives and parish and town councils to provide them with an update on the project and to inform them of our plans for 2021. Our work engaging with other developers in the area, LPAs, statutory nature and conservation organisations, BEIS and Ofgem will also continue throughout 2021 and beyond.

### Surveys and assessments

As part of our EIA process, we have begun undertaking bird surveys across a range of areas within our search area for siting and routeing, which began in spring 2021. Land agents appointed by the project are currently in the process of making contact with landowners and their representatives to agree such access for surveys where they affect any private land.

Further desk-based surveys and technical assessment continues to inform the options which will be presented at our non-statutory consultation in late summer 2021. We are also progressing feasibility assessments of the project in the marine environment.

### Non-statutory consultation

We are committed to including the community in the development process as early as possible. With this in mind, we intend to hold a non-statutory community consultation in the late summer. We will present options for the converter station site, landfall location and cable routeing options which have been identified through our siting and routeing work. We will present these to community members to seek their feedback on our work to date, as well as their broader knowledge of the area, for us to consider as we progress our proposals.

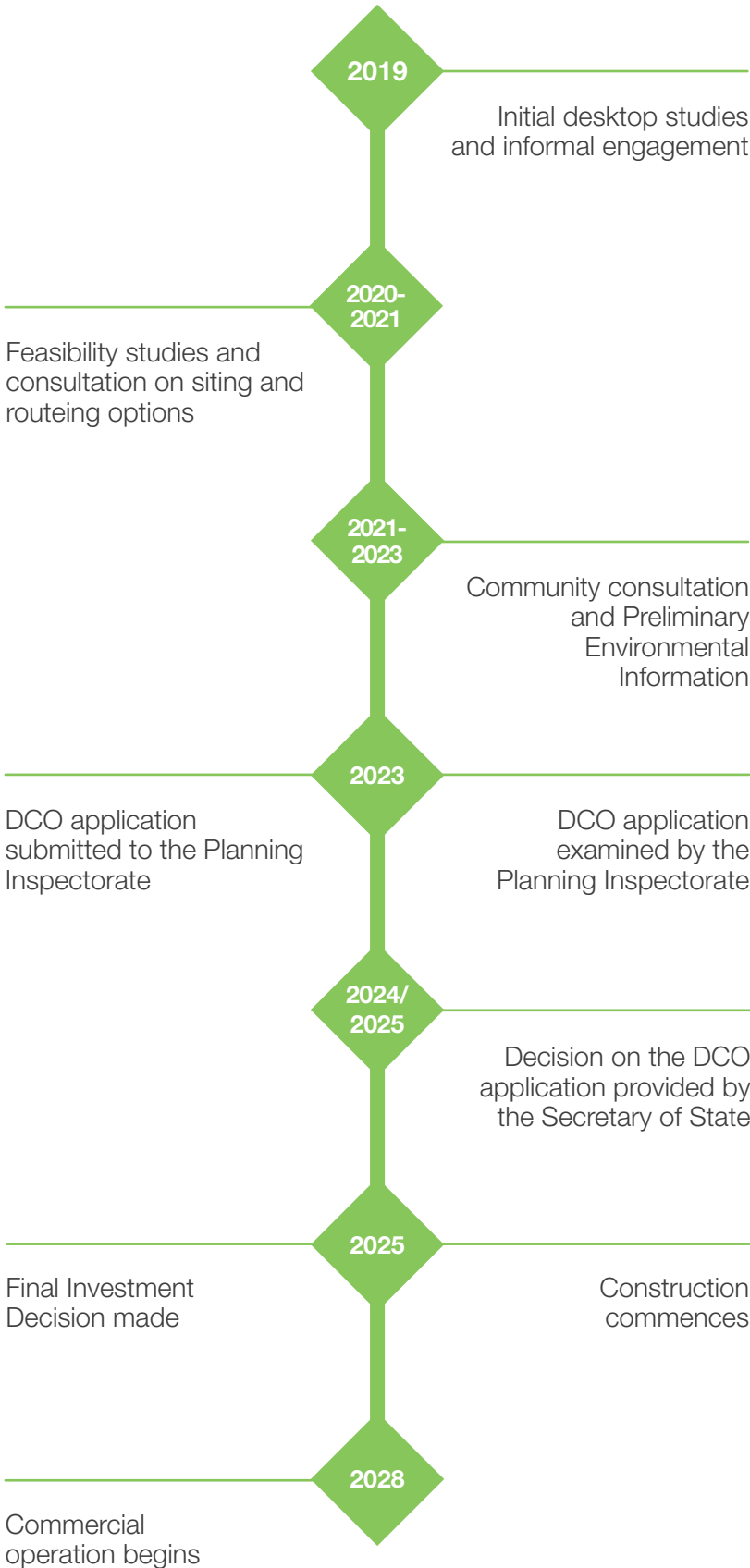
We are hopeful that this will feature face-to-face events, but we also have digital solutions available to use. Whatever the social distancing guidelines, we will ensure that everyone can engage as effectively and safely as possible.

Alongside our technical and environmental assessments, this consultation feedback will be used to inform the feasibility of our options and inform our early project development process.

### Scoping Report

We are currently working towards producing an Environmental Impact Assessment Scoping Report to be submitted to the Planning Inspectorate (PINS) in Q1 2022. This will present how we will assess any potential impacts to the existing environment based on a detailed description of the development proposals and an initial understanding of the baseline environmental context. The feedback received on this document from the LPAs, parish and town councils and other statutory consultees will result in a Scoping Direction from the Secretary of State for BEIS, which will be made publicly available.

# Indicative timeline\*



\*Please note, all dates are indicative and subject to change.



# Contact us

**Please don't hesitate to get in touch if you would like to find out more information about Nautilus Interconnector.**

You can contact a member of our Community Relations Team to find out more by using the details below.



**Write to us at:**

Freepost Nautilus Interconnector



**Email us at:**

[info@nautilusinterconnector.com](mailto:info@nautilusinterconnector.com)



**Call our Freephone information line:**

08081 699 822



**For more information about our interconnectors please visit:**

[www.nationalgrid.com/interconnectors](http://www.nationalgrid.com/interconnectors)  
[www.nationalgridcleanenergy.com](http://www.nationalgridcleanenergy.com)

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**National Grid  
Interconnector Holdings Limited**

1-3 The Strand  
London, WC2N 5EH

United Kingdom  
Registered in England and Wales No.8169384

**[nationalgrid.com](http://nationalgrid.com)**

# Appendix 2

## Multi-purpose Interconnector (MPI) Graphic

