

# **GRIDLINK INTERCONNECTOR NON-TECHNICAL SUMMARY**

**Prepared by**

**GridLink Interconnector Ltd**

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**Rev 1**



**Co-financed by the Connecting Europe  
Facility of the European Union**

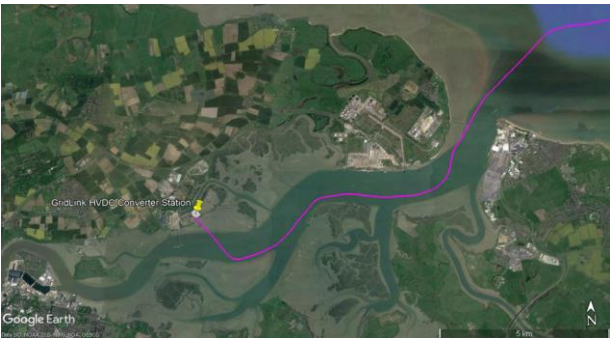
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## The GridLink Interconnector Project

GridLink interconnector is an electrical interconnection project between France and the United Kingdom:

- Nominal capacity of 1.4 GW, which corresponds to the electricity supply for 2.2 million homes
- 137 km of submarine interconnector cable – 105 km in UK territorial waters and 32 km in French territorial waters
- 13 km of underground interconnector cable in France
- Converter stations in France and UK
- 3 km of underground cable in France and 1.5 km of underground cable in the UK to connect the converter stations to the national grids in each country,
- Investment cost of approximately 900 million euros



# 1. INTRODUCTION

## 1.1 THE PROJECT

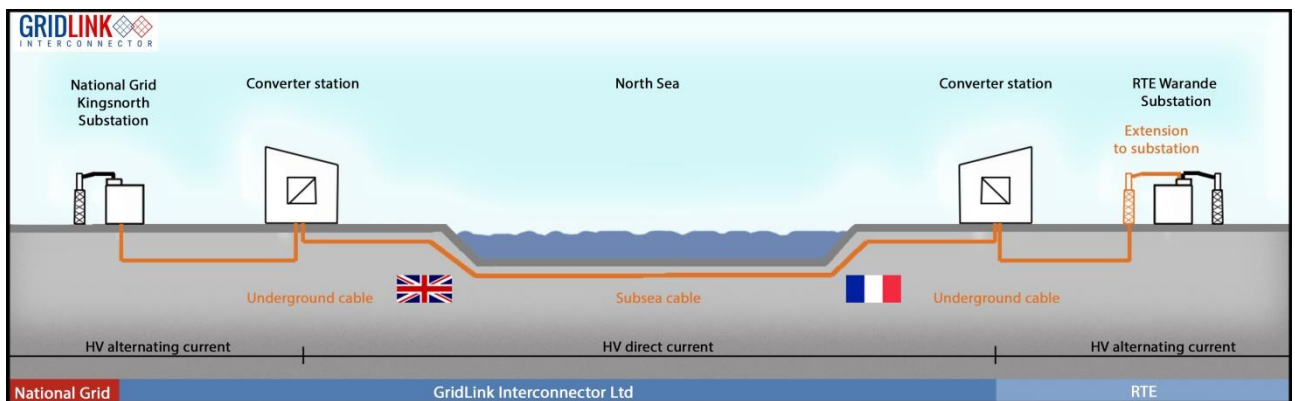
The GridLink project is a new interconnector of 1,400 megawatts and a voltage of approximately 525 kV (direct current).

The project comprises five principle elements:

1. Subsea high voltage direct current cable;
2. Underground cables from the shoreline to the converter stations in the UK and France;
3. Converter stations in UK and France;
4. Underground high voltage alternating current cable from the converter stations to the existing 400 kV network in UK and France;
5. Extension to the Warande sub-station in France (there is no extension required at Kingsnorth sub-station in UK).

The GridLink scheme is illustrated in **Figure 1** below.

**Figure 1 Schematic of the GridLink Project**



## 1.2 PROJECT PROMOTER

GridLink Interconnector Limited was established for the purpose of developing, building and operating the GridLink Interconnector project, and it is the owner and principal developer of the project.



**GRIDLINK Interconnector Ltd.**  
 35 Great St Helen's  
 London EC3A 6AP  
 United Kingdom  
 Registration No.10181689

The parent company that 100% wholly-owns GridLink Interconnector Ltd is iCON Infrastructure Partners III. iCON is an independent fund for investment in infrastructure projects. iCON administers investments and participations on behalf of globally recognized pension funds, insurance companies and asset managers. Currently, iCON administers investment capital of 2.5 billion euros.

### **1.3 PROJECT OF COMMON INTEREST (PCI)**

GridLink has been awarded the status of Project of Common Interest (PCI) by the European Commission.

The award of PCI status was confirmed by the publication of Commission Delegated Regulation No. 2018/540 of 23 November 2017 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest in the Official Journal on 6<sup>th</sup> April 2018.

## 2. OBJECTIVES OF THE PROJECT

The European energy market faces many challenges linked to aging infrastructure, environmental targets and energy transition. Meeting these challenges requires a significant shift towards a greater share of renewable energy supported by an improved transmission network capable of distributing energy and ensuring the security of supply.

GridLink's objective is to be a part of these transformations by improving the capacity of French and UK networks to distribute electricity to consumers, and to ensure that electricity supply is secure in the event of production uncertainty linked to renewable sources, availability of existing generation units, transmission network or other reasons.

The economic benefits of GridLink will include increasing competitiveness in the energy market, by offering import and export trade between France and the UK. According to demand, which changes depending on the time of day, season, weather conditions, and availability of renewable energy, GridLink will be able to either import or export electricity. This opens up commercial opportunities for energy producers, thus reducing costs for consumers.

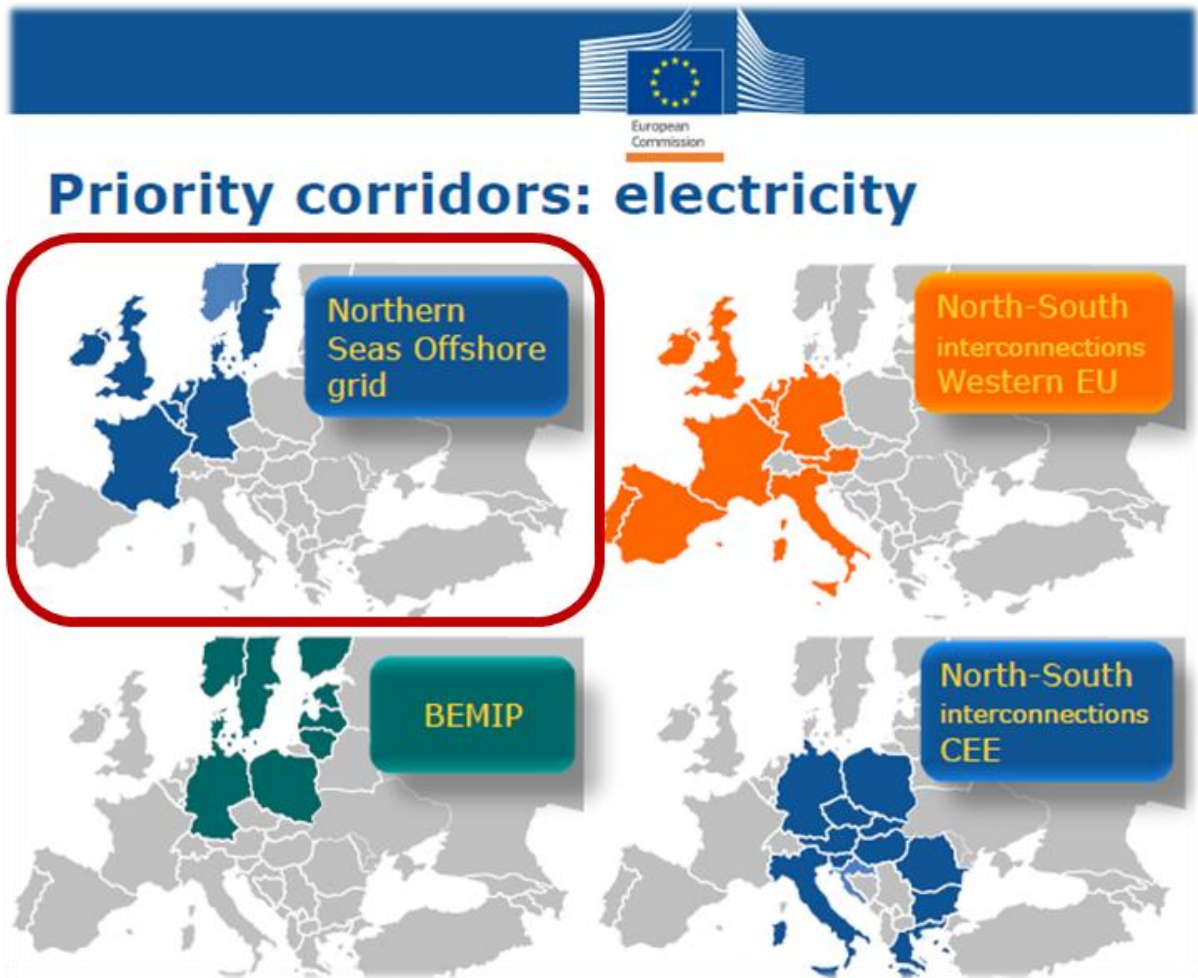
GridLink also guarantees advantages for the French and UK national networks:

- Improvement of network stability;
- Extension and diversification of capacities;
- Limitation of cost management constraints;
- Improvement of upgrading capacity;
- Increasing renewable energy integration under secure conditions.

GridLink's main objective is for the French and UK national network—energy producers and consumers—to benefit from these advantages through the most viable, efficient, and environmentally-friendly project possible.

The marine electricity interconnectors between the northern European States are identified in the priority corridors of the European Union, as shown in **Figure 2**. These zones have been identified to promote the integration of energy markets in Europe and the diversification of energy sources and transport routes, with the objective of competitiveness, sustainability and security of supply.

*Figure 2 Priority Corridors for Electricity Networks  
(source: European Commission)*



### 3. PROJECT HISTORY

The European energy market faces many challenges. The development of the GridLink project began in early 2015.

The first step was to designate France and the United Kingdom as the optimal connection market for a new cross-border electricity interconnector. This decision was based on the significant advantages of the interconnector in terms of:

- Security of energy supply;
- Transporting electricity produced by renewable energy;
- Electricity price differentials, which persist over time and guarantee the commercial viability of such a project.

Network availability for the import and export of electricity between France and the United Kingdom was established by a study of network constraints, and initial consultations, with national transmission operators: RTE for France and National Grid Electricity Transmission (NGET) for the United Kingdom.

This is why more than 20 potential routes have been identified, ranging from existing 400 kV substations on the coast of the United Kingdom to similar facilities on the French coast.

In May 2015, GridLink asked RTE to conduct a prospective study about the potential points of connection to the 400 kV network in northern France. In accordance with the procedure for processing applications for connection of new interconnectors to the public electricity transport network, RTE then offered GridLink a list of the substations to which the interconnector could be connected which were evaluated according to the following criteria:

- a) Technical feasibility of connecting to the substation;
- b) Qualitative assessment of the risk of constraints on the network and the need for reinforcements.

This study resulted in Warande (Bourbourg commune, Nord department) being chosen as the preferred connection site.

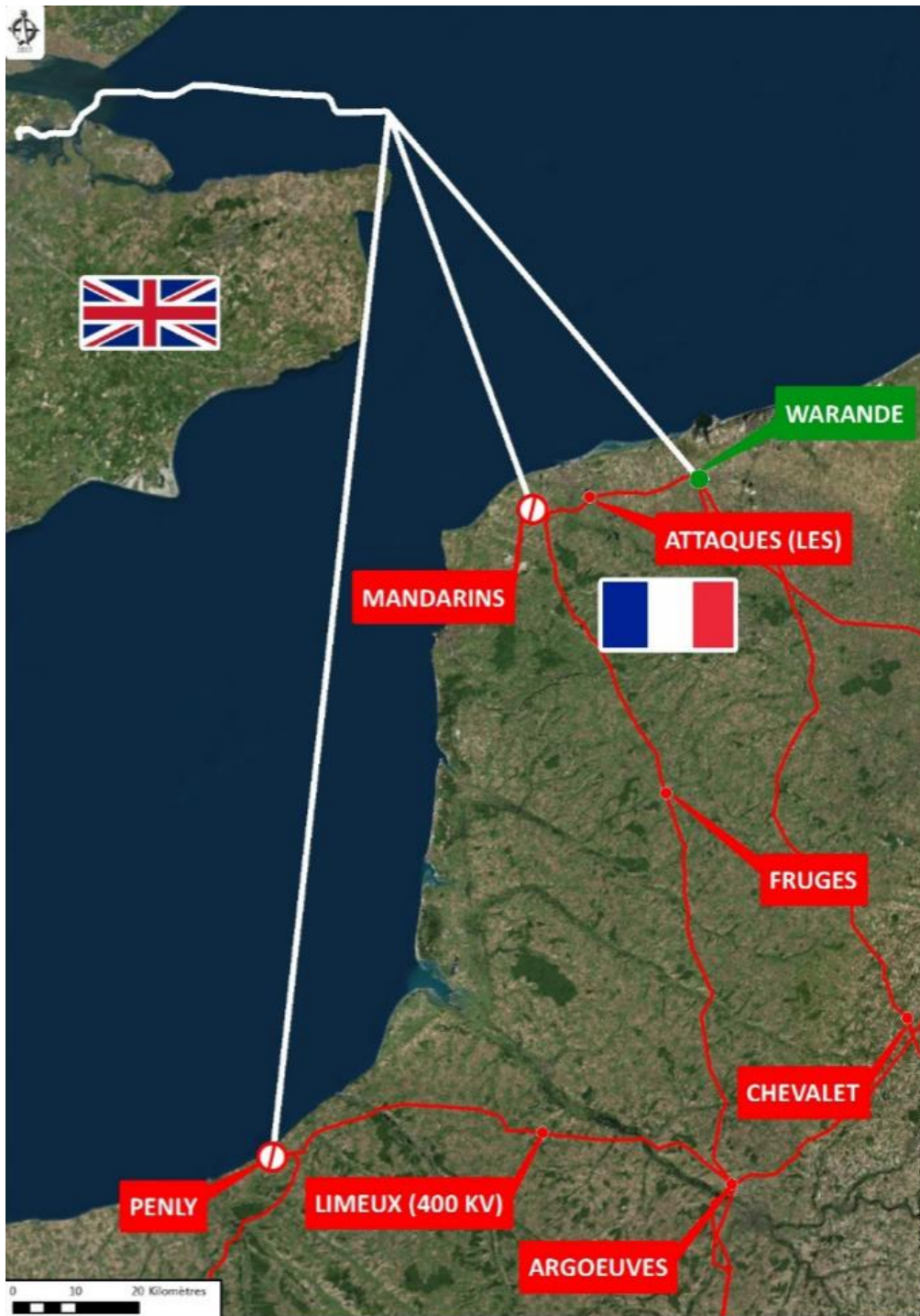
Other possible connection sites were discounted because of insufficient capacity. The constraints on the electricity transport system in these areas meant significant strengthening work on the RTE network (new overhead transmission lines, new sub-stations, etc) may have been needed posing technical difficulties. From a technical perspective, the feasibility of connecting the GridLink project to the French network was confirmed by exploratory studies carried out by RTE up until October 2016.

Subsequently, the technical and financial proposal (PTF) concerning the work required to create the connection was developed and signed in May 2017 by RTE and GridLink Interconnector Ltd.

**Figure 3** shows the various points considered during the prospective study, which concluded that Warande was the preferred connection site.



**Figure 3 Points Studied for Connection to the French Electricity Grid**



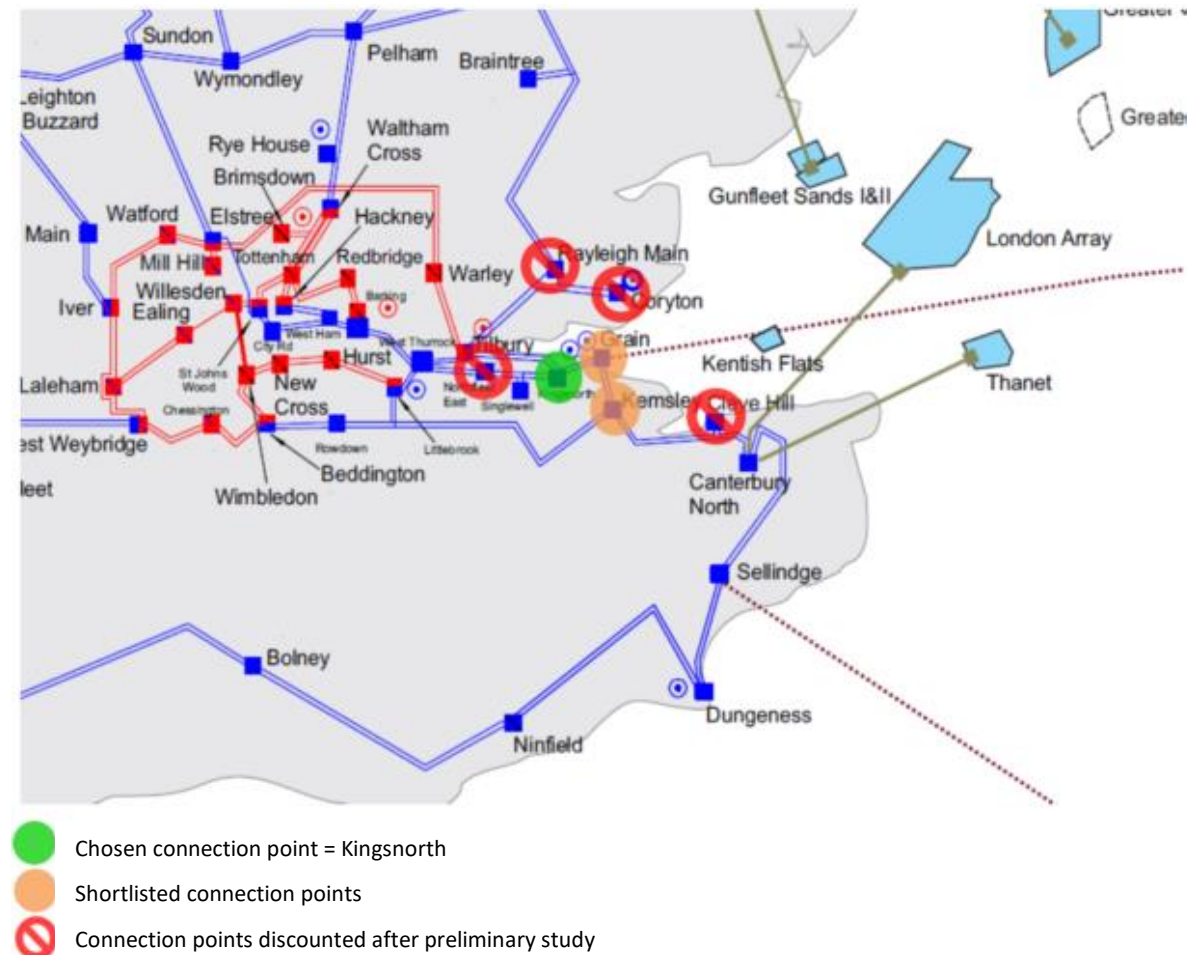
In the UK, GridLink also studied the possibility of connecting to the 400 kV network along the south coast of England. Preliminary feasibility studies indicated that the electricity generated by the new interconnector could not be transported to/from anywhere on the network along the south coast due to the limited capacity of existing transport links and current and future electricity production.

Based on this analysis, the preferred area with the fewest constraints is located along the Thames estuary near London. Seven potential connection points were then shortlisted: Cleve Hill, Coryton, Grain, Kemsley, Kingsnorth, Northfleet East and Rayleigh Main. Further assessments, particularly taking into account technical and economic considerations, identified the Kingsnorth sub-station as

the preferred connection site. Subsequently, a grid connection agreement concerning the connection at the Kingsnorth sub-station was developed and signed in October 2016 by National Grid and GridLink Interconnector Ltd.

**Figure 4** shows the various points considered during the study, which concluded that Kingsnorth was the preferred connection site.

**Figure 4 Points Studied for Connection to the UK Electricity Grid**



After these connection sites in France and the United Kingdom had been chosen, technical and environmental feasibility studies were carried out in 2016, in order to establish the precise location of the route and the converter stations at each end for transforming direct current to alternating current.

The project has now entered its development phase, during which detailed technical studies are carried out together with environmental impact assessments in France and in UK. The project will be optimised and modified based on:

- Technical studies carried out at sea, on land and on the coast;
- Environmental studies;
- Public consultations.

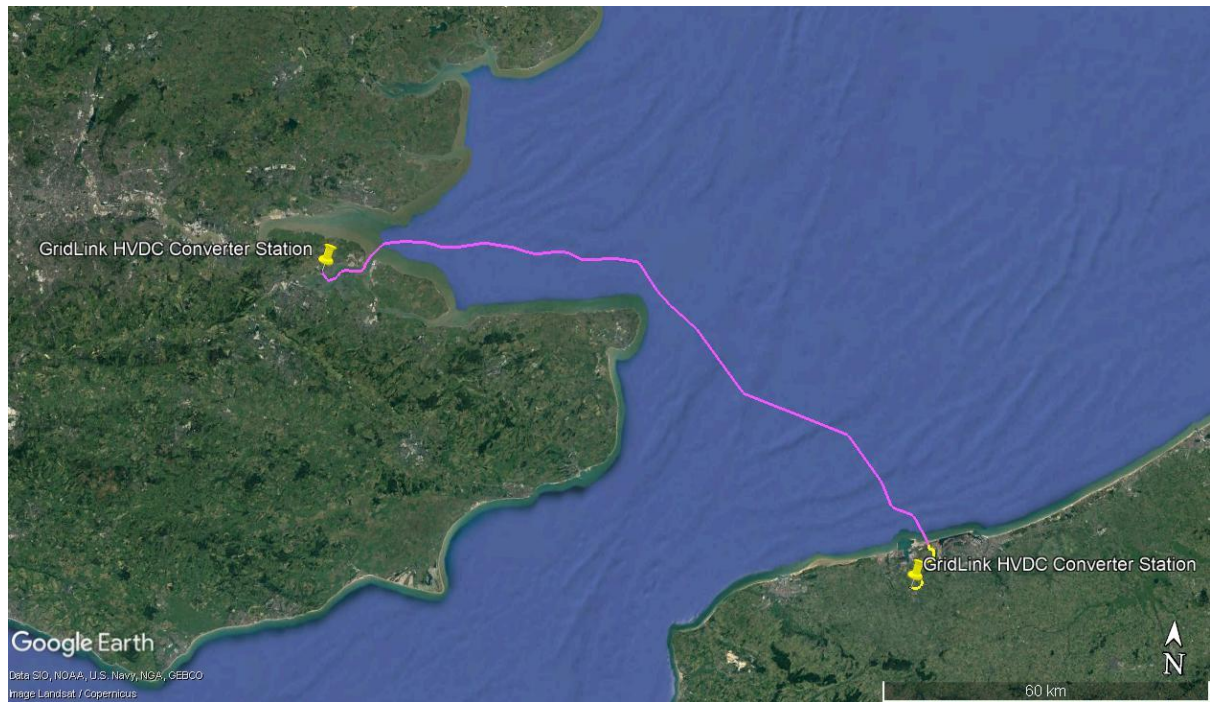
The objective of this phase is to put forward a project that avoids and minimises environmental impacts, whilst taking into account the opinions and interests of the public and local stakeholders.

## 4. PROJECT DESCRIPTION

### 4.1 THE CABLE ROUTE

The subsea cable will be approximately 137 km long, with 32 km in French territorial waters and 105 km in UK territorial waters. The cable route is shown in **Figure 5**.

**Figure 5 GridLink Subsea Cable Route**



In France, the subsea cable will cross the coastline by horizontal direction drilling at the Port of Dunkirk, and from this point an underground cable route of about 13 km will cross industrial and agricultural areas owned by the Grand Maritime Port of Dunkerque (GPMD). The converter station will also be built on land belonging to the GPMD. The converter station will be built in an area identified as an industrial development zone: the heavy industries zone (ZGI). The converter station is located at a distance of approximately 3 km from the RTE substation at Warande, which will be reached by an underground HVAC cable from the converter station.

In the UK, the submarine cable will cross the coastline by horizontal directional drilling at the former E.on coal-fired power station (now demolished) at Kingsnorth on the Isle of Grain, and emerge directly at the converter station site. The converter station will be built in an area previously used for Heavy Fuel Oil (HFO) storage tanks within the former power station site. Therefore, the site has previous heavy industrial use, and it is within an industrial zone characterised by the former Kingsnorth coal-fired power station (demolished), Damhead Creek natural gas-fired power station, logistics and distribution warehouses and mixed engineering uses. The converter station is located at a distance of approximately 1.5 km from the National Grid substation in Kingsnorth, which will be reached by an underground HVAC cable from the converter station.

There are no overhead electricity transmission lines to be constructed in France or UK to implement the GridLink project.

The onshore HVDC cable routes and converter stations sites in France and UK are shown in **Figure 6** (France) and **Figure 7** (UK).

**Figure 6 HVDC cable route, converter station site and RTE Warande sub-station in France**



**Figure 7 HVDC cable route, converter station site and National Grid Kingsnorth sub-station in UK**

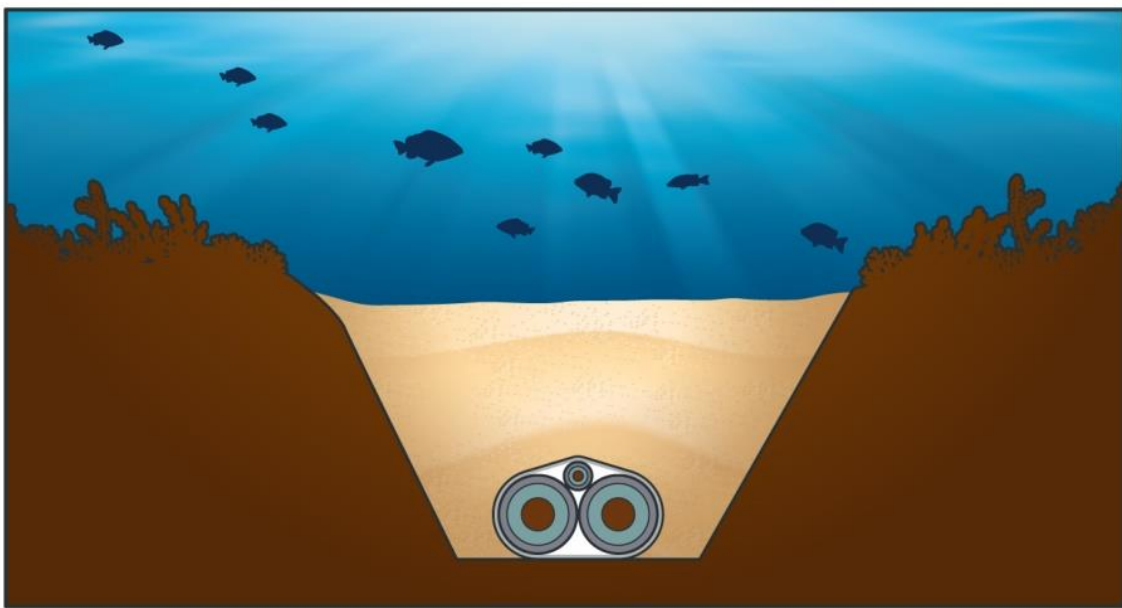


#### 4.2 SUBSEA CABLE

The subsea cable will consist of two high voltage direct current (HVDC) cables of polyethylene (XLPE) or mass impregnated (MI) construction. The diameter of each cable will be approximately 150 mm, with a central part made of copper or aluminium. The cables will be protected to prevent damage by an outer sheath. A smaller fibre-optic cable will be included with the bundled HVDC cables for monitoring and control purposes.

The cables will be buried bundled together in the same trench at a depth of approximately 2 m below the seabed in order to protect the cable. The trench will ensure that the cable will not be exposed by natural events, for example movement of sediments, and human interaction from anchoring of vessels or fishing nets. An illustration of the buried cable is shown in **Figure 8**.

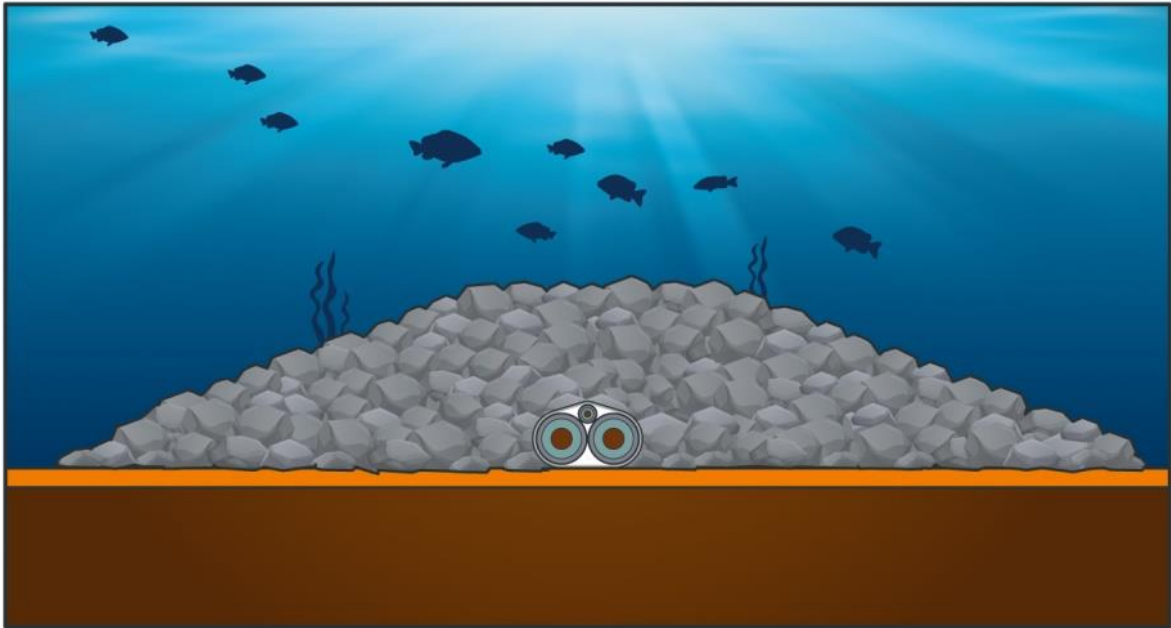
*Figure 8 Illustration of the Submarine Cable Trench*



The offshore geophysical and geotechnical survey will identify the seabed conditions along the cable route. Based on the results of the survey, an assessment will be carried out to determine the appropriate burial depth to protect the cable.

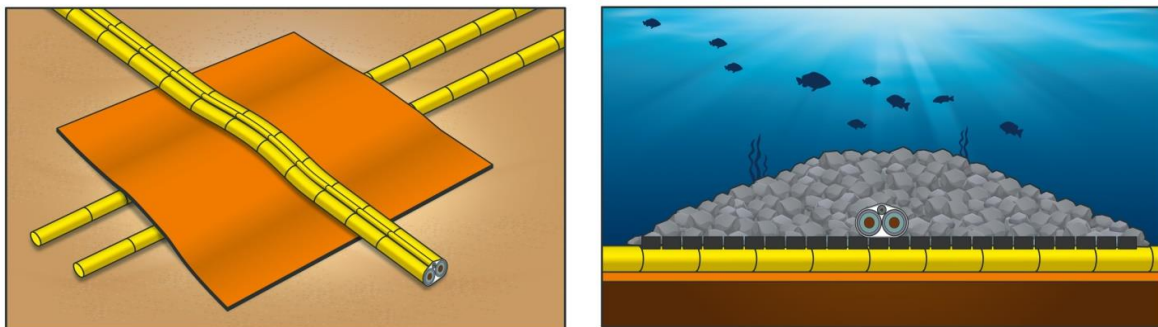
In case a geological unit does not allow burial of the cable, the cable will be protected by rock placement. A typical cross-section of the cable covered by rock placement is illustrated in **Figure 9**.

**Figure 9 Schematic Cross-section of Rock Placement over the Submarine Cable**



At crossings of existing submarine cables, the existing cables will be protected by a mattress allowing the new cables to pass over the top. The new cables will then be protected by rock placement or similar technique. An illustration of the cross-section of rock protection and concrete mattress at a submarine cable crossing is provided in **Figure 10**.

**Figure 10 Schematic View of Placement of Concrete Mattresses at Crossing of Third Party Submarine Cable with Protection by Rock Placement**



The cable installation techniques, including the methods to be used for trenching, cable installation and backfilling, will be determined after the offshore bathymetrical, geophysical, geotechnical and environmental survey and engineering studies have been completed. Different cable installation and burial techniques will be used depending on geology, seabed conditions, water depth and environmental considerations along the cable route.

Depending on the techniques chosen based on the studies, the cable trenching and installation speed can vary from 200 m to 400 m per hour. The work to lay the cable will be carried out 24 hours per day, in order to minimise the impact on navigation and other sea users.

There are a range of different vessels that may be used for the cable installation, depending on the construction contractor selected for the works. In addition to the cable-laying vessels themselves,

research, supply and safety vessels will also be required. Other users of the sea will be notified in accordance with the regulatory procedures which apply, and in collaboration with the Préfecture Maritime for the Channel and North Sea and Port of London Authority and Peel Ports for the Thames Estuary, to guarantee safety for navigation and for the cable-laying works.

An example of a typical cable-lay vessel is shown in **Figure 11**.

**Figure 11 Typical Vessel used to lay the Subsea Cables  
(source: NKT)**



#### 4.3 UNDERGROUND CABLES AND CONVERTER STATION IN FRANCE

The coastline at the Port of Dunkerque will be crossed by horizontal directional drilling (HDD). This entails the drilling of two horizontal shafts that traverse below the dunes, ship canal and existing utility infrastructure networks. The cables are then pulled through each shaft. The directional drilling technique ensures that there is no surface disturbance thus avoiding any impact on existing natural habitats or infrastructure.

The horizontal drilling machine will be installed on the landward side, and the drilling will follow an elliptical trajectory at an angle of about 8 to 12°, passing beneath the coastline and emerging after the low water mark. Ducts will then be installed. When the subsea cable arrives, the individual cables will be pulled separately from the sea through the ducts.

Once they emerge from the ducts, the cables will be modified to remove the marine protection, thus reducing their size and weight, and increasing their flexibility necessary for the onshore cable installation.

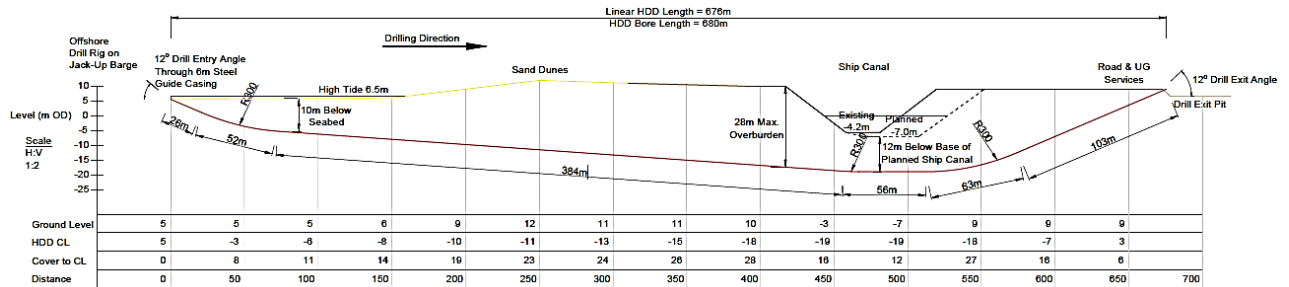
The HDD at the Dunkerque shore crossing is shown in **Figure 12**.

The indicative cross-sectional profile of the HDD is shown in **Figure 13**.

**Figure 12 Horizontal Directional Drilling (HDD) at Dunkerque Shore Crossing**



**Figure 13 Schematic Cross-section of the Dunkerque Shore Crossing by Horizontal Directional Drilling (not to scale)**



The terrestrial cables will be installed underground, using the ‘open-cut’ technique. Cables will then be combined in a single trench, 1-2m deep in the natural ground. Any vegetation present will be removed before the trench is dug using mechanical excavators, except where there is a risk to the network systems, or where there are environmental constraints, in which case manual excavation methods will be used. The excavated material will be stored temporarily before reuse as backfill.

The underground cable route is shown in **Figure 14**.

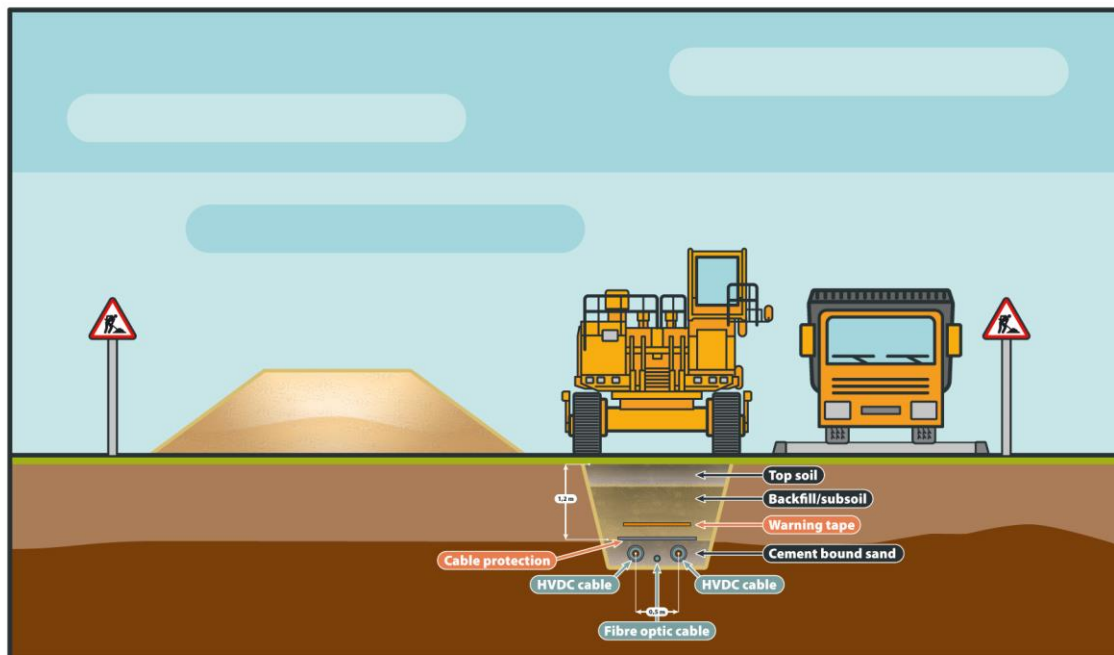
The indicative cross-sectional profile of the cable trench is shown in **Figure 15**.



**Figure 14 Underground Cable Route in Dunkerque**



**Figure 15 Schematic of the Cable Trench**



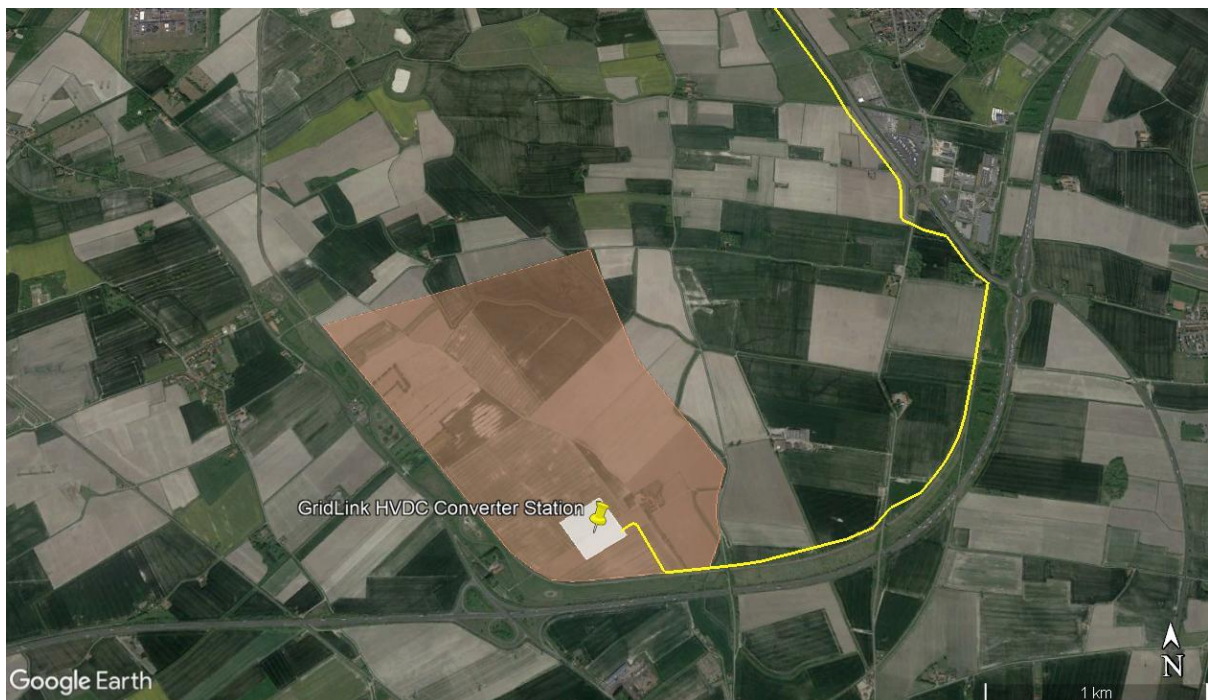
A layer of sand will be placed in the bottom of the trench to reduce thermal stress when the cables are operating. A specific protection layer will be placed above each cable, along with warning notices indicating the presence of the cables. Where there are crossings with significant restrictions (railway, road, roundabouts, underground utilities, etc), horizontal directional drilling will be used. When the work is finished, the natural ground will be reinstated with the same topography as before the works.

The underground cable connects into the converter station. The converter station converts direct current to alternating current and vice versa, before linking it to the French grid. Most of the electrical equipment is installed in buildings. The maximum building height is 25 m and outdoor equipment may be up to 15 m high. In total, the converter station will cover a site of approximately 4 hectares. Buildings, outdoor equipment and landscaping will be surrounded by a perimeter security fence.

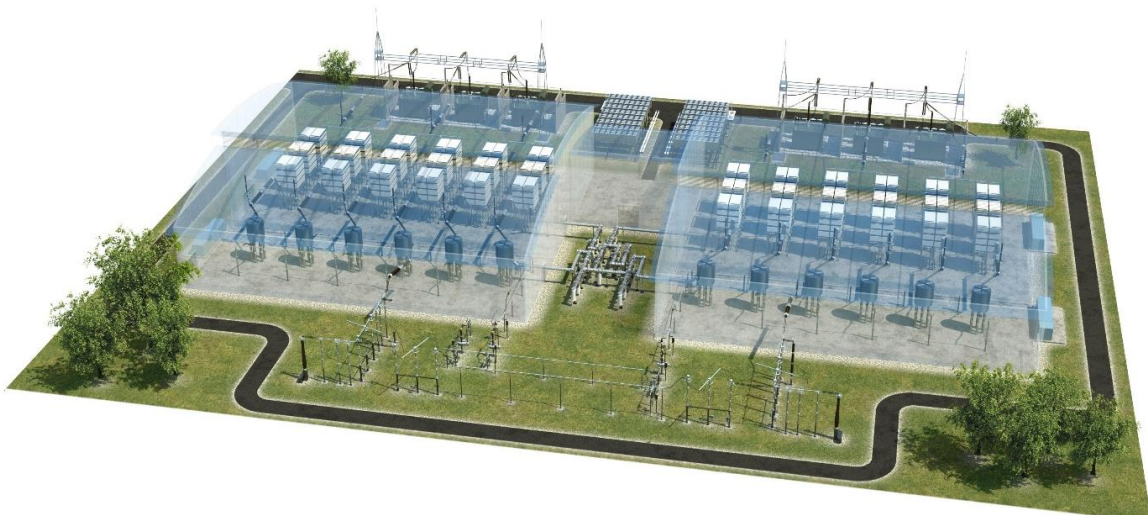
The converter station site is within the heavy industrial zone (Zone de Grandes Industries) in the port of Dunkerque. The location of the converter station site is shown in **Figure 16**.

An example of the design of the converter station is provided in **Figure 17**.

**Figure 16 Converter Station Site within the Zone des Grandes Industries in Dunkerque**



**Figure 17 Example of Converter Station Design**  
(source: Siemens Aktiengesellschaft)



In operation, the station is managed from a control room, which may be installed on site or elsewhere. A small number of operators will also be present on-site to carry out inspection, maintenance and safety checks.

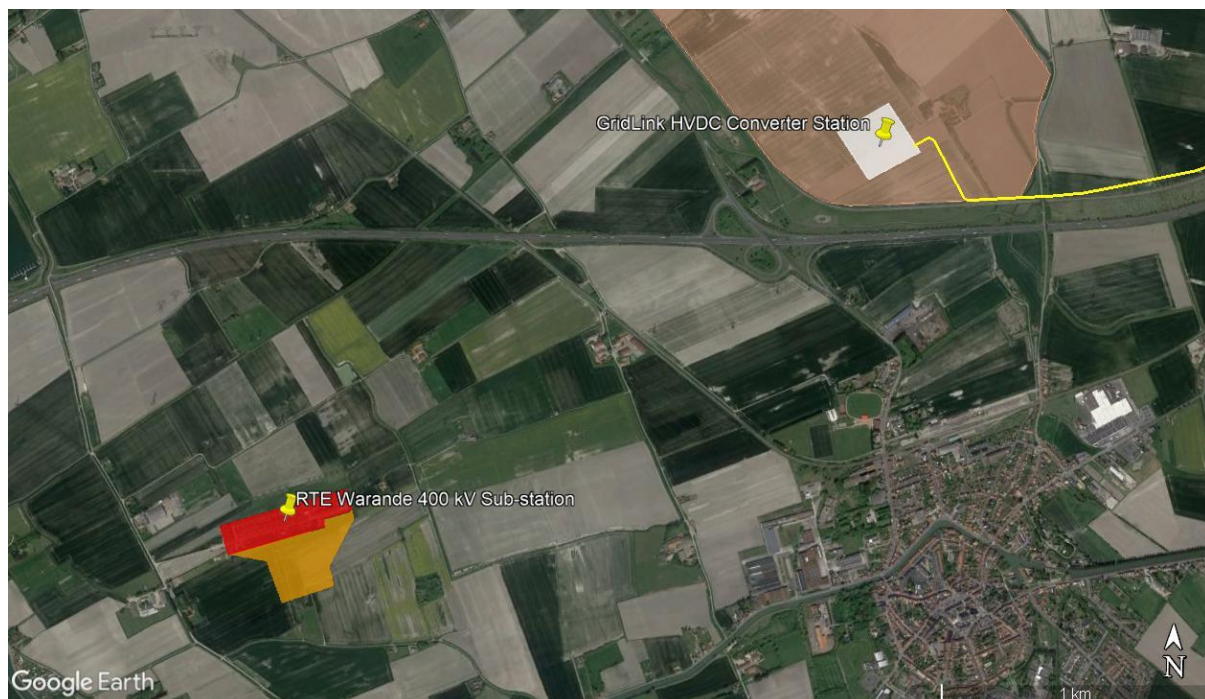
The safety of the station is monitored continuously from the control room to ensure the operations proceed correctly and reliably, and to allow a fast response if any unforeseen incident or emergency should occur.

There are no heat generation, combustion or electricity production activities at the converter station.

The connection point to the French national electricity grid is defined by RTE as the converter station site. However, the connection requires creation of a double-circuit, 400 kV alternating current link laid underground from the GridLink converter station to the Warande 400 kV sub-station. The Warande sub-station also must be extended to enable the installation of the equipment needed for the new connection.

The indicative extension to the Warande sub-station is shown in **Figure 18**. The site will need to be extended on the south-eastern side of the current station by an additional surface area of 6-7 hectares. The Warande 400 kV site extension will comprise two busbar sets, two feeder bays for the GridLink connection, and the bays needed for a looped intake of the two existing 400 kV overhead lines for Warande-Avelin and Warande-Weppes. The route for the underground cable is currently being studied to determine the optimum alignment that minimised environmental effects.

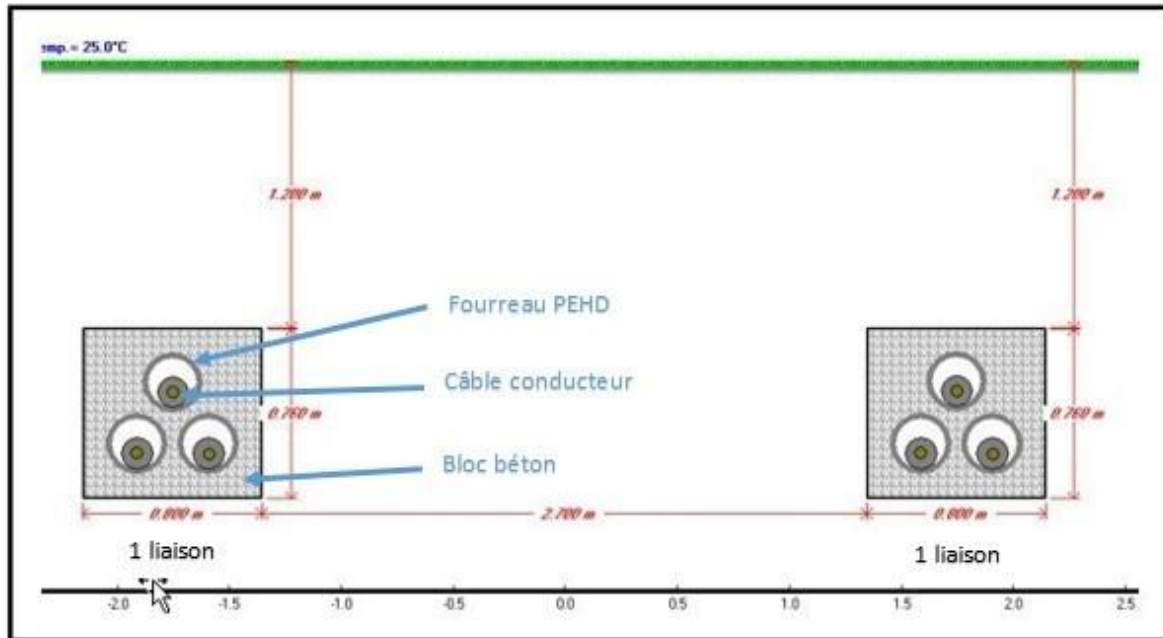
**Figure 18 Location of the Converter Station and Extension to the RTE Warande 400 kV Sub-station in Dunkerque**



Each circuit will consist of three conductor cables, each cable providing one of the three phases of an electrical circuit. The enamelled copper wire cables will have a cross-section of 2,500 mm<sup>2</sup>. They will be laid in HDPE (high-density polyethylene) ducts coated in concrete. Each circuit will be laid in a trench approximately 2 m deep and 1 m wide. The double circuit will have a nominal total width of

5 m. A warning layer will be placed above the circuits to indicate the presence of the cables. The indicative cross-sectional profile of the cable trench is shown in **Figure 19**.

**Figure 19 Schematic of Underground Double-circuit HVAC Cable Layout in Dunkerque**  
(source: RTE)



#### 4.4 UNDERGROUND CABLE AND CONVERTER STATION IN UK

The coastline at Kingsnorth in the Medway Estuary will be crossed by horizontal directional drilling (HDD). This entails the drilling of two horizontal shafts that run beneath the intertidal mud-flats and sea defence bund/wall. The cables are then pulled through each shaft. The choice of this directional drilling technique ensures that there is no surface disturbance thus avoiding any impact on existing natural habitats or the integrity of the flood defences.

The horizontal drilling machine will be installed on the landward side, and the drilling will follow an elliptical trajectory at an angle of about 8 to 12°, passing beneath the coast line and emerging after the low water mark. Ducts will then be installed. When the subsea cables arrive, the cables will be separately pulled from the sea through the ducts.

The converter station site is located close to the shoreline, therefore the HDD drilling rig will be installed immediately next to the site. Once the cables emerge from the ducts, they will be directly connected into the converter station.

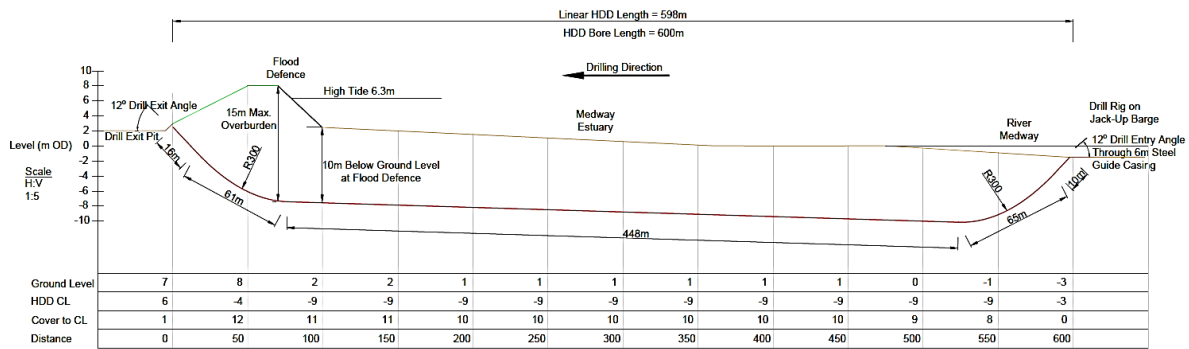
The HDD at the Kingsnorth shore crossing is shown in **Figure 20**.

The indicative cross-sectional profile of the HDD is shown in **Figure 21**.

**Figure 20 Horizontal Directional Drilling (HDD) of Shore Crossing at Kingsnorth**



**Figure 21 Schematic Cross-section of the Shore Crossing by Horizontal Directional Drilling at Kingsnorth**



The converter station converts direct current to alternating current and vice versa, before linking it to the UK grid. Most of the electrical equipment is installed in buildings. The maximum building height is 25 m and outdoor equipment may be up to 15 m high. In total, the converter station will cover a site of approximately 4 hectares. Buildings, outdoor equipment and landscaping will be surrounded by a perimeter safety fence.

The converter station site is within the former coal-fired power station site in the Kingsnorth industrial area. The coal-fired power station has been demolished and the land is planned to be used for new industrial development. The location of the converter station site is shown in **Figure 22**.

An example design of the converter station is provided in **Figure 23**.

**Figure 22 Converter Station Site within the Former Coal-fired Power Station Site (now Demolished) at Kingsnorth**



**Figure 23 Example of converter station design (source: Siemens Aktiengesellschaft)**



In operation, the converter station is managed from a control room, which may be installed on site or elsewhere. A small number of operators will also be present on-site to carry out inspection, maintenance and safety checks.

The safety of the station is monitored continuously from the control room to ensure the operations proceed correctly and reliably, and to allow a fast response if any unforeseen incident or emergency should occur.

There are no heat generation, combustion or electricity production activities at the converter station.

The connection point to the UK national electricity grid is defined by National Grid as the cable sealing ends of Spare Bay 3 allocated to GridLink at the Kingsnorth 400 kV sub-station. No extension to the sub-station is necessary to accommodate the connection of GridLink.

The connection requires creation of a single-circuit or double-circuit, 400 kV alternating current link laid underground from the GridLink converter station to the Kingsnorth sub-station. The underground cable route is located within the former coal-fired power station site, where the cables will be placed primarily under site roads and footpaths or in a designated services corridor to reach the sub-station.

The converter station, underground cable route and connection point at the sub-station are shown in **Figure 24**.

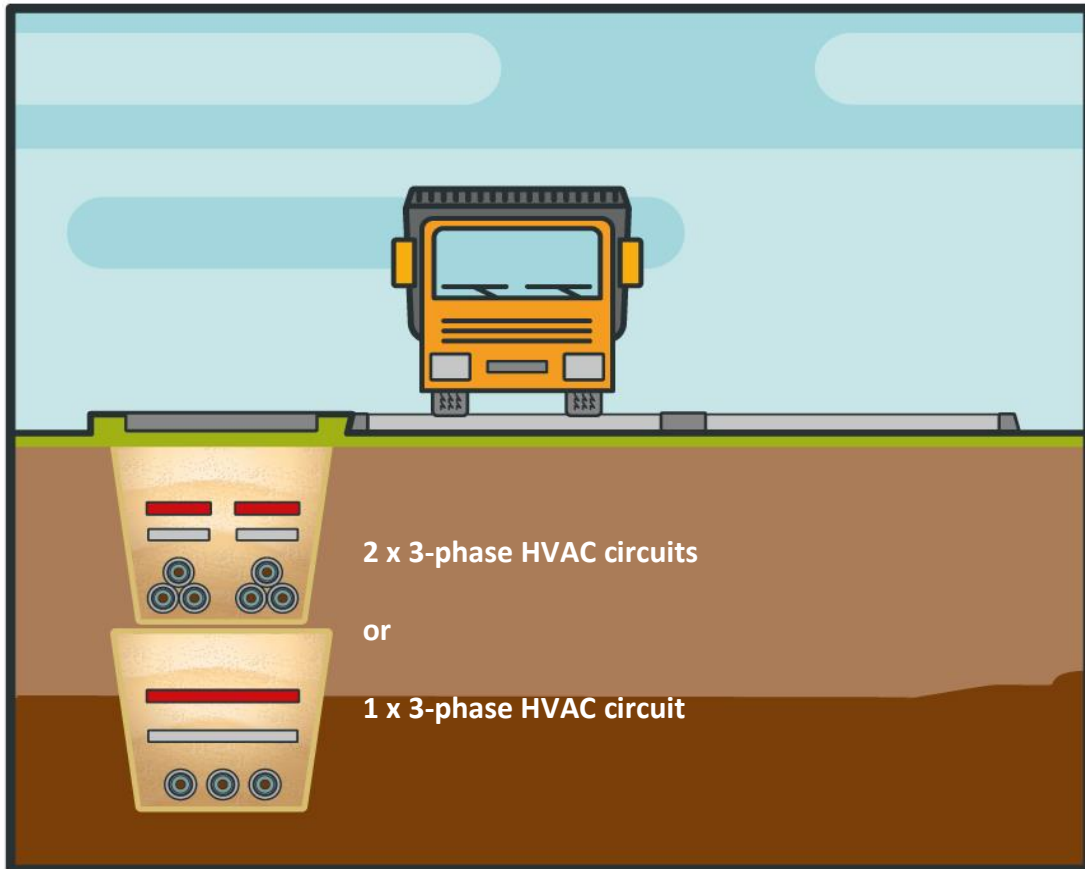
**Figure 24 Location of the Converter Station, Indicative Underground Cable Route and National Grid Kingsnorth 400 kV Sub-station**



The cable connection to the National Grid Kingsnorth 400 kV sub-station may comprise one or two circuits. Each circuit will consist of three conductor cables, each cable providing one of the three phases of an electrical circuit. The enamelled copper wire cables will have a cross-section of 1,800 to 3,500 mm<sup>2</sup>, depending on the number of circuits. The cables may be laid in high-density polyethylene (HDPE) ducts. The circuit(s) will be laid in a trench approximately 1.5 m deep and 2 m wide. A protective layer of concrete blocks and a warning layer will be placed above the circuits to indicate the presence of the cables.

A schematic of the underground cable trench is illustrated in **Figure 25**.

**Figure 25 Schematic of Underground Cable Trench with One or Two HVAC Circuits in UK**





## 5. PROTECTED ENVIRONMENTAL SITES

The converter station site and onshore cable route in France and the UK are not within 10 km of any terrestrial sites designated for European importance to nature conservation.

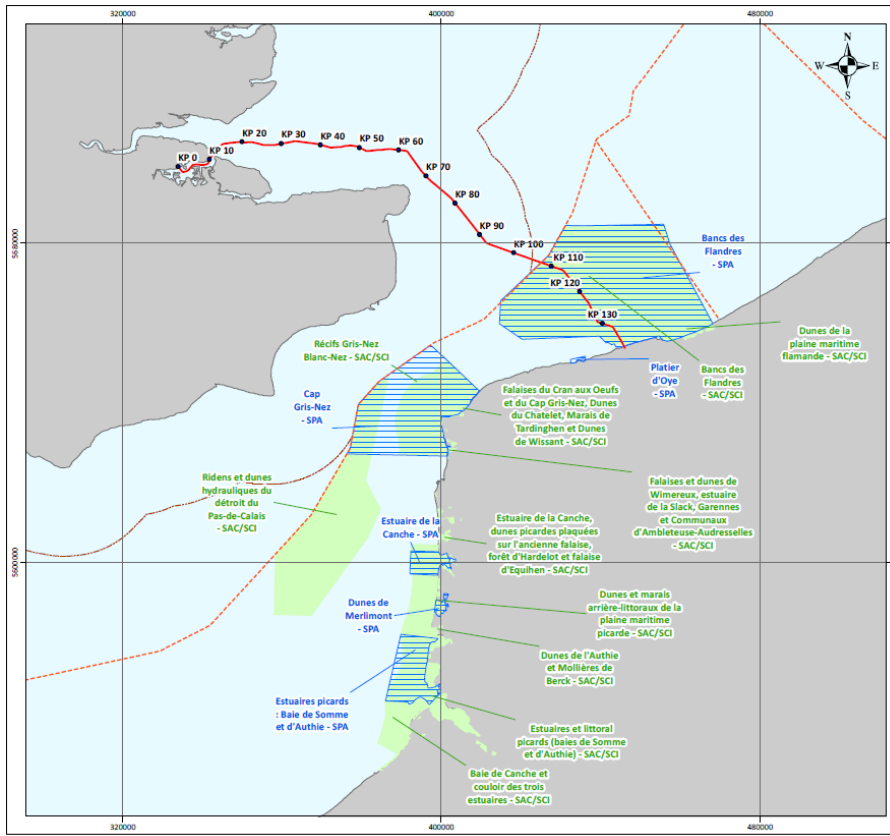
The subsea cable route crosses the Medway Estuary, Thames Estuary and southern North Sea. The cable route crosses a Special Protection Area (SPA) and a site of Special Conservation Interest (SCI) in French territorial waters, and two SPAs and two SACs and a wetland of international importance designated under the Ramsar Convention (RAMSAR) site in UK territorial waters. Two of these sites are also designated as Sites of Special Scientific Interest (SSSI) under UK legislation. In addition, the subsea cable route crosses three Marine Conservation Zones (MCZ) designated in the UK.

A summary of the designated areas crossed by or within 10 km of the cable route is provided in **Table 1**. Maps of the designated areas crossed by or within 10 km of the subsea cable route are presented in **Figure 26** (France) and **Figure 27** (UK).

**Table 1 NATURA 2000 sites and MCZs within 10 km of the Subsea Cable Route in UK and France**

Country	Site	Designation	Distance from Cable Route
FR	Bancs de Flandres	SPA SCI	Intersects for 31 km
FR	Platier d'Oye	SPA	9 km
UK	Medway Estuary and Marshes	SPA Ramsar SSSI	Intersects for 450 m by directional drilling
UK	Thames Estuary and Marshes	SPA Ramsar SSSI	200 m
UK	Benfleet and Southend Marshes	SPA Ramsar	3 km
UK	The Swale	SPA Ramsar	9 km
UK	Foulness (mid-Essex Coast Phase 5)	SPA Ramsar	3 km
UK	Thanet Coast and Sandwich Bay	SPA Ramsar	15 km 19 km
UK	Southern North Sea	cSAC	Intersects for 21 km
UK	Thanet Coast	SAC	3 km
UK	Essex Estuaries	SAC	3 km
UK	Margate and Long Sands	SAC	Intersects for 21 km
UK	Outer Thames Estuary	SPA	Intersects for 49 km
UK	Medway Estuary	MCZ	Intersects 12 km
UK	The Swale Estuary	MCZ	1.5 km
UK	Thanet Coast	MCZ	1.5 km
UK	Goodwin Sands	rMCZ	Intersects for 9.5 km
UK	Offshore Foreland	rMCZ	Intersects for 5 km
UK	Thames Estuary	rMCZ	4.5 km

**Figure 26 NATURA 2000 sites and MCZs within 10 km of the Subsea Cable Route in France**



**GRIDLINK INTERCONNECTOR**  
Figure 5-2: Protected Sites in French Waters within 100km of the Cable Route

**Legend**

- KP
- GridLink Centreline
- 12nm Territorial Sea Limit
- Median Line

**European Natura 2000 Sites**

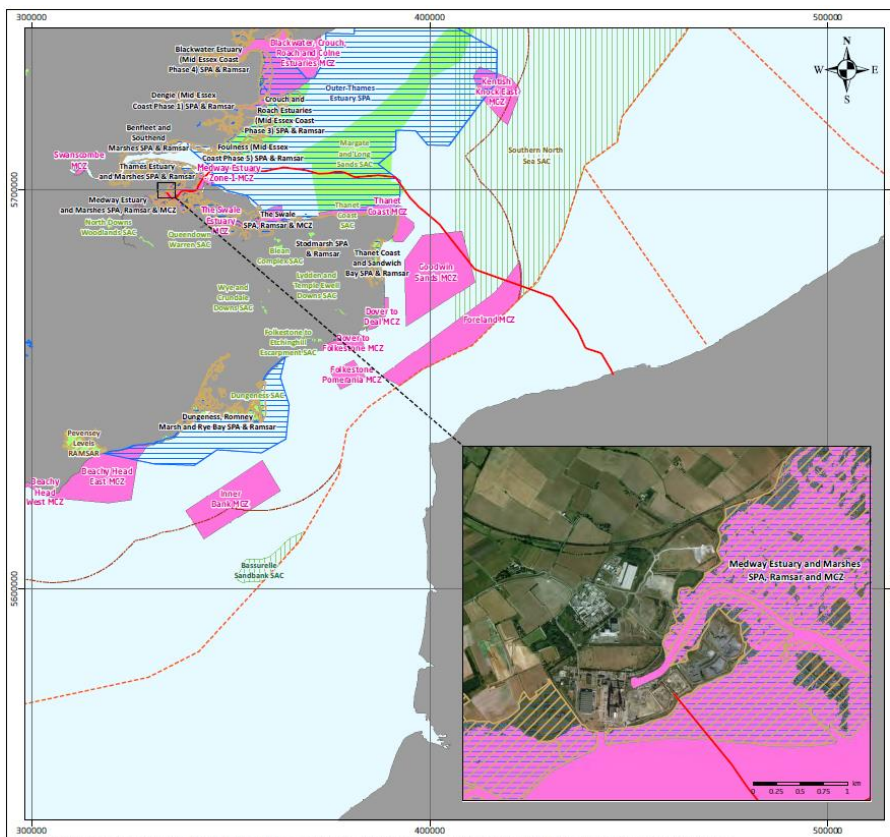
- SPA
- SAC

**Date** Wednesday, June 12, 2019 14:55:42  
**Projection** WGS\_1984\_UTM\_zone\_31N  
**Spheroid** WGS\_1984  
**Datum** D\_WGS\_1984  
**Data Source** CDA, ELANENERGY, EEA, GBRCO, UKHO  
**File Reference** J:\GridLink\F12172\_Mat\Inskat\_Regulations\_Assessment\Res\Fig\_5\_2\_Protected\_Sites\_French.mxd  
**Created by** Chris Gode  
**Reviewed by** Kerr Gardiner  
**Approved by** Anna Farley

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INTERCONNECTOR

Scale: 0 10 20 30 km

**Figure 27 NATURA 2000 sites and MCZs within 10 km of the Subsea Cable Route in UK**



**GRIDLINK INTERCONNECTOR**  
Figure 5-1: Protected Sites within 100km of the Cable Route

**Legend**

- GridLink Centreline
- 12nm Territorial Sea Limit
- Median Line

**Protected Sites**

- SAC
- Offshore SAC
- SPA
- RAMSAR
- MCZ

**Date** Wednesday, June 12, 2019 13:01:49  
**Projection** WGS\_1984\_UTM\_zone\_31N  
**Spheroid** WGS\_1984  
**Datum** D\_WGS\_1984  
**Data Source** CDA, ELANENERGY, ESRI, JNCC, GBRCO, NE, UKHO  
**File Reference** J:\GridLink\F12172\_Mat\Inskat\_Regulations\_Assessment\Res\Fig\_5\_1\_Protected\_Sites.mxd  
**Created by** Chris Gode  
**Reviewed by** Kerr Gardiner  
**Approved by** Anna Farley

**GRIDLINK** **intertek**  
INTERCONNECTOR

Scale: 0 7.5 15 30 km

GridLink will commission a screening assessment of the potential impacts on NATURA 2000 sites in accordance with the Habitats Directive and Birds Directive (known as a 'Habitats Regulations Appraisal screening assessment'). The assessment will determine whether GridLink is likely to have a significant effect on a European site of nature conservation interest (either alone or in combination with other plans or projects) and, as a result, require an Appropriate Assessment. The assessment will consider effects of construction and operation of the project, including ancillary works such as Unexploded Ordnance (UXO) clearance or temporary construction work sites, relating to noise and visual disturbance, seabed disturbance, suspension of sediment and subsequent deposition, water pollution and, for birds, air quality and lighting. An Appropriate Assessment will be carried out as part of the environmental impact assessment process wherever the potential for adverse effects on qualifying features of NATURA 2000 sites are identified.

## 6. ENVIRONMENTAL IMPACT ASSESSMENT

### 6.1 EIA PROCEDURES IN FRANCE

Article R122-2 of the Environmental Code defines the different types of project and their characteristics according to which an Environmental Impact Assessment (EIA) may be required.

Projects may be categorised into one of three groups:

- Project that does not require an EIA;
- “Cas par cas” procedure, consisting of requesting an independent environmental authority (*Autorité Environnementale*) whether the project needs an EIA (a screening opinion);
- Project that requires an EIA.

For the GridLink project, the project categories shown in **Table 2** are relevant.

**Table 2 Project Categories for EIA Requirement relevant to GridLink Project in France**

Project Category	Projects requiring an EIA	“Cas par Cas” Procedure	Applicability to GridLink Project
32. High voltage electricity transport and distribution facilities	Overhead power lines: Voltage >225 kV and Length >15 km	Overhead power lines: Voltage >225 kV and Length <15 km	Not applicable
		Overhead power lines: Voltage >50 kV	Not applicable
		Electricity sub-station: Voltage >63 kV	“Cas par Cas” procedure required for converter station
33. Underwater high voltage electricity transport cables	Underwater high voltage electricity cable construction		EIA required for subsea cable

According to the Environmental Code, the GridLink project must be treated as a whole, so it cannot be divided between the offshore cable, onshore cable and the converter station. Therefore, although part of the project is covered by the “cas par cas” procedure, the EIA is required to consider the impacts of the complete project, including an overview of the whole project environmental impacts in France and the UK.

The Environment Code states that the EIA must be commensurate with the environmental issues and the potential impacts that the project may cause, and respect the “ERC” principles of:

1. Avoid, when possible, the negative effects of the project;
2. Reduce the negative effects that cannot be avoided;
3. As a last recourse, compensate for any residual effects.

A prior consultation (concertation préalable) procedure is mandatory to define the ongoing consultation requirements during the preparation of the EIA. Finally, the application file will be submitted to a public inquiry (enquête publique).

The mandatory EIA will include the Appropriate Assessment of any potentially significant impacts on NATURA 2000 sites and, if required, an Espoo convention procedure to evaluate the transboundary impacts of the project.

## 6.2 UK EIA PROCEDURES

The construction of the converter station is considered a building operation under the *Town and Country Planning Act 1990*, therefore it requires the granting of planning permission from the Local Planning Authority (Medway Council).

The *Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017*, as amended, define the requirement for an EIA to support any application for planning permission based on whether the project falls within a category listed in Schedule 1 or 2 of the Regulations:

- If the project falls with a category listed in Schedule 1 of the Regulations then an EIA is mandatory;
- If a project falls within a category listed in Schedule 2 and exceeds the threshold or is situated in a sensitive area, then the Local Planning Authority will determine whether the project is likely to have a significant effect on the environment (taking account of the selection criteria defined in Schedule 3) and therefore an EIA is required (“screening”).

The converter station and onshore underground cable are not listed in Schedule 1 of the Regulations and therefore an EIA is not mandatory. The categories listed in Schedule 2 do not directly reflect the project.

Therefore, the requirement for an EIA has been determined by a request for a screening opinion from Medway Council under the *Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017*. The screening opinion from Medway Council has determined that an EIA is not required, and instead it has specified the scope of environmental studies that are required to support the planning application.

In addition, the installation of the subsea cable within 12 nautical miles (22 km) requires a Marine Licence under the *Marine and Coastal Access Act 2009* from the Marine Management Organisation (MMO). The *Marine Works (Environmental Impact Assessment) Regulations 2007*, as amended, define the requirement for an EIA to support any marine licence application based on whether the project falls within a category listed in Schedule A1 or A2 of the Regulations:

- If the project falls within a category listed in Schedule A1 then an EIA is mandatory;
- If the project falls within a category listed in Schedule A2 or is situated in a sensitive area, then the MMO will determine whether the project is likely to have a significant effect on the environment and therefore an EIA is required (“screening”).

The installation of subsea cables is not listed in Schedule A1 and A2, therefore an EIA is not mandatory. However, as the subsea cable route crosses a number of NATURA 2000 sites and Marine Conservation Zones, GridLink has requested a screening opinion from MMO to determine if an EIA is required in accordance with the *Marine Works (Environmental Impact Assessment) Regulations 2007*. The screening opinion from MMO has determined that an EIA is not required, although the provision of environmental information remains an official part of the license

application file. GridLink has consulted with MMO on the required scope of this environmental information.

Stakeholder consultations will be carried out during the preparation of the environmental reports/EIAs as well as related to the applications for planning permission and Marine Licence.

The environmental report/EIA for the Marine Licence will include the Appropriate Assessment of any potentially significant impacts on NATURA 2000 sites and, if required, an Espoo convention procedure to evaluate the transboundary impacts of the project.

## 7. PUBLIC CONSULTATIONS

### 7.1 FRANCE PRELIMINARY CONSULTATION

A preliminary consultation was organized by GridLink Interconnector Ltd and RTE, in accordance with Article L121-16 of the Environment Code.

The whole project, from its objective to all marine and terrestrial works, including those connecting the GridLink converter station to the extension of the Warande sub-station under RTE, has been covered by this prior consultation.

Under the supervision of the Commission Nationale du Débat Public (CNDP) guarantor, appointed on 24 July 2017, the project owners conducted a preliminary consultation with the general public and key stakeholders who may have a particular interest in the GridLink project. These stakeholders are interested parties both in the installation of offshore cables on the seabed and in the terrestrial parts of the project. The preliminary consultation included professional fishermen, environmental associations, representatives of agriculture and the development council of the Grand Port Maritime of Dunkirk.

The planning of the preliminary consultation was set with the aim of involving the population in parallel with the public debate of the Grand Port Maritime of Dunkerque concerning its CAP 2020 project; this was to ensure that the public receives information about the GridLink project in the context of the future overall development of the area, with the CAP 2020 public debate taking place from 18 September to 22 December 2017. Therefore, the prior consultation was organized between 27 November 2017 and 12 January 2018 (7 weeks).

The preliminary consultation included the following information and participation methods:

- Establishment of information points and publications in local newspapers in early December 2017 to inform the public of public meetings;
- Information points providing flyers on public meetings, brochures on the project and copies of the consultation dossier (5 points of information in the town halls of Dunkerque, Loon Plage, Craywick, Bourbourg and Mardyck);
- Organization of Open Public Meetings (2 meetings, one each in Loon-Plage and Bourbourg);
- Organization of thematic round tables by invitation (5 round tables);
- Establishment of a dedicated telephone line (hotline);
- Creation of an Internet site ([www.gridlinkinterconnector.com](http://www.gridlinkinterconnector.com)) for the electronic sharing of documents, for the downloading of information, the possibility of asking a question and giving an opinion, and the email contacts with the project owner.

A summary of the prior consultation activities is presented in **Table 3** below.

**Table 3 Preliminary Public Consultation Activities in France**

Activity	Number	Location	Date	Participants
Information points	5	Loon-Plage Bourbourg Craywick Dunkerque Mardyck	27.11.2017 to 12.01.2018	-
Notices in local newspapers	2	Le Phare La Voix du Nord	01.12.2017 05.12.2017	-
Public meetings	2	Loon-Plage Bourbourg	07.12.2017 10.01.2018	6 20
Thematic meetings	5	Conseil de Développement du GPMD Association de protection de l'environnement (ADELFA) Représentants du monde agricole Représentants de la pêche professionnelle Association de protection de l'environnement (Virage-Energie)	07.12.2017 13.12.2017 19.12.2017 19.12.2017 10.01.2018	30 2 10 3 2
Written contributions	3	ADELFA M. Nicolet Virage-Energie	03.01.2018 11.01.2018 12.01.2018	-
Web-site use	239 1,692 373	Unique visitors Number of pages consulted Document downloads	27.11.2017 to 12.01.2018	-
Web-site contact questions	5	Michel Mariette, ADELFA	22.12.2017	-
Telephone hotline	1	Actinium Dunkerque	12.01.2018	-
Newspaper articles	1 1	Le Phare Nouvelles du Web: Le Phare	27.12.2017	-

The dossier des enseignement was published by GridLink on its web-site on 29<sup>th</sup> March 2018. It provides an overview of the commitments by GridLink to ongoing stakeholder engagement and public consultations. These include further public meetings and thematic meetings at the start of the main EIA procedures, when the preliminary EIA results are available and prior to submission of the application files for development consent.

## 7.2 UK PUBLIC CONSULTATION

There is no official procedure for public consultation in the UK.

Preliminary stakeholder engagement activities in the UK have focussed on land-owners and industrial enterprises in the Kingsnorth area, preliminary consultations and scoping workshop with competent authorities and a Members Briefing to Medway Council.

Ongoing stakeholder engagement and public consultations will include meetings with Parish Councillors, public meetings and thematic meetings.

## 7.3 WEB-SITE

GridLink Interconnector Ltd established a web-site in November 2017. The web-site address is [www.gridlinkinterconnector.com](http://www.gridlinkinterconnector.com).

The web-site contains information about the project in dual language of English and French.



The web-site includes:

- English and French language;
- General planning of the project;
- Documents prepared as part of the Project of Common Interest (PCI) status:
  - Information brochure;
  - Non-technical summary of the project, less than 50 pages long and updated regularly, reflecting the current state of the project and clearly indicating, in case of modifications, the changes compared to previous versions;
  - Public consultation schedule, indicating the dates and places of the public events and the subjects evoked during the events;
  - Contact information for obtaining complete files of applications for administrative authorizations;
  - Contact information to make comments or oppositions in the context of the consultations;
  - Link to the European Commission website.
- Summary of the consultation mechanisms conducted in the United Kingdom in French, and at the same time a summary of the approach in France in English;
- Possibility to download technical studies when they are completed and not confidential;
- Possibility to download major documents and links related to the need and regional planning of interconnectors, such as ENTSO-E Ten Year Network Development Plan or ECO2mix on cross-border movements;
- Integrated link to / from the RTE website.

GridLink is committed to answering all questions that are received via the website. Unless the person concerned objects, any questions and their answers will be published on the website within a target period of 14 days.

The web-site home-page menu tabs are shown in **Figure 28**.

The web-site home page is shown in **Figure 29**.

**Figure 28 GridLink Web-site Menu Tabs**

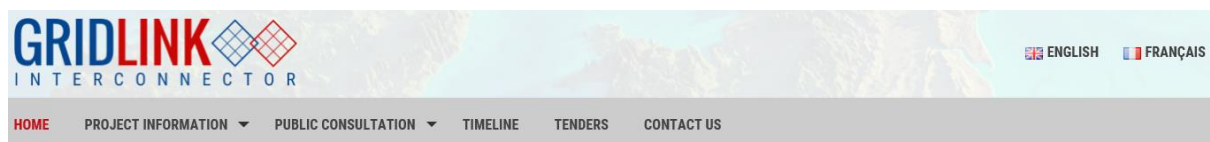
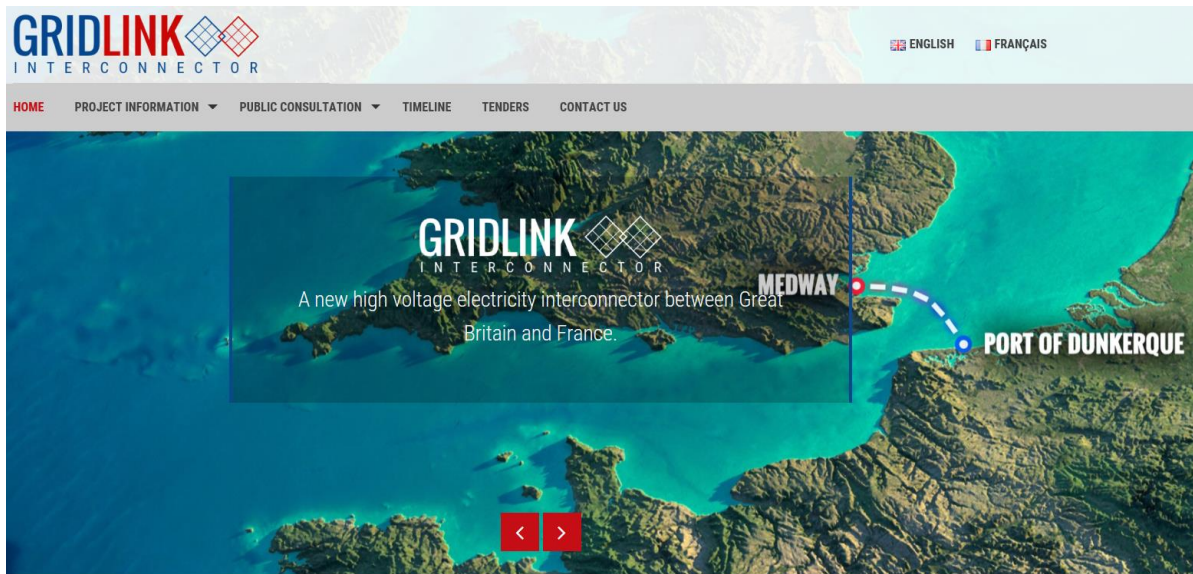


Figure 29 GridLink Web-site Homepage



## GridLink Interconnector

GridLink Interconnector is a new high voltage electricity interconnector between Great Britain and France. When construction is complete in 2022 the 1.4GW interconnector will transport sufficient electricity to supply 2.2 million households.

GridLink is a significant new infrastructure project and will help meet the energy needs of Great Britain and France over the next 25 years. GridLink will help lower the cost of electricity for consumers, industry and business, enhance security of supply and make a significant contribution toward reducing carbon emissions – GridLink is expected to reduce CO2 emissions by an average of 1.8 million tonnes per year.

The project will comprise two subsea High Voltage Direct Current (HVDC) cables beneath the English Channel between Dunkerque in France and Kingsnorth in Great Britain. With a total route length of 160km GridLink will be one of the shortest interconnectors between Great Britain and the Continent and uniquely positions GridLink to meet the energy needs of the future

### Contact us

Please use the link below to contact us:

[Click here](#)

### Project of Common Interest

Please use the link below for information on Projects of Common Interest:

[Click here](#)

### Le réseau de transport d'électricité

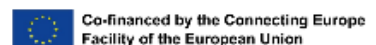
Please use the link below for the web-site of le reseau de transport electricite:

[Click here](#)

### Latest news

Please use the link below for latest news:

[Click here](#)



#### **7.4 CONCEPT FOR PUBLIC PARTICIPATION**

GridLink Interconnector Ltd intends to positively engage with the general public, local communities, local businesses and all statutory and non-statutory stakeholders in relation to the development, construction and operation of the GridLink project.

GridLink will engage with relevant stakeholders to ensure that accurate information related to the project is disseminated and the opportunity is provided for stakeholders to provide opinions, submit requests or make complaints and grievances.

GridLink has prepared a Concept for Public Participation (with a supporting Calendar of Public Consultation Events) to document the planned public consultation activities and inform stakeholders about sources of information and opportunities to participate. The Concept for Public Participation is published on the GridLink web-site or available on request.

## 8. FURTHER INFORMATION

Further information on the GridLink project can be found at [www.gridlinkinterconnector.com](http://www.gridlinkinterconnector.com).

GridLink Interconnector Ltd may be contacted by e-mail at [info@gridlinkinterconnector.com](mailto:info@gridlinkinterconnector.com).