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Welcome

Thank you for coming to this public exhibition about our proposals for a new interconnector linking the electricity transmission systems of Great Britain and France.

This is the first of two stages of public consultation and presents information about the background to the project, how we have got to the current proposals, and our proposed next steps.

We are seeking your views on the British part of this interconnector project; this consultation does not include the French elements of the interconnector project or the works to connect the interconnector project to the existing electricity network.

Members of the project team are present at today's event and are happy to discuss any queries or comments you may have about the proposals.

If you would like to be kept updated on the progress of our proposals, please leave your contact details in the sign-in book at the entrance. You can leave your views with us by completing a feedback form, available at the end of the exhibition.

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About us

National Grid is a major UK company which owns and manages gas and electricity infrastructure in the UK and in the northeastern USA. In the UK, National Grid runs the transmission systems that deliver gas and electricity across the entire country and provides power to millions of people. National Grid holds a vital position at the centre of the energy system, joining everything up.

To address changing patterns of energy generation and demand, National Grid is increasingly looking to join the UK's electricity transmission system to other countries' networks via interconnectors. We already operate links with France, known as IFA (Interconnexion France Angleterre), and the Netherlands, known as BritNed. National Grid has recently announced investments in new interconnectors to Belgium (known as NemoLink) and to Norway (known as North Sea Link).

National Grid IFA2 Ltd is the company that National Grid has formed to develop and bring forward the IFA2 project and is the holder of an interconnector licence. We are legally separate from other companies within National Grid, including National Grid Electricity Transmission plc (NGET).

NGET is a separate company responsible for the works to connect the interconnector project to the existing electricity network; the grid connection works must be kept separate from the interconnector and one company cannot do both by law.

For the purposes of connecting to the existing electricity network, National Grid IFA2 Ltd is a customer of NGET and can only connect in accordance with a connection agreement signed with NGET. National Grid IFA2 Ltd does not get preferential treatment.

Reseau de Transport d'Elecricite (RTE) is the French network owner and operator and RTE will be National Grid IFA2 Ltd's partner on this project. RTE will have responsibility for the French elements of the project.

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Consultation

Developing new interconnectors can affect the communities through which they pass. How we work with local people is important to us.

The purpose of this consultation is to help us understand how IFA2 might affect local communities and develop ways of addressing particular concerns. This is an important part of the planning process.

LISTENING: We will present information on the emerging proposals and ask for your feedback on how we got to this point, as well as the potential impact of the project.

UNDERSTANDING: We will analyse your comments. These will inform the way we manage the impact of IFA2.

RESPONDING: We will hold further consultation events in the New Year to respond to your feedback. All feedback will be submitted as part of our applications to Fareham Borough Council and the Marine Management Organisation.

In this consultation, we are seeking your views on the parts of the project we are responsible for: a new converter station and onshore and offshore cables.

The consultation seeks views on the potential impact of the proposals and possible means of mitigating them, as well as National Grid IFA2 Ltd's choice of preferred converter station site and cable routing.

We need to seek consent from Fareham Borough Council for the onshore parts of our proposals and the Marine Management Organisation for the offshore elements. We will submit two separate applications: an outline planning application to Fareham Borough Council, and a Marine Licence Application to the Marine Management Organisation.

The proposed connection of the interconnector to the national electricity transmission system at Chilling is the responsibility of NGET, a legally separate company.

Our French partner, RTE is consulting on the French parts of IFA2. The proposed connection point and converter station in France will be at Tourbe in Normandy.

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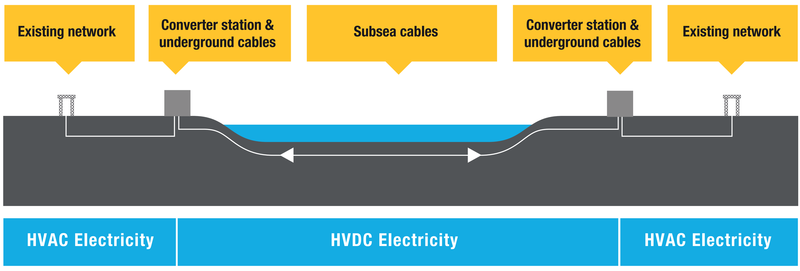
What is an HVDC interconnector?

IFA2 will be a high voltage direct current (HVDC) electricity interconnector. This is a connection between the electricity transmission systems of two different countries. An interconnector allows countries to share power, helping to ensure secure, sustainable and affordable energy supplies.



Being an island, Great Britain requires connections with other countries to be made using subsea cables. Differences between electricity transmission in Great Britain and continental Europe, as well as the distances involved, require using high voltage direct current HVDC.

This in turn requires a converter station in each country to change the electricity into the Alternating Current (AC) used in each national transmission system.

A substation is also needed as a point of connection to the national electricity network so that it can be delivered to consumers.

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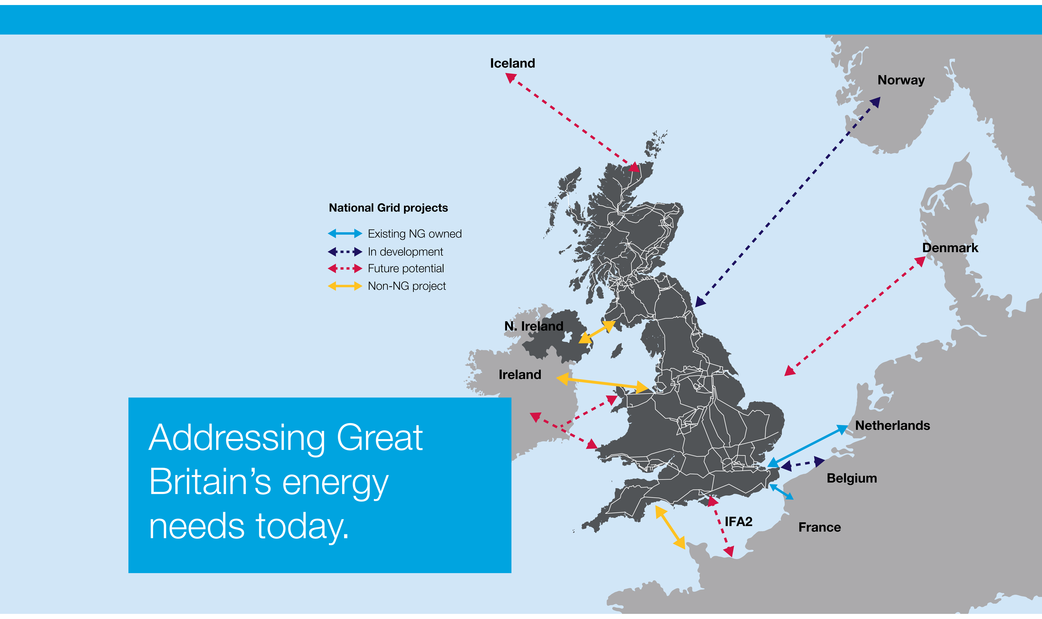


Getting more connected

Interconnectors provide a responsible, and efficient way of addressing Great Britain's energy needs.

IFA2 would provide the capability to export or import 1,000MW of power and provides three important benefits for our national energy requirements:

AFFORDABILITY

IFA2 will connect to France, which in turn connects to the wider European electricity market. By giving Great Britain access to the European electricity market, IFA2 should help create downward pressure on wholesale electricity prices. This is because the wholesale electricity price in Great Britain is forecast to be higher than in France for many years to come. We estimate that each 1,000MW of new interconnector capacity has the potential to reduce wholesale prices in Great Britain by up to 2%.

SECURITY OF SUPPLY

Interconnection gives access to a wide range of electricity generation sources and provides a means to bring in extra supplies from elsewhere when not enough is generated to meet need at that time. This increases our energy security if demand rises or energy generation falls suddenly in Great Britain.

SUSTAINABILITY

Interconnectors help manage the fact that not all electricity sources can generate consistently and predictably and that electricity cannot yet be stored efficiently on a large scale. They do this by providing a means to pass on surplus energy between countries when too much is generated at once to be used domestically. This should make a significant contribution to forging a lower carbon economy both in Great Britain and Europe.

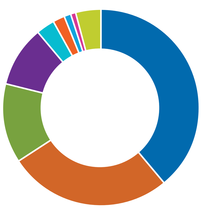
The European Commission has identified IFA2 as a Project of Common Interest (PCI). This means it should deliver benefits for at least two European Member States, further support market integration and competition, enhance security of energy supply, and contribute to reducing CO2 emissions. PCIs are governed under Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure, referred to as the TEN-E Regulations.

FRANCE GENERATION MIX

Nuclear	50%
Hydro	20%
Embedded	6%
Wind	6%
Oil	6%
Coal	5%
CCGT	4%
Solar	3%

GB GENERATION MIX

CCGT	39%
Coal	27%
Nuclear	13%
Wind	10%
Pumped Storage	3%
Hydro	2%
Biomass	1%
CHP	1%
Other	4%



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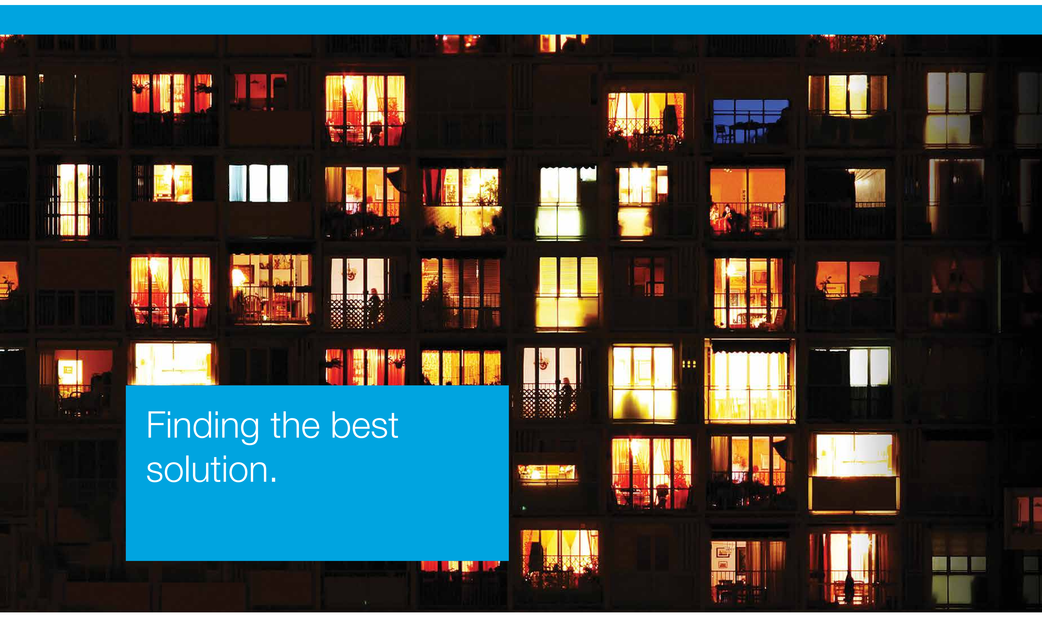
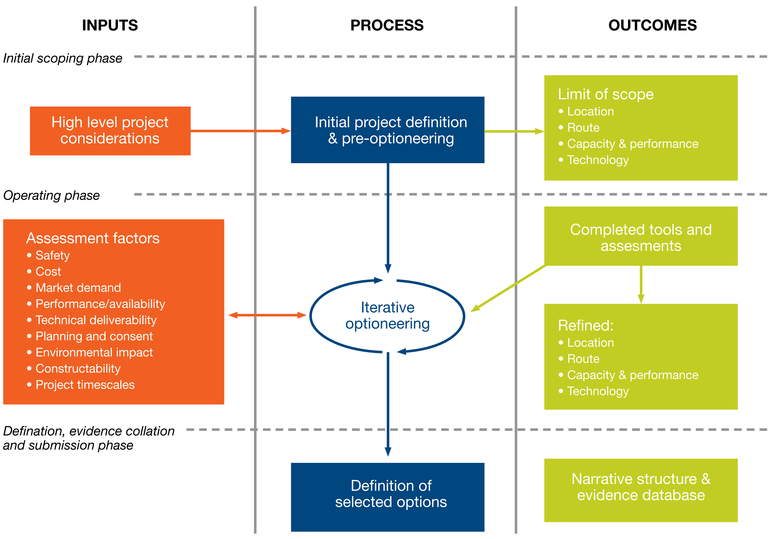


Assessing options

IFA2 would be a complex piece of infrastructure with multiple components. In each case, we must find the right location and way of putting that component in place.

There were a number of decisions we needed to make before we could come forward with public proposals. These included securing an offer for an appropriate connection point, a preferred route for the cables and a site for the converter station.

The diagram below summarises the process we have followed for each part of IFA2:



We have worked closely with key stakeholders and others to find the best location for our new development. Our options for IFA2 have most recently been informed by discussions with Fareham Borough Council and Hampshire County Council.

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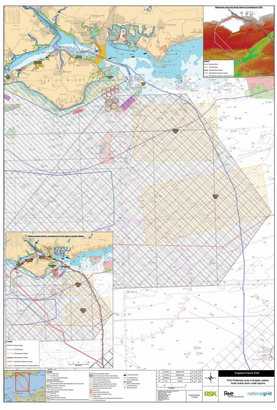
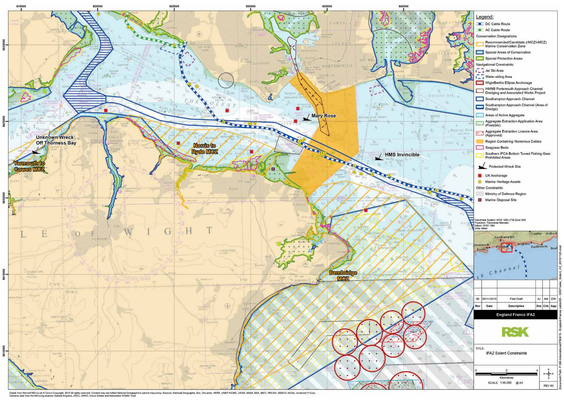
Subsea cable routeing

An essential component of IFA2 is the subsea cables which will connect Great Britain and France. Along with survey data we have been discussing the best route for these cables with maritime stakeholders including fishermen, Natural England, the Marine and Coastguard Agency, Trinity House, the Royal Yachting Association, the Chamber of Shipping, Historic England and Portsmouth and Southampton harbourmasters to understand and limit the impact of our proposals to the marine environment.





There are significant marine and navigational constraints around the Calshot and Fawley area for cable routeing and installation. There are notable precautionary areas for large vessel turning, the dredged Thorn Channel, the North Channel, and Calshot Reach that a pair of HVDC cables would need to cross. There is the National Park area on this Western coastline. A cable route across the English Channel entering the Solent from the East around the East of the Isle-of-Wight and with a landfall to the eastern shore of the Solent / Southampton Water avoids these constraints.

2012

Initial discussions with stakeholders including fishermen, Natural England, the Marine and Coastguard Agency and Portsmouth and Southampton harbourmasters.

We began our geophysical surveys to understand the nature of the sea bed.

2013

We continued our geophysical surveys and began geotechnical and ecological studies.

2014

We continued our geotechnical studies in the Portsmouth and Southampton area and we met with stakeholders including fishermen and Natural England.

2015

Further discussions with stakeholders including fishermen, Natural England, the Marine and Coastguard Agency, the Royal Yachting Association, the Chamber of Shipping, Historic England and Portsmouth and Southampton harbourmasters, Trinity House, Cruising Association, and MMO.

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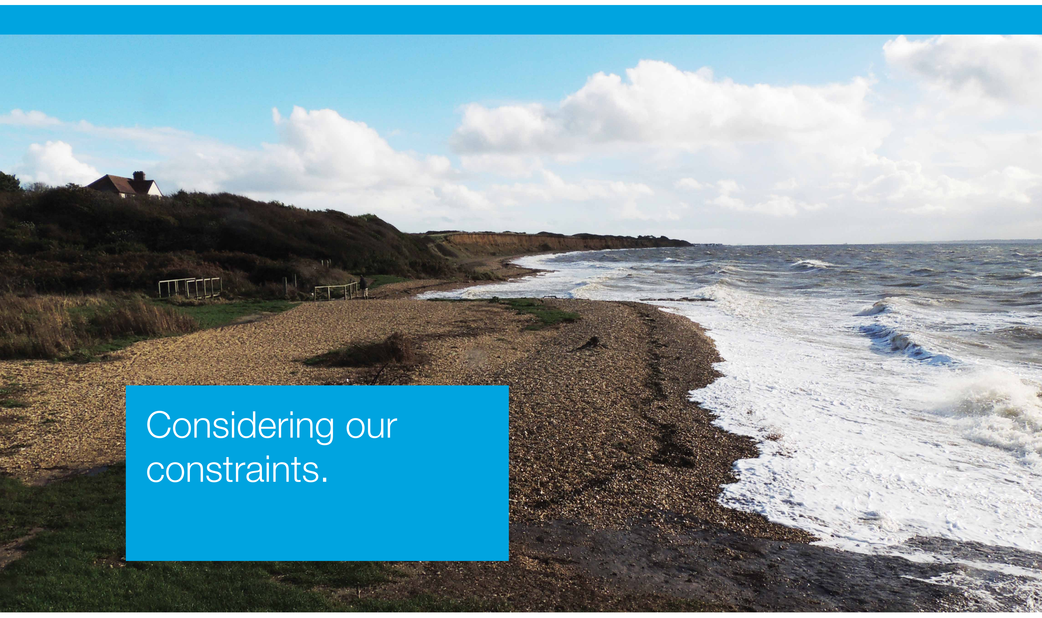

Considering our constraints.

Why offshore for HVAC connection?

We considered the options for routeing the cables from the converter station to the connection point on the grid.

There are significant constraints on routeing new cables in the area between Daedalus and Chilling. There are a number of designated sites of environmental interest in this area, open space safeguarded as Strategic Gap by Fareham Borough Council, and a range of other proposed and consented developments including the Stubbington Bypass. These constraints mean that routeing cables overland between the converter station and connection point could have a significant environmental impact.

Routeing the AC cables offshore provides an effective alternative. Having considered potential impacts and views of local authorities, we are taking forward the cable route from the converter station at Daedalus to the connection point on the grid at Chilling via an offshore route.

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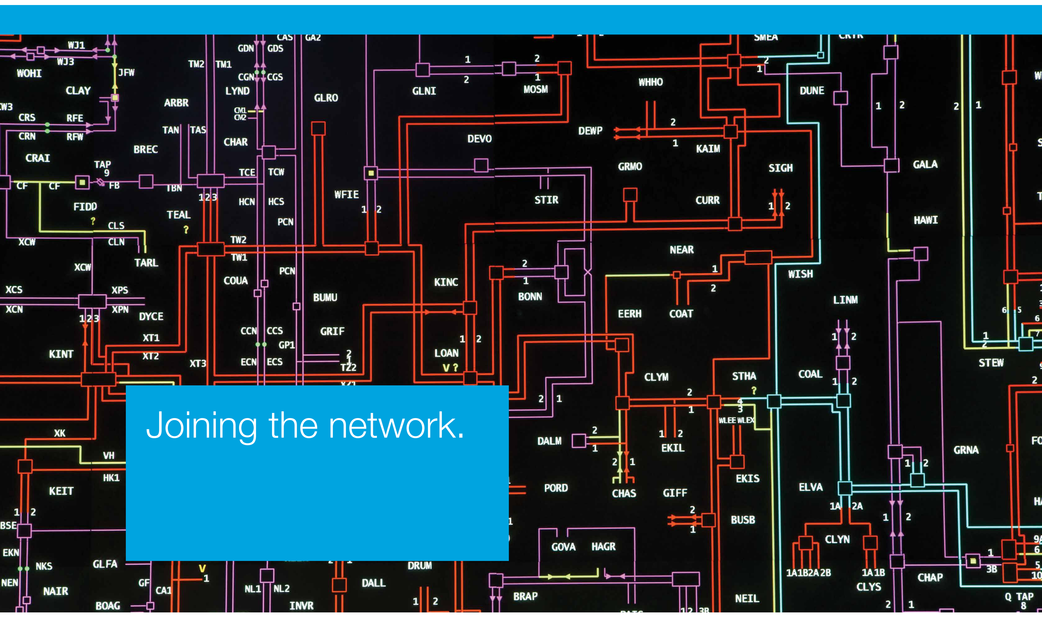


Connection point

IFA2 has to connect to the existing electricity networks in both countries. As such, the search for grid connections has to be geographically compatible. In Great Britain, this involves agreeing the connection point to the existing British network with NGET. The process followed to select the Chilling site as the connection point for IFA2 is the same as that followed by all proposed interconnectors

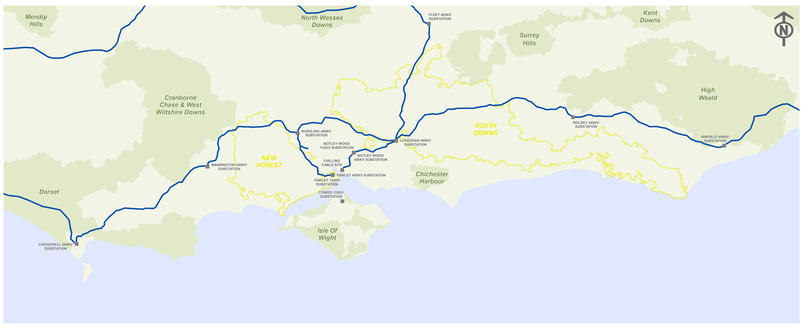
Three distinct areas of consideration were identified for potential connection to the British grid along the south - Devon and Dorset, Hampshire and West Sussex and Kent and East Sussex.

Early discussions with NGET indicated that connections in the Devon and Dorset area would not be economically viable as there was limited generation in the area and therefore the connection would be primarily 'import only' and not suitable for bi-directional flows between Great Britain and France.

Further discussions with both NGET and RTE indicated that connections around the narrowest point of The English Channel (from the Kent and East Sussex area and the North East of France) would not be suitable given the existing (IFA, BritNed) and proposed interconnectors (Nemo, ElecLink) in this area which bring network management issues in Great Britain and France relating to the flow of power in both directions on multiple HVDC links.

The search was therefore focused on the West Sussex, Hampshire and Dorset area. We considered the proximity of existing National Grid infrastructure to the coast, environmental designations, planning policy and technical constraints to routeing and siting of a feasible connection to the existing grid, landfall site, HVDC and HVAC connections and land for a converter station site.

This information is provided as background and does not form part of the consultation.



Existing National Grid Network and substation sites.

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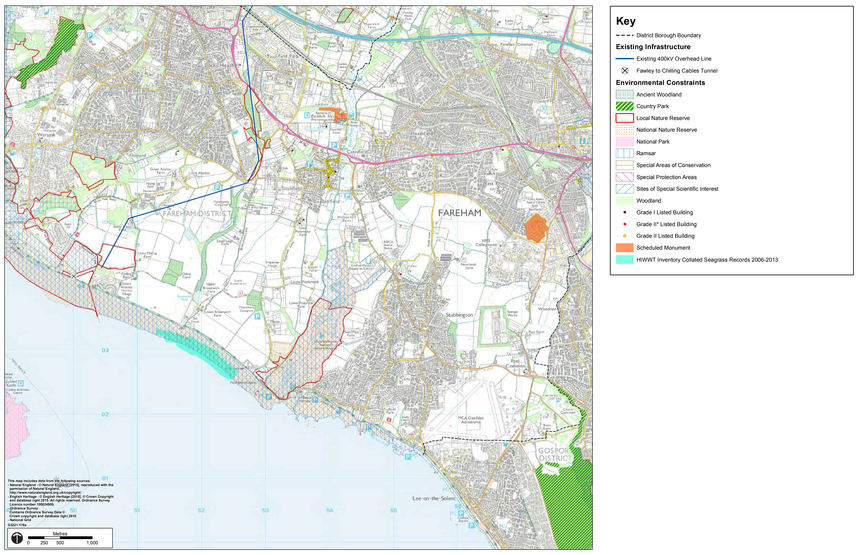
Siting the converter station

We looked for potential converter station sites within a wide zone of search of our agreed connection point. Distance from the connection point is an important consideration.



Area surrounding the connection point.

We seek to work with stakeholders to find the most appropriate options for development. This means that, even where an option is technically more challenging, we look to find the best local solution.

We have taken into account the stated preference of local authorities for a brownfield site and worked with them to find a suitable, commercially available location. From this it became clear that the most appropriate site to bring forward is at the Daedalus Airfield.

There is a vision for Daedalus as a centre of excellence for technology and engineering. We are attracted to this and believe that siting IFA2 at Daedalus is consistent with this vision.

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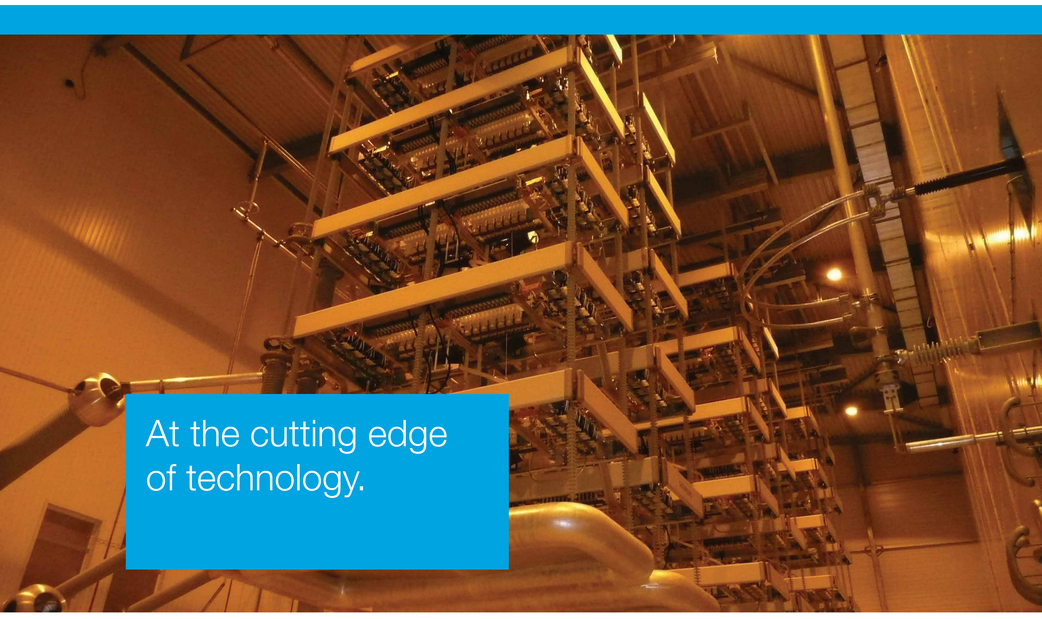

Technology

Converter stations

A converter station converts electricity between Alternating Current (AC), used in each country's transmission systems, to Direct Current (DC), used for transporting electricity along the subsea cables.

A typical converter station includes transformers, equipment similar to a typical substation, and power electronics involving solid-state transistor-based valves that convert waveforms between AC and DC, and a control room.

We are currently in the process of discussing converter technologies that would work best for IFA2 in terms of size, noise, performance and efficiency for IFA2 with specialist suppliers.

Cables

IFA2 will use different types of cables to link its component parts. There will be two HVDC cables.

The cables connecting the two converter stations will use HVDC. The cables will be armoured and will be buried under the seabed for the majority of the route. Sections of these cables will also run underground from the point they make landfall in Great Britain to the converter station.

The connection between the converter station and connection point at Chilling will use HVAC cables that will run from the converter station to the Solent, in the seabed, and from a landfall point near Chilling to the substation. Our proposals provide for the use of either Cross Linked Polyethylene (XLPE) or Mass Impregnated Non Draining (MIND) HVDC cables, and XLPE HVAC cables. Both cable types are used in this type of application around the world.

MIND HVDC Cable

HVDC XLPE

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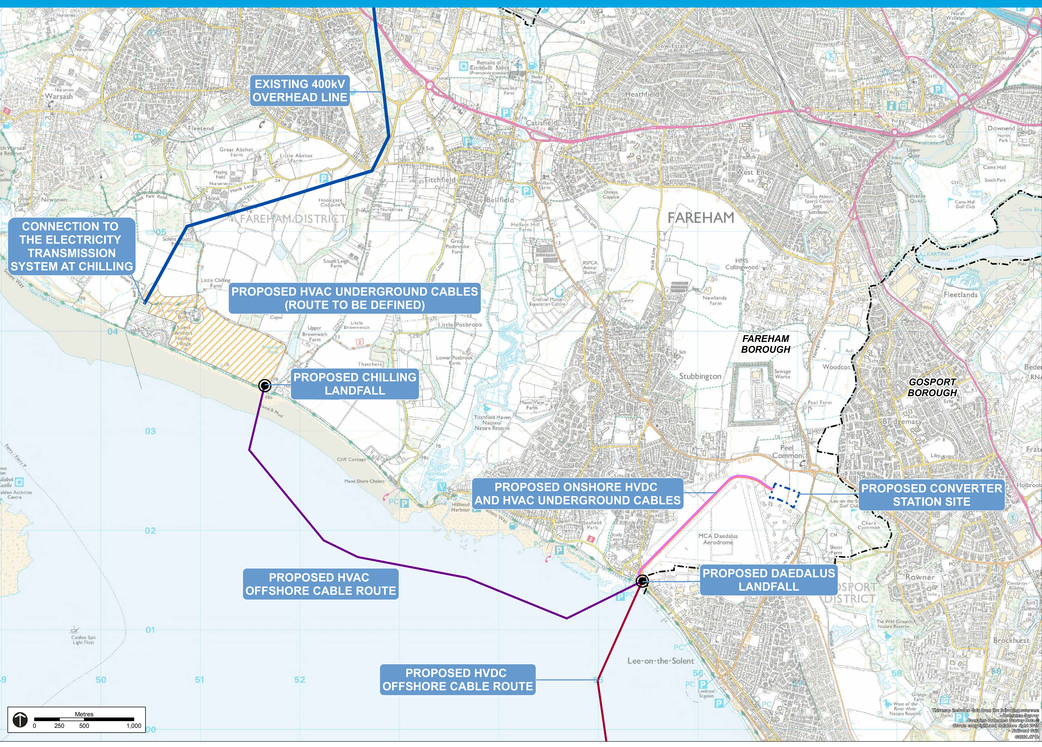

Emerging proposals

Please note that the details of proposals shown on the images on this board are indicative and we will consider feedback received as part of this consultation ahead of bringing forward the next stage of proposals.

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Environment

We are at an early stage of development and are carrying out a full range of onshore and offshore surveys to understand the potential environmental impact of our proposals.

These surveys will inform our Environmental Impact Assessments (EIA). We will submit these to Fareham Borough Council and the Marine Management Organisation when we seek outline planning consent and a Marine Licence respectively for IFA2.

Ecology

We have carried out a search of nationally and internationally designated sites along the route of IFA2. Parts of the cable route between Daedalus and Chilling pass through the Solent and Southampton Water Special Protection Area (SPA) and Ramsar site and Lee-on-the-Solent to Itchen Estuary Site of Special Scientific Interest (SSSI).

We are carrying out habitat surveys for a range of flora and fauna including Dark Bellied Brent Geese.

We have carried out a range of marine and intertidal surveys. Adverse effects on ecology from the cables' installation works can be avoided or reduced by careful routeing and by timing the works to take place when the least disturbance would occur. Areas of the highest nature conservation interest near Chilling will be crossed using trenchless techniques to avoid damaging habitat important to overwintering birds.

Our studies and investigations to date suggest there is a relatively low ecological interest at Daedalus Airfield.

Dark Bellied Brent Geese

Seagrass

Sand-tube building worms

Drainage

We will carry out a Flood Risk Assessment as part of our EIA, in consultation with the Environment Agency and Southern Water. This will involve collection of data from geological and groundwater maps, soil surveys, borehole records, site investigations, and Environment Agency and Southern Water records.

We will comply with guidance on flood risk to mitigate any adverse effects during construction and will follow working methods to avoid risks to water quality.

Noise and vibration

We will carry out an assessment of the potential impact of noise and vibration effects associated with IFA2. This will include an analysis both of proposed construction activity and the likely impact of IFA2 once it is completed and operational.

HEALTH AND SAFETY

The potential for Electric and Magnetic Fields (EMFs) is an issue often raised in relation to high voltage underground cables, electricity substations and other electrical installations. The safety of the public, local communities and our employees is central to everything that National Grid does. As such we are committed to follow independent guidelines recommended by Public Health England and adopted by UK Government for the protection of public health. For further information on EMFs visit National Grid's website, www.emfs.info. If you would prefer to talk about your concerns or would like information sent via the post, please do not hesitate to call the EMF helpline on 0845 702 3270.

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Siting and design of the converter station.

What could it look like?

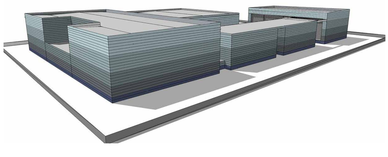
We recognise the importance of visual and landscape amenity and will carry out an assessment of the landscape and visual impact of our proposals.

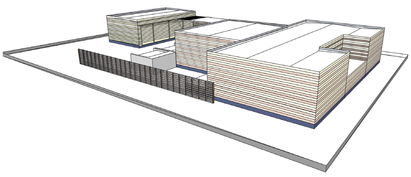
The main visual impact of the proposals will be as a result of the converter station itself. The rest of our proposals will be below ground or beneath the seabed and you will not be able to see them after construction.

The converter station will require substantial electrical equipment, which will be housed in buildings. The images on this board are indicative and are intended to give an idea of how this might look.

We are currently in the process of discussing which technologies would work best at Daedalus with specialist suppliers. The outcome of these discussions will affect the precise form of the proposed converter station, which we will discuss with Fareham Borough Council.

We will apply for outline planning permission which if granted means we will need to seek further permission from Fareham Borough Council for our detailed designs.





Illustrated artists' impressions of converter stations

The effects of the converter station on the landscape and on views will be mitigated by appropriate architectural treatment, particularly the ways in which the outsides of the buildings are clad or finished taking note of existing buildings in the surroundings.

Examples of cladding

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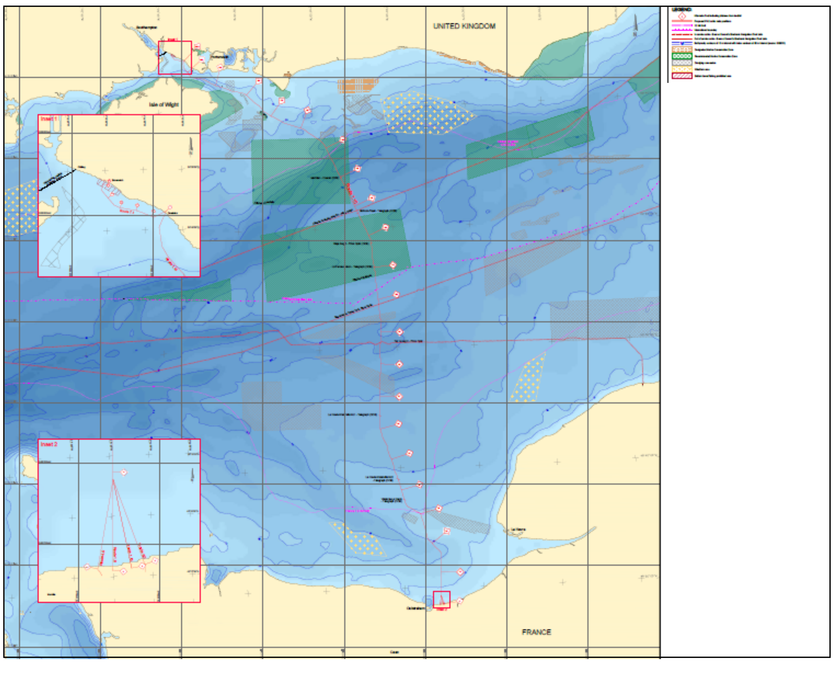
Marine issues

The subsea HVDC cables which will connect Great Britain and France are an essential part of IFA2. We recognise that the Solent is a very busy waterway and there is a need for clarity around the offshore aspects of the proposals. We have been working with many maritime stakeholders, including fishermen, to ensure that our proposals are clear, appropriate and achievable, and we will continue to do so.

We are at an advanced stage of our considerations regarding the offshore parts of the proposals. Extensive survey work and consultation with maritime stakeholders have allowed us to understand and limit the impact of our proposals on the marine environment. The proposed route of the cable has been developed based on constraints already present in the area, such as important navigational routes, anchorage areas, the surface geology and sediment movements and ecological interests. In addition to the sensitive development of the route itself, particular installation methods and timing will be selected for the construction in certain areas, all factors which will help to reduce the impact of the development on the environment.

We will need to submit a Marine Licence Application to the Marine Management Organisation for the British offshore parts of the proposals, demonstrating that we can comply with the rigorous standards for marine protection we anticipate that the Marine Licence will require.



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Working in the local area

We see ourselves as long-term members of the local community and want to be good neighbours from the start.

We are at an early stage in our design work and will aim to minimise any disruption as far as possible during any further exploratory work required and construction if granted planning permission.

We will submit a Construction Management Plan alongside the planning application informed by our Environmental Impact Assessment, which will set out how any potential impacts will be managed during construction.

Offshore cabling

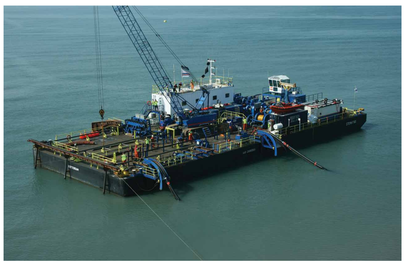
Subsea cables are installed using large specialist vessels which are able to transport and lay long sections of cables (up to 100 km). The cables will be buried in the seabed. Some cable joints will need to be made at sea during the installation process.

Onshore cabling

The proposed HVDC and HVAC underground cables at landfall points will be installed using a variety of methods including ‘open cut’ installation method, by horizontal directional drilling (HDD) and ‘pipe jacking’. ‘Open cut’ involves digging a trench and laying a cable. Horizontal directional drilling involves drilling a borehole underground for the cable and does not need a trench to be dug. At points we may need to use a technique called ‘pipe jacking’, which involves pushing a pipe through the soil to create room for the cable. The excess soil is then removed. This can be useful for avoiding disruption to roads and runways. We may use all techniques at different points. Techniques are selected based on analysis of local geology, ecology and engineering requirements.

Converter station

Construction of the converter station will depend on the final design and technology chosen. It is likely that the ground works and construction of buildings would come first, followed by the installation of electrical equipment.



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Timeline

July 2015:
Ofgem grants regulatory approval to IFA2

December 2015:
First round of public consultation

Early 2016:
Second round of public consultation. A summary and analysis of all comments will be included in a Consultation Report as part of our applications.

March/April 2016
Submission of outline planning application and Marine Licence application

September 2016:
Decision on outline planning application

November 2016:
Investment decision

2017:
Design finalised for final planning application and appointment of contractors

2018:
Construction scheduled to start

2020:
Construction due to be completed – IFA2 is operational

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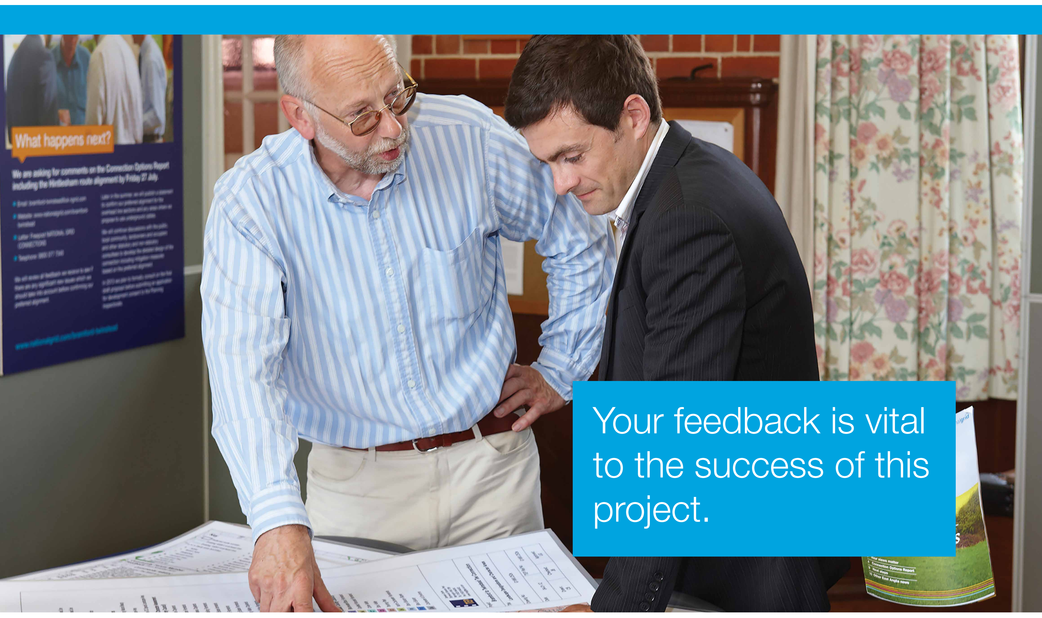


Next steps

Thank you for taking the time to attend today's exhibition on our emerging proposals for IFA2.

We are seeking feedback on how to assess and mitigate any potential impacts of the parts of the project we are bringing forward, as well as how we arrived at our preferred option - the new converter station and onshore and offshore cables. We would also like to know if there is any other information you think we should be aware of.

Please share your thoughts on the plans with us by completing a feedback form. We will consider all the consultation responses and report back at a second round of events in early 2016. A summary and analysis of all comments will be included with our applications to Fareham Borough Council and the MMO.

If you would like to be kept updated, please leave your contact details in the sign-in book or on a feedback form.

Contact us:

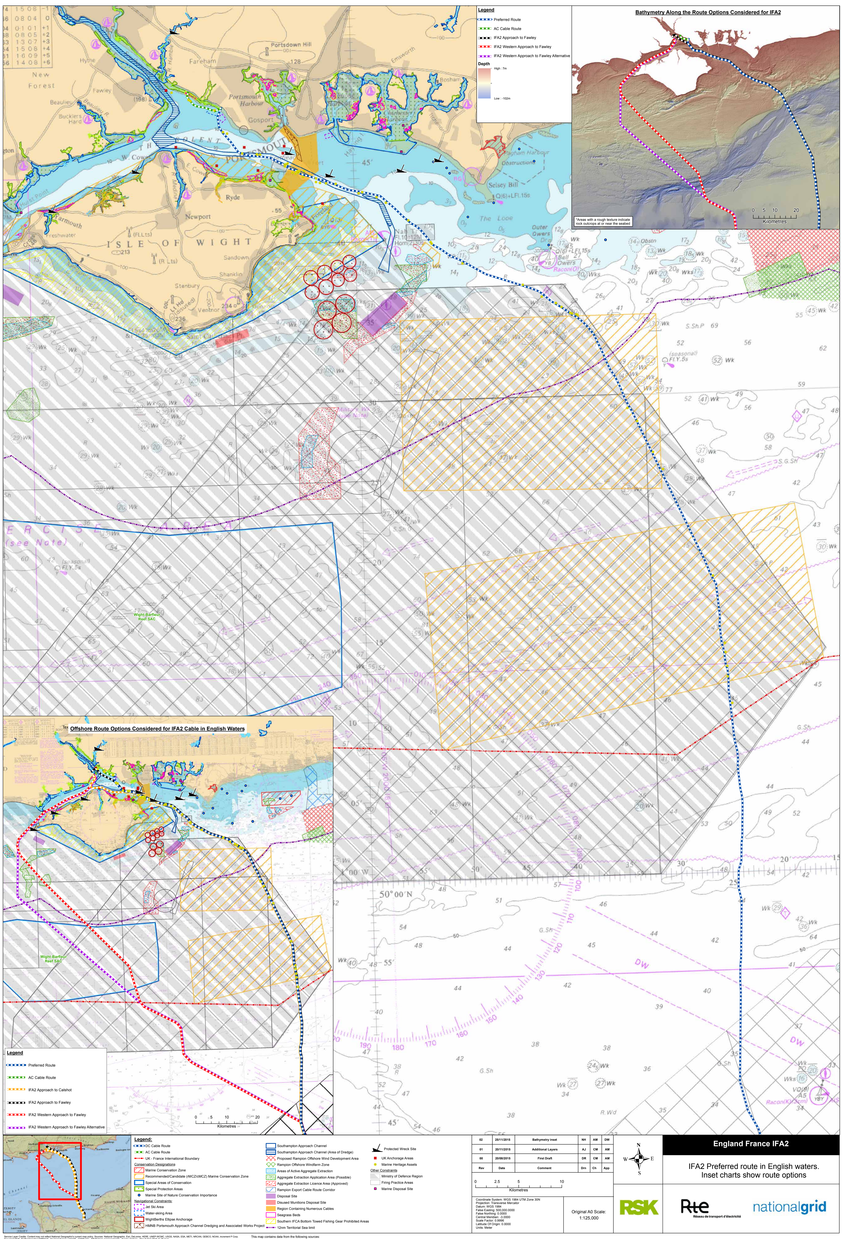
T: 0800 0194 576 **W:** www.ifa2interconnector.com

nationalgrid

IFA2

Interconnexion France-Angleterre

Preferred route



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