AQUIND Limited

AQUIND INTERCONNECTOR

Consultation Report – Appendix 1.1C Non-Statutory Consultation – Exhibition Boards

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

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Introduction

Why are we here?

AQUIND Limited ("AQUIND") is consulting on its proposals for AQUIND Interconnector, a new underground and subsea electric power transmission link, that will connect the GB and French electric power grids.

Today's exhibition is part of a programme of community consultation to enable local residents, businesses, stakeholders and elected representatives to view the proposals, speak with members of the project team and share their feedback.

AQUIND is committed to engaging with stakeholders regarding its proposals before submitting planning applications to the relevant authorities.

About AQUIND

AQUIND is a UK-registered company and its sole business is the development of AQUIND Interconnector.

AQUIND is not associated with any UK or European utilities and the project is currently being developed without government subsidies.

For further information about AQUIND, please visit **www.aquind.co.uk**

Image of offshore cable installation

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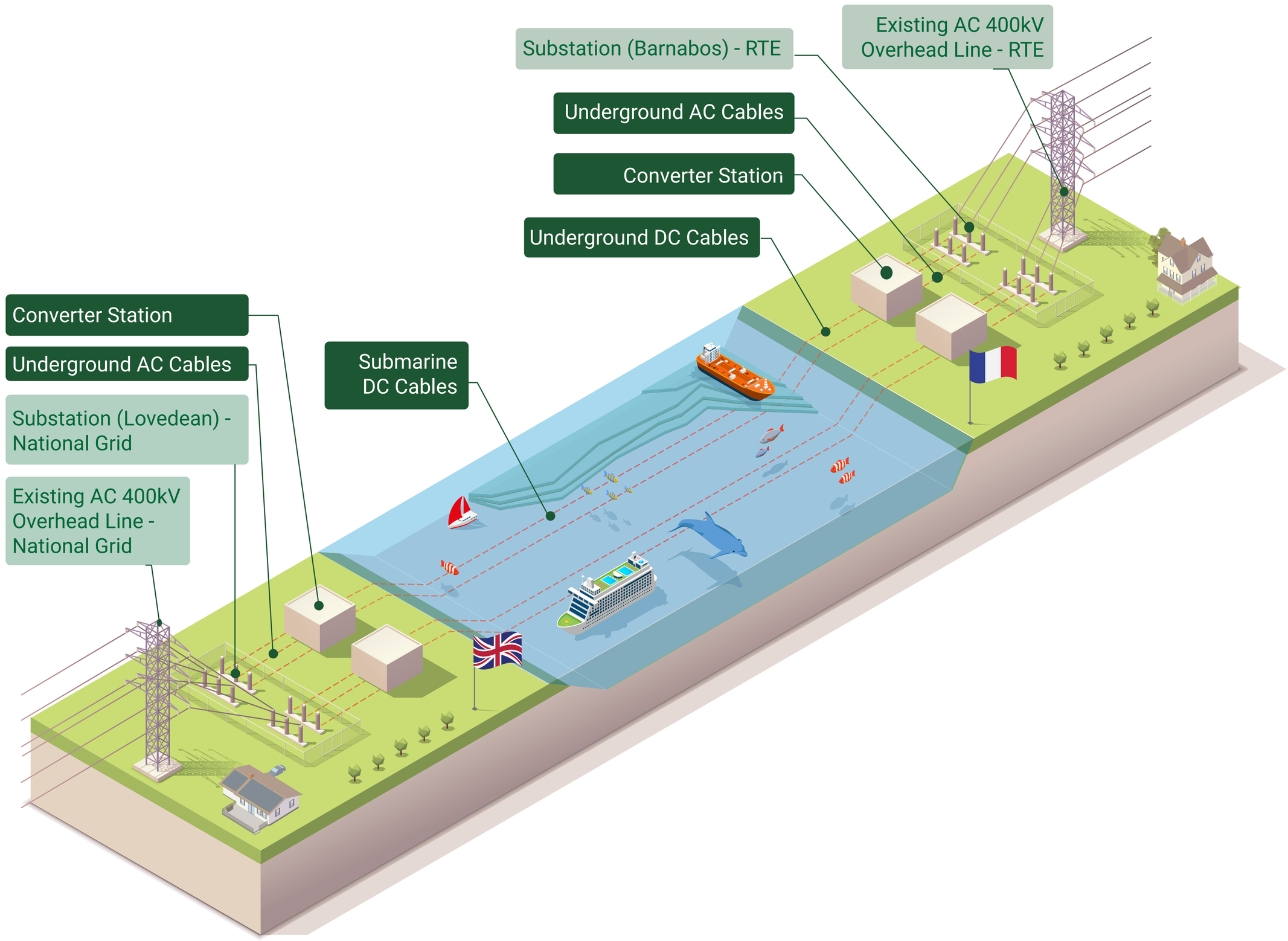

Illustration depicting the main components of AQUIND Interconnector

About AQUIND Interconnector

How AQUIND Interconnector will work

The main components of the project will include subsea and underground cables together with new converter stations in both the UK and France.

Subsea & Underground Cables

The subsea cable route will run from Eastney in the UK to Normandie in France. The underground cable route will connect the subsea cable from its landing points on either side of the Channel to new converter stations at Lovedean in the UK and Barnabos in France. Underground cables will also connect the new converter stations to nearby existing substations.

The Converter Stations

Converter stations are required in both the UK and France to convert electricity from Direct Current (DC) to Alternating Current (AC). The GB and French electricity grids use AC, while DC is used for sending electricity along the high-voltage subsea and underground cables because it is more efficient to transmit electricity as DC over large distances.

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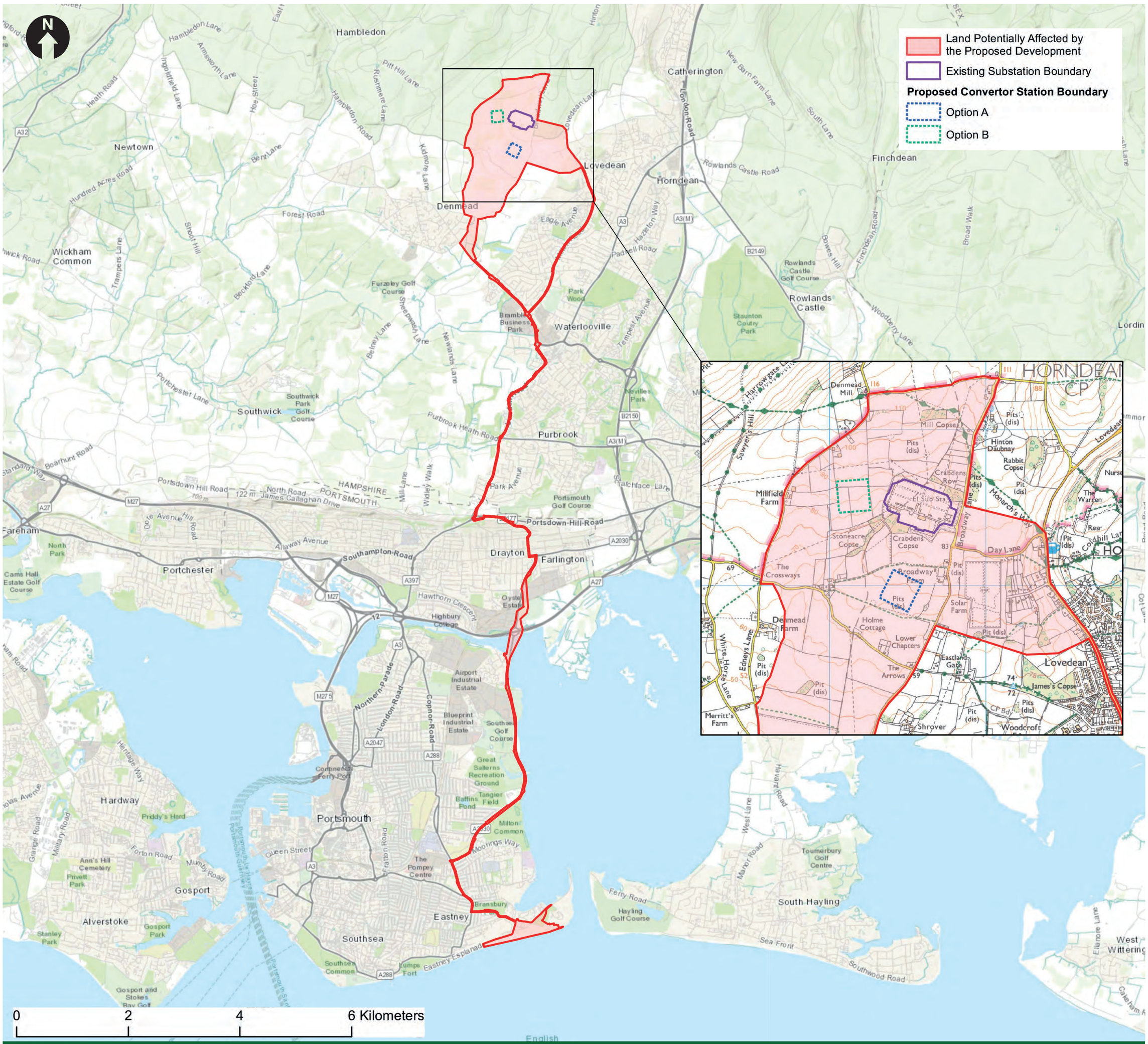

Image showing emerging proposals for the onshore cable route for illustrative purposes

About AQUIND Interconnector

The Cable Route

Four high-voltage direct current subsea cables will cover the distance of approximately 190km between Eastney near Portsmouth and Normandie in France. On the UK side, underground cables will connect the subsea cables from the landing point at Eastney to a new converter station less than 20km away at Lovedean in Hampshire.

Fibre optic data transmission cables of a smaller diameter will be installed together with the DC cables.

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AQUIND Interconnector in Numbers

Up to 16 million MWh (16 TWh)
Megawatt hours of electricity transmitted each year between GB and France

5%
Proportion of annual GB electricity consumption that could be transmitted by AQUIND Interconnector

5
Years until AQUIND Interconnector will be operational

2,000
Megawatts - the capacity of AQUIND Interconnector

3%
Proportion of annual French electricity consumption that could be transmitted by AQUIND Interconnector

£1.17 billion
Cost of delivery of AQUIND Interconnector. AQUIND Interconnector is privately financed without public funding

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Benefits of AQUIND Interconnector

A reliable electricity supply for the UK and France

AQUIND Interconnector will allow transmission of electricity in both directions, enabling GB and France's electricity grids to manage fluctuations in consumption and production more effectively. This will improve the reliability of electricity supply in both countries. AQUIND Interconnector will have the capacity of 2,000 MW and transmit up to 16,000,000 MWh (16 TWh) of electricity each year between the two connected countries, which is 5% and 3% of the total consumption of GB and France respectively, i.e. consumption by millions of households*.

Promoting energy market competition

By diversifying the sources of electricity, AQUIND Interconnector will promote greater competition across domestic energy markets. This could, in turn, help lower energy prices for consumers and businesses.

Tapping into cleaner sources of energy

By enabling greater flows of electricity between national transmission networks, interconnectors help to integrate more renewable energy sources into power grids of the connected countries, and help reduce dependency on high carbon intensity generation sources.

No overhead lines

AQUIND Interconnector will use well-tested and reliable cable technology. Burying the cable along the whole route avoids the need for the construction of overhead lines and their associated visual impact.

Investment in energy infrastructure

AQUIND Interconnector represents a significant investment in the UK's energy infrastructure and is being developed without government subsidies.

* The actual utilisation rate of the Interconnector depends on market conditions, limitations by national transmission system operators and other factors.

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Why are Interconnectors Needed?

The UK Government and The European Commission have identified that interconnectors are vital for achieving an integrated energy market in which families and firms get the best value for their money.

There are four existing interconnectors to other countries. There are also a number of interconnectors proposed, connecting the UK to countries such as Ireland, Belgium, Norway, Denmark and France. These links will help to achieve the Government's ambition of widening access to international markets, thus increasing competition and security of supply.

A Project of Common Interest

Given AQUIND Interconnector's potential cross-border benefits, AQUIND has been granted PCI status by the European Commission. The status is due for confirmation by the European Parliament in Q1 2018.

To be eligible for PCI status, a project must have a significant impact on energy markets and market integration in at least two eligible countries, boost competition, enhance energy security by diversifying sources and contribute to the climate and energy goals by integrating renewables.

PCI's are required to adhere to certain regulations with regard to consultation and preparation of applications, known as the TEN-E Regulations. The Manual of Procedures for TEN-E Projects is available at **www.gov.uk/government/uploads/system/uploads/attachment_data/file/311184/uk/uk_manual_procedures_ten_e_regulation.pdf**.

Courtesy and copyright of ABB

Inside an existing converter station

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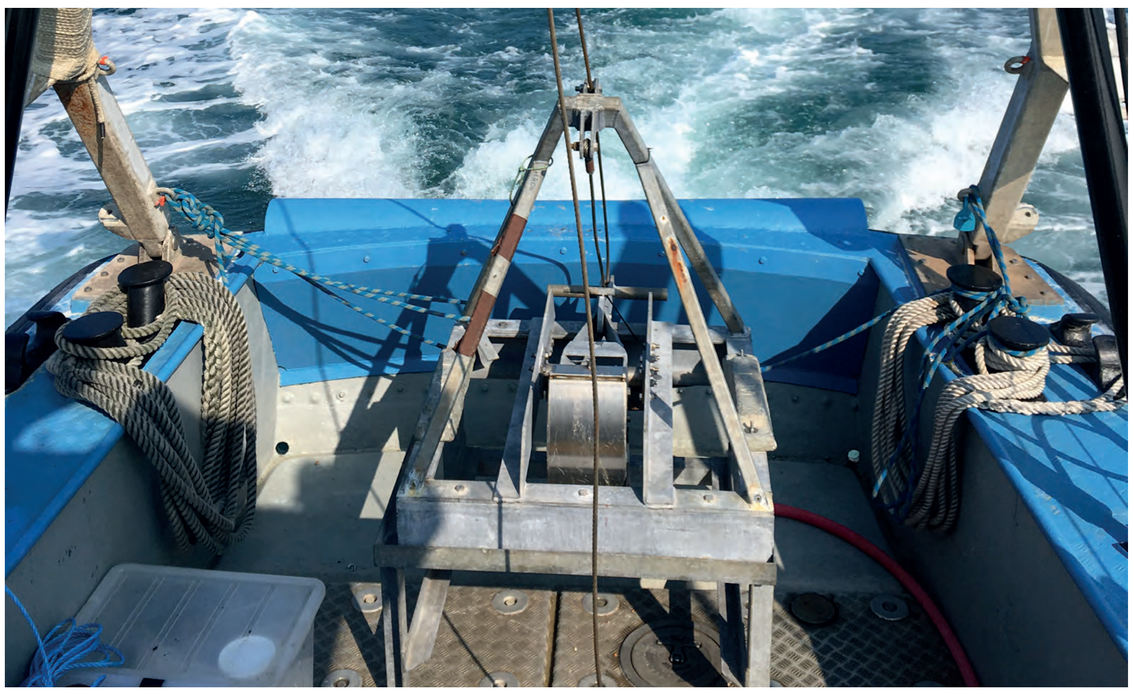

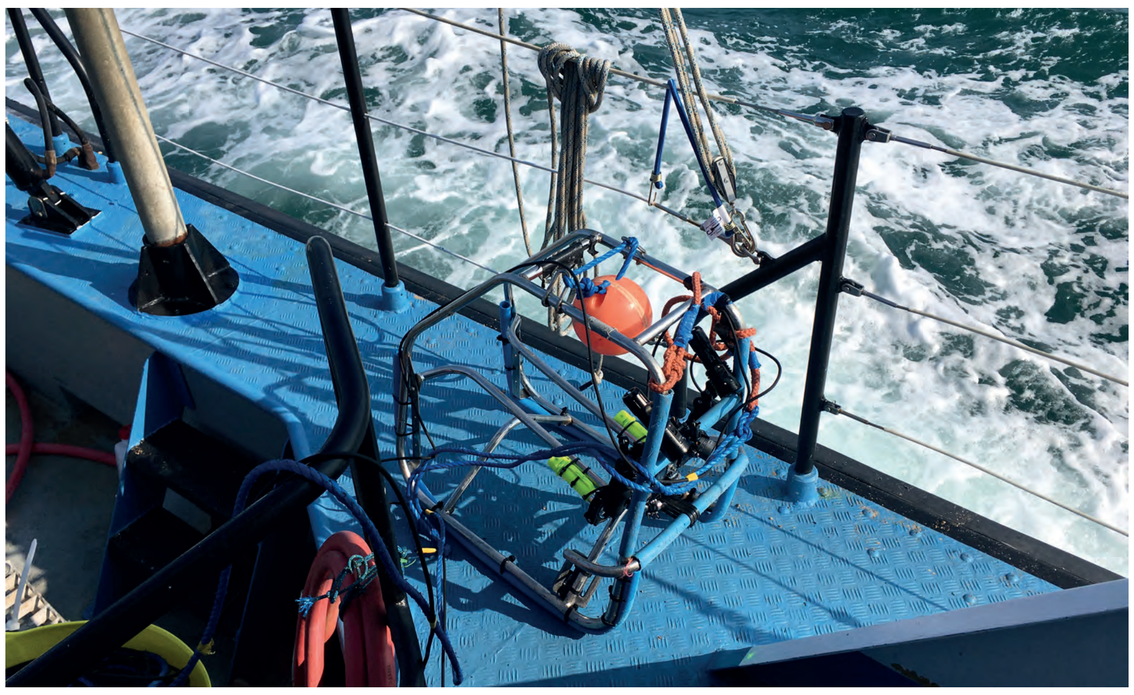

Images of offshore investigation equipment

Environmental Impact Assessment (Offshore)

Background Research

Extensive studies and detailed optioneering have been undertaken to inform the development of the offshore and onshore cable routes, as well as the landing point and converter station sites.

AQUIND will undertake an Environmental Impact Assessment (EIA) and submit an Environmental Statement (ES) in respect of each of the onshore and offshore elements to support its applications for planning permission and a marine licence. The purpose of the EIA is to identify the potential for significant environmental impacts to arise from the project, and identify and incorporate necessary measures required to mitigate those potential impacts. Potential cumulative impacts including cross-boundary impacts will be described and assessed.

In preparation for the EIA, formal Scoping Reports will be submitted to the relevant Local Planning Authorities and the Marine Management Organisation to agree the data required to inform, and the scope of, the assessments.

Ongoing Surveys

AQUIND is currently undertaking a geophysical campaign to establish the likely ground conditions of the offshore cable corridor from the UK to French shoreline. The data from these surveys will inform the detailed routing and installation methods to be adopted for the project, but will also inform the EIA. The geophysical survey data will be utilised in the Benthic and Archaeological Impact Assessments, and will also be used to inform a geotechnical campaign for Spring / Summer 2018. Benthic samples have been taken from strategic points along the corridor, and drop-down underwater cameras used to establish the presence of benthic communities at rocky locations. Local fishermen have also been consulted with respect to fishing activities in the vicinity of the cable corridor.

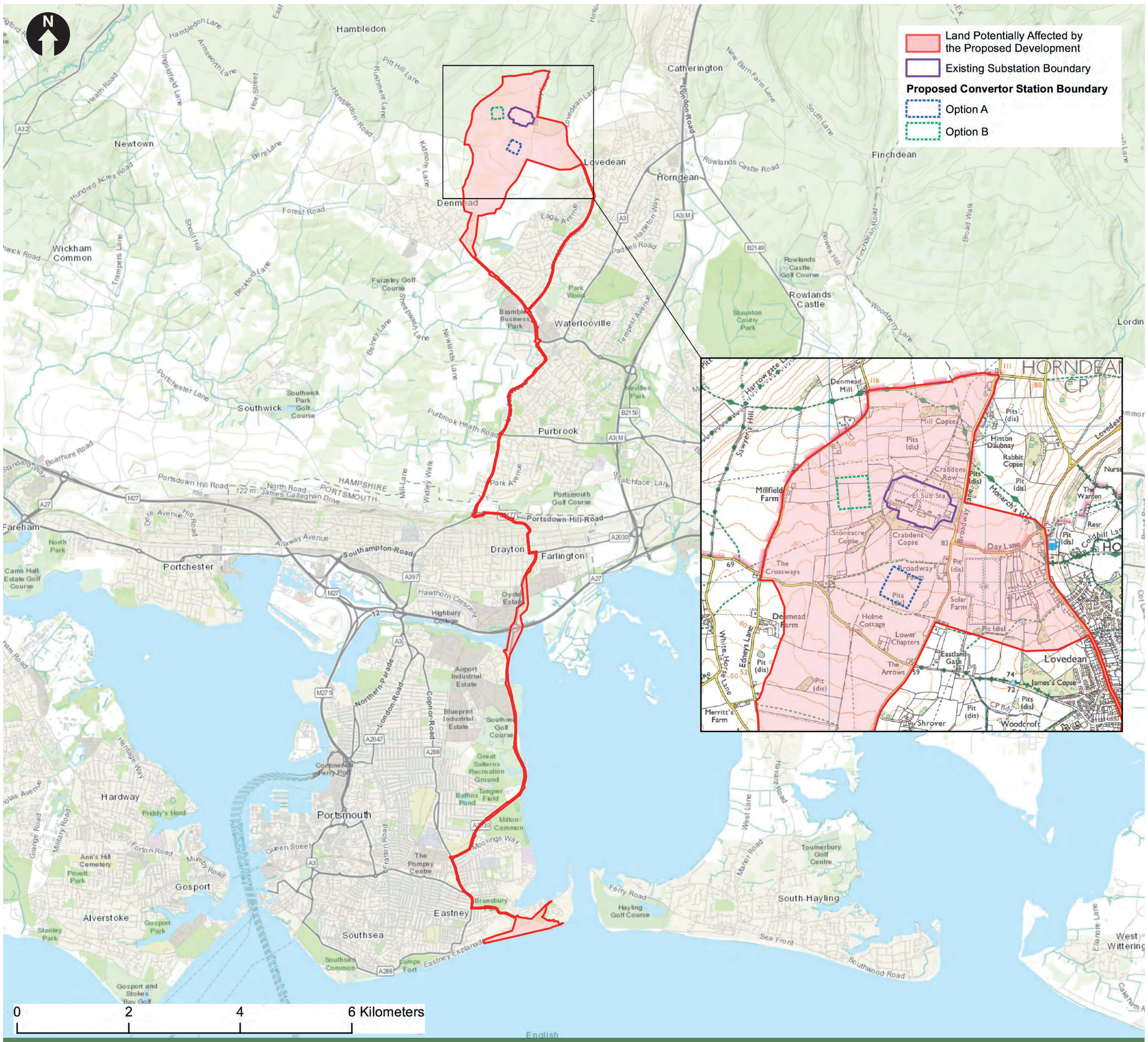

Image showing emerging proposals for the onshore cable route for illustrative purposes

Environmental Impact Assessment (Onshore)

The EIA Scoping Report will describe the Proposed Scheme, and the work completed to date, including the options appraisal process and the selection of the preferred option, which will be the subject of the EIA. The EIA Scoping Report will include a chapter for each environmental topic, providing baseline information and constraints identified from desk based research, and site surveys as appropriate. Each topic will set out the proposed approach to EIA including site surveys and assessment, which will be reported within the Environmental Statement (ES).

Ongoing Surveys

As part of the planning process, AQUIND will be undertaking further due diligence and investigative surveys along the proposed Interconnector route and at the converter station location in order to understand any further engineering and environmental constraints.

Initial environmental survey work along the terrestrial cable route requires surveys for protected species including great crested newts, dormice and bats. Noise and tree surveys have been undertaken around the proposed converter station location and surveys of the onshore cable route are ongoing. Terrestrial ground investigation work includes boreholes and trial pits. These will be completed prior to the construction of the Interconnector. AQUIND will provide advanced notice of these works.

Subsea Cable Route

The offshore element of AQUIND Interconnector comprises four high-voltage DC subsea cables that will cover the distance of approximately 190km between Eastney, near Portsmouth, and the Normandie coast near Dieppe in France. The cables, each at approximately 115-150mm in diameter, will be laid in pairs, or individually, together with fibre-optic data transmission cables of a much smaller diameter.

Where seabed conditions allow, the offshore subsea cables will be buried in trenches under the sea floor such that sufficient protection is provided against ships' anchors, fishing and natural hazards. Where trenches cannot be excavated, and at crossings of other cables, the subsea cables will be protected using alternative protection systems.

The subsea cable survey corridor has been selected and optimised based on best-practice guidelines through a review of potential landfall sites and a desk top study of seabed geology and existing constraints. These have included fishing and shipping activity, other subsea cables, environmentally sensitive areas, aggregate extraction areas, offshore windfarms, known wrecks and the like. The marine survey has then been used to refine the preferred cable route within the survey corridor.

Image of the proposed subsea cable route for illustrative purposes

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Landing Point

The landing point is the location at which the subsea cables reach land, with subsequent connection to the respective converter stations being made via terrestrial underground cables. The onshore and subsea cables will be joined at the Transition Joint Bay. This will be a buried structure containing the joints between the four HVDC cables. The onshore cables will enter the structure underground, and the offshore cables will leave it underground – either through a backfilled trench or through a duct installed by Horizontal Directional Drilling or similar means. The subsea cables will be pulled through the buried ducts into the Transition Joint Bay from an offshore cable vessel during the installation process.

Example Landfall rig setup during construction

In the UK, the proposed landing site is at Eastney, near Portsmouth. On the French side, the Interconnector's landing point will be on the Normandie coast near Dieppe. The chosen landfall locations on both sides of the Channel have been shortlisted though an extensive optioneering process. This included detailed consideration of engineering and environmental issues, with particular consideration being given to environmental characteristics of the area including Special Protection Areas and Special Areas of Conservation.

Eastney was chosen as the preferred option, partly due to its relative proximity to the existing substation at Lovedean. Minimising the length of the underground cable route will significantly reduce the environmental impact and the disruption associated with its installation.

Example Landfall rig setup during construction

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Why Eastney?

Eastney was chosen as the preferred option after an extensive optioneering process which took account of a wide range of factors.

The search for an appropriate landing point began in 2014/15 with possible landing points being identified between Weymouth, in the west, and Bognor Regis, in the east.

When Lovedean was identified by National Grid as the preferred grid connection point, a total of seven potential landing points were prioritised accordingly. These landing points were then subjected to a further a detailed study to assess the landing points against a total of 23 engineering and environmental Criteria.

As a result of this work, the following three potential landing points were shortlisted:

- Eastney
- Hayling Island
- East Wittering

Hayling Island was subsequently removed from the shortlist. This was primarily due to the requirement to cross the Solent estuary at Langstone Bridge (Chichester and Langstone Harbour).

A more detailed review of the two remaining potential landing points was undertaken, from a marine cable installation perspective, and in discussion with experienced marine installation contractors.

Eastney was eventually chosen as the preferred option in order to minimise the length of the cable route between the landfall location and converter station location, and to minimise environmental impacts.

Map illustrating the proposed landing point at Eastney

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Underground Cable Route

Four high-voltage DC underground cables will connect the subsea cables from the landing point at Eastney to a new converter station at Lovedean in Hampshire – a distance of less than 20km.

An underground data cable will also be required to maintain the Interconnector and facilitate communications between the UK and France. The underground data cable will be installed alongside the underground electric cables.

The proposed underground cable route was arrived at via a detailed optioneering process reviewing all types of constraints, including:

- Environmental – such as proximity to protected areas or habitats of protected species
- Cultural / heritage features
- Engineering factors – such as existing utilities / infrastructure buried in motorways
- Consideration given to land ownership along the route

The underground cables will be buried under existing verges or highways, where possible. The exact methods to be used for underground cable installation will depend on the final underground cable route. A typical underground cable installation will involve trench excavation, installing ducts and reinstating the road. The underground cable can then be pulled through the ducts at a later date, to reduce the extent of traffic management. Appropriate traffic mitigation measures will be put in place before the start of any construction work.

The converter station will be connected via underground high-voltage AC cables to the GB electricity grid at the existing Lovedean substation, which is owned and operated by National Grid.

Courtesy and copyright of Prysmian

Example of underground cabling

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Indicative image of a typical converter station in situ

Converter Station

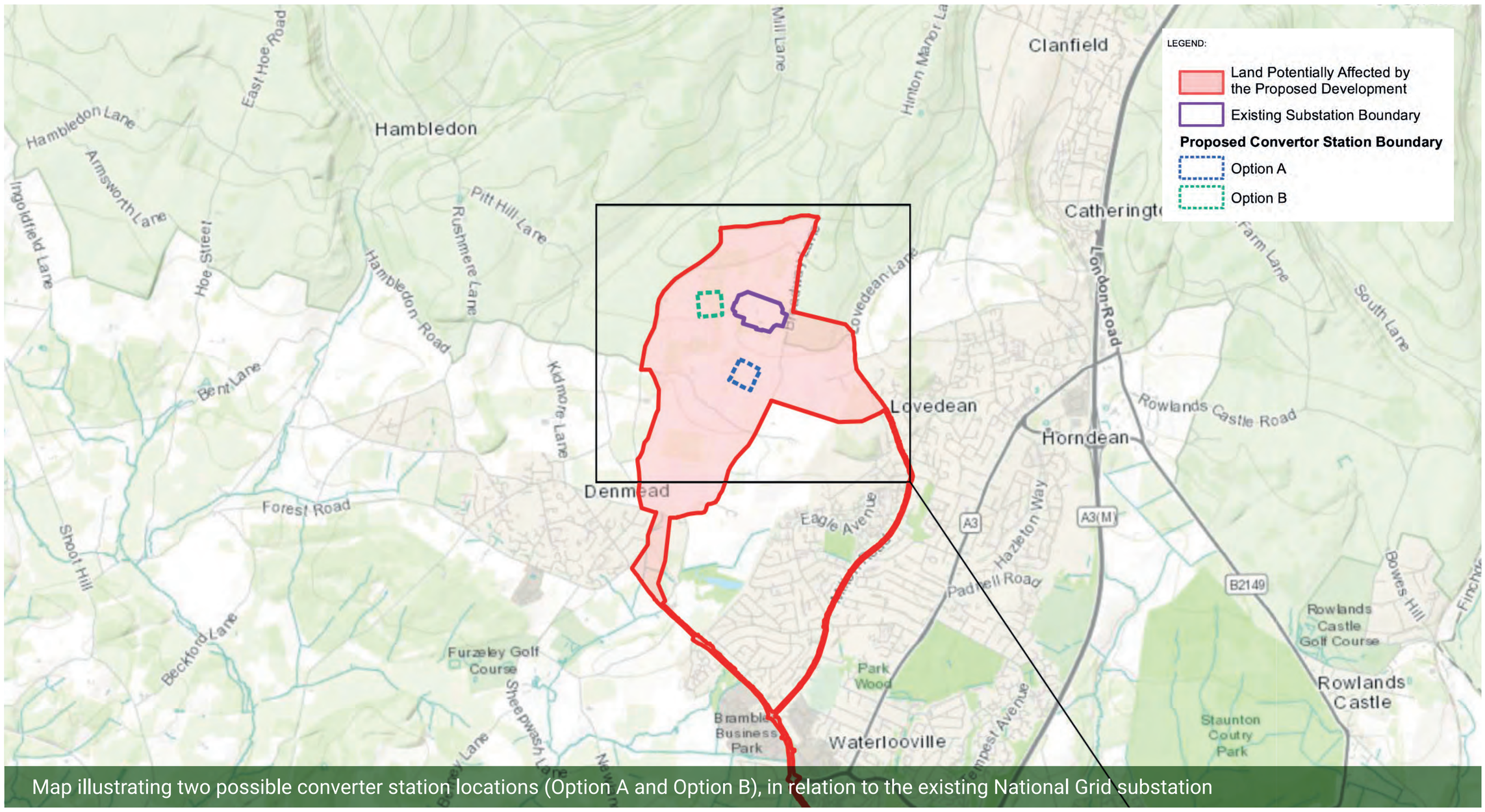
Converter stations are required in both the UK and France to convert electricity from DC to AC. AC is used for transmitting electricity in the GB and French electricity grids, while DC is used for sending electricity along the subsea and underground cables because it is more efficient over large distances.

Lovedean in Hampshire was identified as the optimal location for the UK converter station, taking into account a number of factors, including the capacity of the existing network.

The converter station site will comprise a mix of buildings and outdoor electrical equipment, with the outdoor equipment being similar in nature to the equipment at the neighbouring Lovedean substation. The building roof line will vary in height, but will be approximately 22m at its peak. The design and layout of the converter station will be finalised in due course. It is anticipated that approximately 6-9 hectares of land will be procured for the converter stations in each country – this includes the areas designated for the converter station buildings, outdoor electrical equipment and any screening required.

Work is being carried out to understand any environmental constraints (including ecological, landscape and heritage features), and develop appropriate mitigation.

There are significant benefits in situating a converter station as close as possible to a substation. The AC cables used to connect HVDC converter stations to AC substations require more footprint and cause more disruption during the installation. AC cables also have higher transmission losses and pose other technical challenges.



Map illustrating two possible converter station locations (Option A and Option B), in relation to the existing National Grid substation

Why Lovedean?

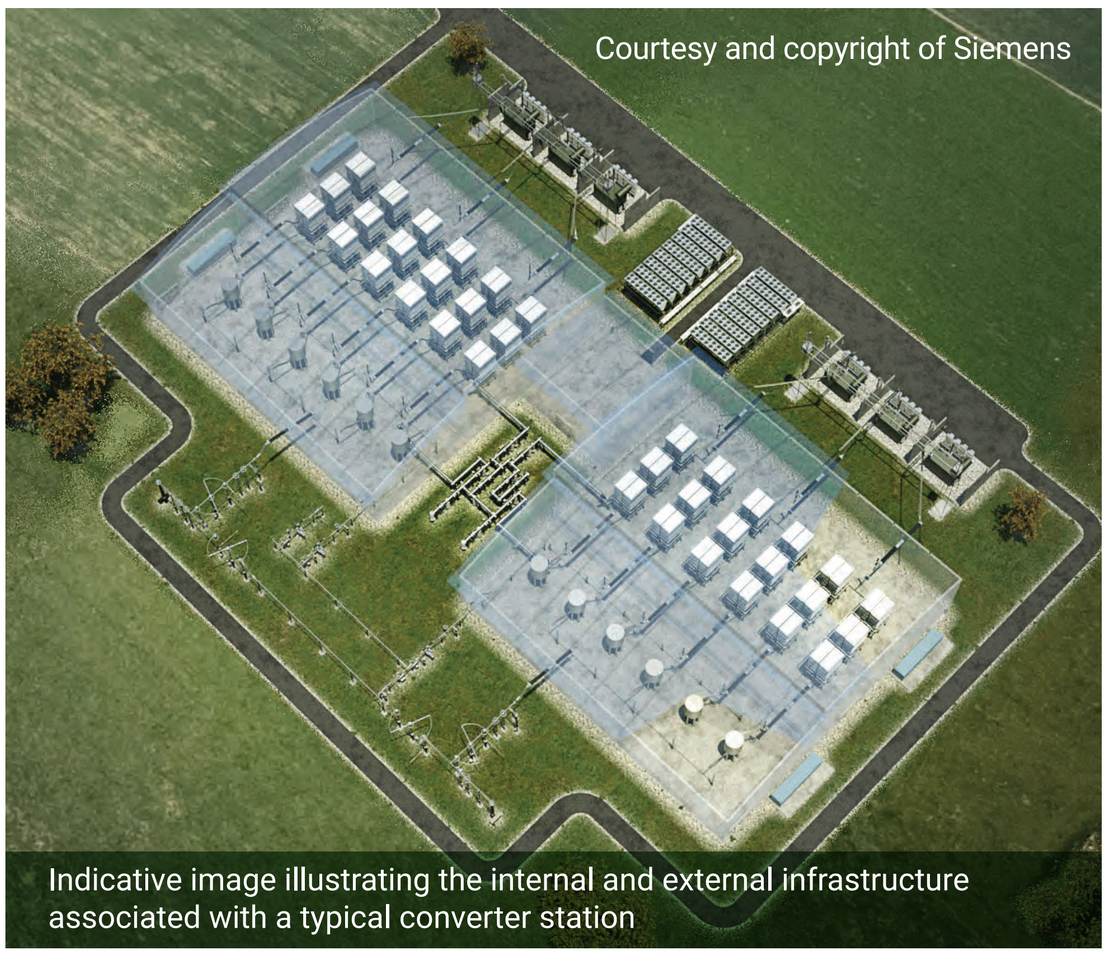
Lovedean substation in Hampshire was identified as the optimal connection location for AQUIND Interconnector following an assessment by National Grid who have an obligation to develop and maintain an efficient, coordinated and economical electricity transmission network. The assessment considers factors such as National Grid's knowledge of the existing network (including agreed future connections), agreed cost information, environmental considerations and other constraints associated with the project, alongside input from AQUIND on the details of the assets to be connected.

The converter station needs to be located as close as possible to the substation, in order to minimise the length of AC cable used as part of the interconnector. This is because AC cables take up a wider corridor of land when compared to DC cables. Therefore, in order to reduce impact on land, it is favourable to maximise the use of DC cables, which take up a considerably narrower corridor compared to AC cables. AC cables also have higher transmission losses and pose other technical challenges, meaning that a longer AC cable would partly offset and reduce the benefits of the interconnector.

Examples of Converter Station Design

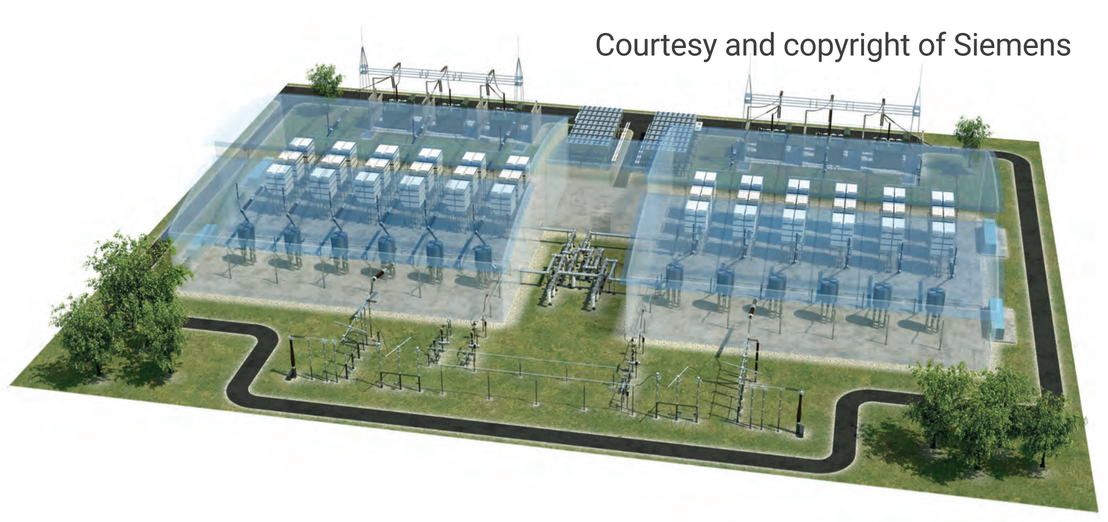
Courtesy and copyright of Siemens

Indicative image of a typical converter station in situ



Courtesy and copyright of Siemens

Indicative image illustrating the internal and external infrastructure associated with a typical converter station



Courtesy and copyright of Siemens

Indicative image illustrating the internal infrastructure within a typical converter station

Landscape, visual and ecological mitigation

Mitigation measures will be considered to reduce the landscape, visual and ecological effects of the converter station, while also create positive new habitats. Measures which will be considered will include:

- Integrating the development and associated infrastructure into the surrounding topography
- Working with the shape of the land and making positive use of material arising from the works to create new screening landform and reduce the apparent height of the building
- Minimising the loss of existing vegetation of ecological value (particularly long-established hedgerows and veteran trees)
- Introducing new planting which is sympathetic to the surrounding landscape character and reflective of native species
- Considering height, mass, colour, texture and nature of materials for the buildings and associated infrastructure which is sensitive to the immediate surroundings

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Impacts & Mitigation (Offshore)

Managing Construction

As with the onshore elements of the project, the construction phase of the offshore element is the most likely to give rise to environmental impacts for a temporary period. AQUIND will work closely with the local and national level stakeholders who have the potential to be impacted by the installation activities in order to inform them of when activities would take place and help manage any impact.

AQUIND is currently undertaking a Scoping Exercise for the offshore elements of the Interconnector cable. This process forms the initial stages of the Environmental Impact Assessment (EIA) process, through which AQUIND and their consultants will:

- Consult with statutory and non–statutory bodies, and relevant stakeholders;
- Establish a robust baseline of the existing marine environment on and around the cable route through desk-based assessment and offshore surveys;
- Assess the environmental impacts (their magnitude and significance, including any indirect, secondary and cumulative impacts);
- Develop mitigation measures and enhancement measures (where necessary); and
- Identify any residual impacts and publish the outcomes of the assessment within an Environmental Statement.

AQUIND and their consultants have already started the consultation process through the delivery of their geophysical survey campaign of the offshore cable route. Through this survey, AQUIND is developing an understanding of the seabed conditions along the cable route. This understanding will inform where and how deep the cable will need to be buried within the cable corridor, and if and where the cable will require additional protection as burial will not be practicable.

Following the development of this understanding, which will inform methodologies for cable burial and/or protection, AQUIND will undertake an impact assessment for the consequences of this cable installation and operation on all marine receptors (ecological and human). AQUIND will attempt to mitigate any significant impact through design (avoidance of sensitive locations through route selection). Mitigation measures will be developed for as many significant impacts identified that cannot be mitigated in this way as possible, and any residual impacts will be identified within the Environmental Statement.

This public exhibition constitutes part of the consultation process being undertaken by AQUIND upon the marine elements of this Interconnector, and we encourage you to provide your thoughts on the project to AQUIND and their consultants.

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Installation of underground cable

Impacts & Mitigation (Onshore)

Managing Construction

The construction phase for the onshore elements (cable and converter station) has the potential to give rise to adverse environmental impacts for a temporary period. AQUIND will work closely with the relevant Local Authorities in the UK to establish a Construction Management Plan which will achieve the following:

- Provide a mechanism for ensuring that measures to mitigate potentially adverse environmental impacts are implemented;
- Ensure that standards of good construction practice are adopted throughout the construction;
- Provide a framework for mitigating impacts that may be unforeseen or unidentified until construction is underway;
- Provide assurance to third parties that their requirements with respect to environmental performance will be met; and
- Provide a framework for compliance auditing and inspection to enable the principal contractor to be assured that its aims with respect to environmental performance are being met.

The Construction Management Plan will mitigate the impact of construction traffic on congestion, specifically during peak hours, and set out best practice in terms of acceptable operating hours to minimise any disruption to local residents.

Construction work affecting local roads will be staged, with every effort taken to ensure that local road closures will be limited to one lane at any one time, as opposed to a total closure. It is also proposed that, during the construction process, only short sections of road will be affected in order to minimise congestion and disruption to local roads and infrastructure.

AQUIND

Consultation

AQUIND is committed to engaging with stakeholders regarding its proposals. Before submitting planning applications to the relevant authorities, AQUIND will undertake a comprehensive programme of community consultation involving local residents, businesses, stakeholders, elected representatives and landowners.

Feedback and Reporting

AQUIND will invite feedback from stakeholders via a number of channels, outlined on the right-hand side of this board.

AQUIND will review the feedback received and, where possible, consider amendments to the design of the Interconnector and the proposed mitigation strategies.

Following the public consultation, AQUIND will produce a Consultation Report detailing all consultation undertaken, how AQUIND has sought to respond to the feedback received and how this has informed the final design and mitigation measures.

Comments can also be made on all planning applications once submitted to the relevant Local Authority.

How can stakeholders get involved ?

Email

Freepost

Telephone

Exhibitions

Have Your Say

If you would like to submit comments or have any questions, you can contact the project team via:

Infoline: **01962 893 869**

Email: **aquindconsultation@becg.com**

Freepost: **‘AQUIND CONSULTATION’**

Website: **www.aquindconsultation.co.uk**

or fill in a feedback form at the exhibition today.

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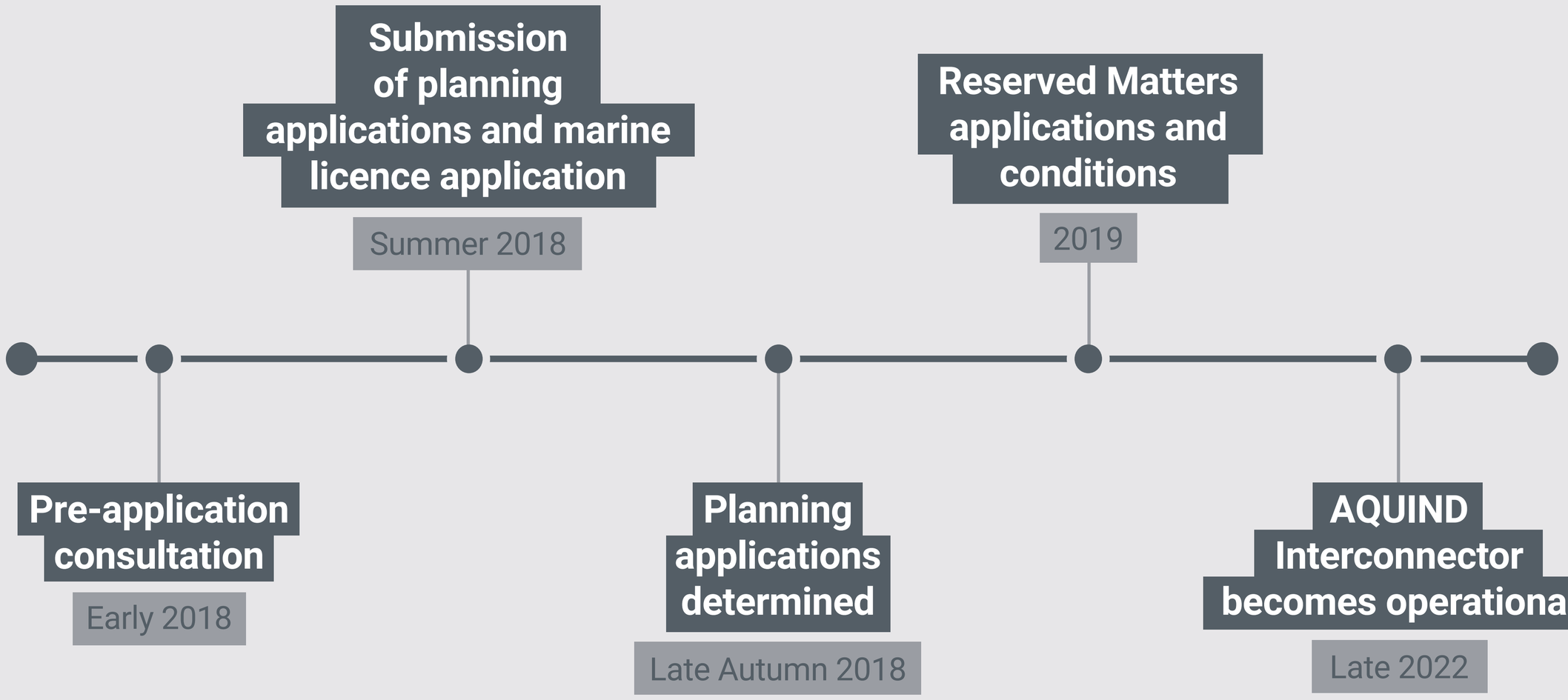
Indicative Project Timeline



What Happens Next

Due to the nature of the project, the onshore and offshore elements of AQUIND Interconnector will be considered by separate bodies, including the Marine Management Organisation and relevant Local Planning Authorities in the UK.

Similar applications will also be submitted to the relevant French planning authorities for the onshore and offshore elements located in France.

The Offshore Planning Process

The offshore works required to lay the subsea cables within UK waters can start once the Marine Management Organisation issues a Marine Licence in accordance with the Marine & Coastal Access Act 2009.

The Onshore Planning Process

The onshore works in the UK, which include laying the underground cables and constructing a new converter station at Lovedean, require planning permission in accordance with the Town & Country Planning Act 1990. The relevant local planning authorities are Portsmouth City Council, Havant Borough Council, East Hampshire District Council and Winchester City Council.

AQUIND is undertaking pre-application discussions with the relevant local planning authorities in order to prepare the appropriate documentation required, including formal scoping to identify matters to be considered in the accompanying Environmental Statement. Planning applications will be submitted to the local planning authorities as appropriate in Summer 2018. The planning applications may be in Outline or Full format, or a combination of the two (i.e. a Hybrid application) as appropriate. The planning process for the applications will take around 16 weeks, with formal consultation on the application proposals with statutory consultees and local communities embedded within the process. It is anticipated that the applications will be determined by late Autumn 2018, and reserved matters/discharge of condition applications submitted in 2019, seeking approval for the detailed design of the development.