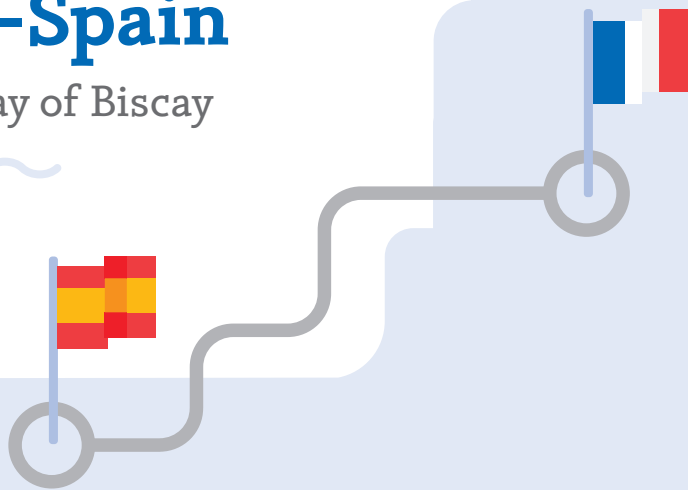




**inelfe**

# Electricity interconnection France-Spain

across the Bay of Biscay



**Public  
participation  
leaflet**

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[www.inelfe.eu](http://www.inelfe.eu)



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# The new electricity interconnection across the Bay of Biscay...

*The interconnection consists of four cables, two per link. This submarine and underground direct current dual connection will be 370 km in length, running between the Cubnezais substation (near Bordeaux, France) and the Gatika substation (near Bilbao, Spain).*

*It will have two converter stations - one at each end of the link - that will convert the direct current to alternating current for connection to the electricity transmission grid of each country.*

## KEY FIGURES



Increase exchange capacity up to

**5,000** MW



**4** cables  
(2 per link)

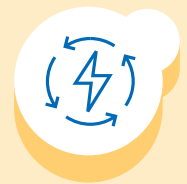
**370** km

Length of the interconnection



Transmission capacity

**2 x 1,000** MW



# ...strengthening the interconnection between Spain and France



An inter-connected European energy network is vital for European energy security and competitiveness, as well as for achieving the decarbonisation and climate change targets to which the EU is committed. An inter-connected network will help achieve the EU Energy goal: guarantee affordable, safe and sustainable energy compatible with growth and employment throughout the European Union.

To achieve these goals, the European institutions are promoting and politically supporting the development of interconnections between the Iberian Peninsula and the rest of the EU. Hence, for the first time, the European Council meeting in Barcelona in March 2002 approved the goal for Member States to reach a level of electricity interconnection of at least 10% of installed generation capacity by 2020. Subsequently, the Madrid Declaration was signed at the France-Portugal-Spain Summit on 4 March 2015 ratifying the importance of mobilising all necessary efforts to achieve the minimum electricity interconnection target of 10% by 2020 and increase it in subsequent years.

## Cornerstones of the European Union energy policy

### Develop a fully operational and interconnected Energy Union

to enable energy diversification and guarantee security of supply.

### Promote the integration of renewable energies so that

**27 %** of total energy consumption comes from renewable sources, hence reducing energy dependency.

### Reduce greenhouse gas emissions by

**-40 %** compared to 1990 levels.

## Advantages

### Improved security of supply guarantee

The more meshed and interconnected electricity systems are, the more stable they are. Interconnections are one of the main factors in order to ensure the security of supply.

### Increased efficiency of interconnected systems

Less need for generation power stations to cover demand peaks (at 19:00 in France and at 21:00 in Spain) and lower generation costs.

### Economic benefits for the electricity system

By using surplus capacity on the lines that is not used for security of supply, commercial electricity exchanges are set up on a daily basis in order to most efficiently harness the electricity generation differences in each country.

### Increased integration of renewable energies

As interconnection capacity increases, the volume of renewable generation that a system is capable of integrating safely is maximised given that the renewable energy not needed by its own system can be sent to other neighbouring systems instead of being wasted.

### +INFO

#### 1. National Grid Development Plan (FR)



#### 2. 2015-2020 Electricity Transmission Grid Development (SP)



#### 3. European Commission's Transparency Platform (ENG)



#### 4. Projects of common interest (ENG)



- <http://www.rte-france.com/fr/article/transition-energetique-et-revolution-numerique-plus-de-10-milliards-d-euros-d>
- <http://www.minetur.gob.es/energia/planificacion/Planificacionelectricidadygas/desarrollo2015-2020/>
- [https://ec.europa.eu/info/about-european-union/principles-and-values/transparency\\_en](https://ec.europa.eu/info/about-european-union/principles-and-values/transparency_en)
- <https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest>

# A dual submarine connection

## 1 THE CONNECTION TO THE SPANISH ELECTRICITY GRID

The interconnection will be connected to the Gatika substation, located to the north-east of Bilbao and 10 km from the Basque coast. To do so, the existing Gatika-Lemoiz infrastructure comprising two 400 kV electricity power lines will be used. The route will leave the converter station to be built near the Gatika substation heading towards the Bay of Biscay area.

The process for presenting the document will be carried out in accordance with the Spanish Environmental Impact Assessment procedure, and the document will summarise the following: the characteristics and location of the project; the analysis of the potential impacts from the various alternatives for the converter and the line; and a territorial and environmental diagnosis of the effects caused by the project.

## 2 THE SUBMARINE SECTION

The link will connect to the Gatika electricity substation (in Bilbao) and the Cubnezais substation (to the north of Bordeaux).

The submarine section will be approximately 280 km in length, from the Basque coast to the French Médoc coast.

The choice of route and placement of the cable on the sea floor will minimise the impact on maritime activities, especially fishing.

## 3 THE CONNECTION TO THE FRENCH ELECTRICITY GRID

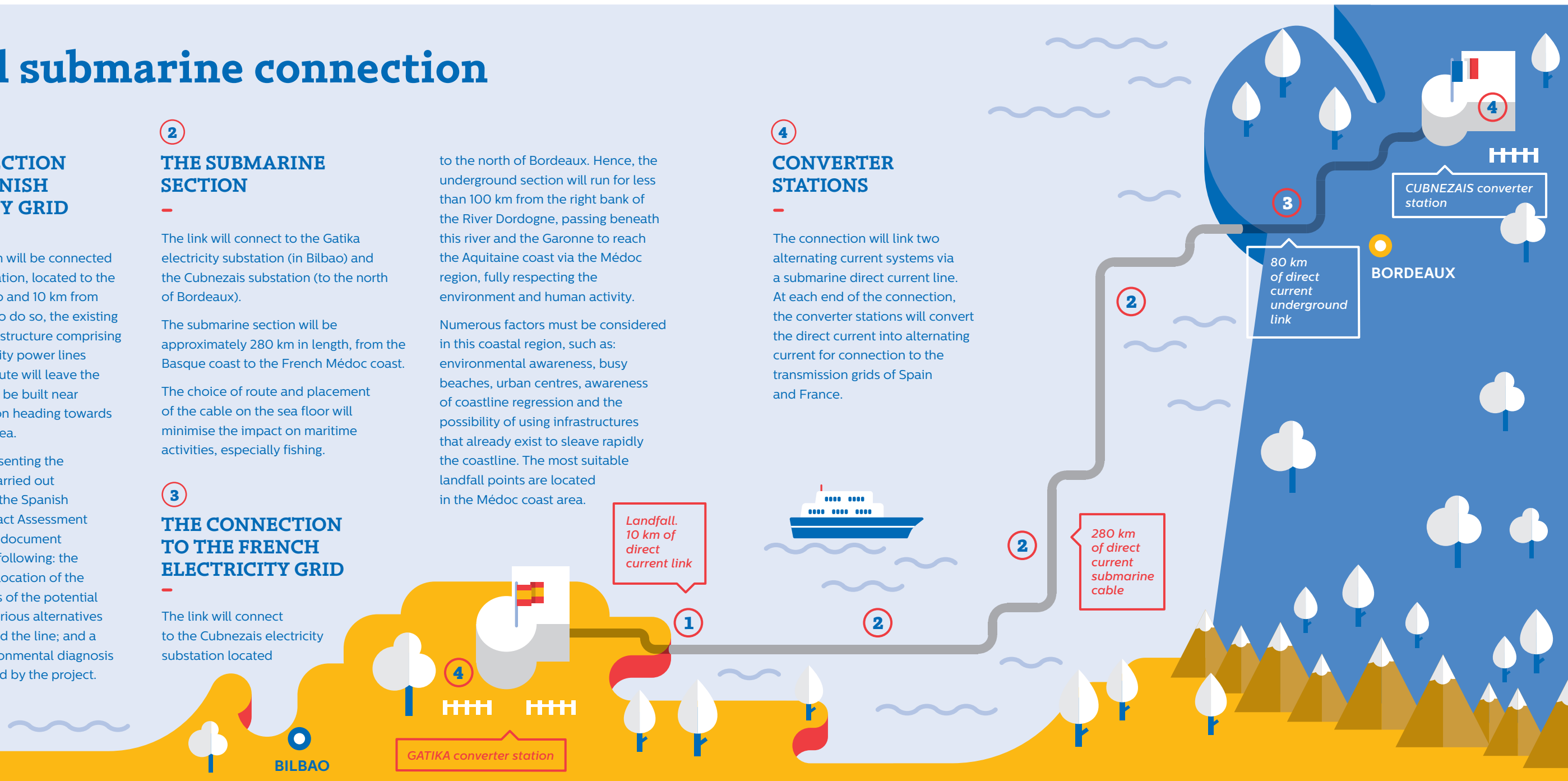
The link will connect to the Cubnezais electricity substation located

to the north of Bordeaux. Hence, the underground section will run for less than 100 km from the right bank of the River Dordogne, passing beneath this river and the Garonne to reach the Aquitaine coast via the Médoc region, fully respecting the environment and human activity.

Numerous factors must be considered in this coastal region, such as: environmental awareness, busy beaches, urban centres, awareness of coastline regression and the possibility of using infrastructures that already exist to sleave rapidly the coastline. The most suitable landfall points are located in the Médoc coast area.

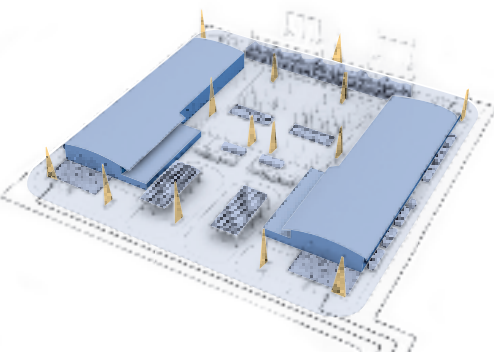
## 4 CONVERTER STATIONS

The connection will link two alternating current systems via a submarine direct current line. At each end of the connection, the converter stations will convert the direct current into alternating current for connection to the transmission grids of Spain and France.

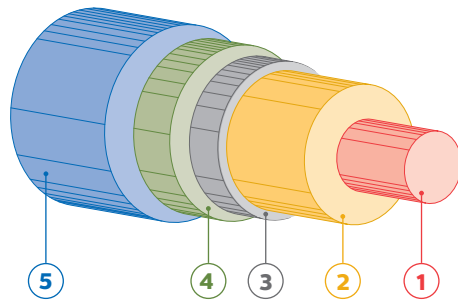


### Converter stations

The converter stations cover an area of approximately 5 ha and will be approximately 20 m high.



### The submarine cable

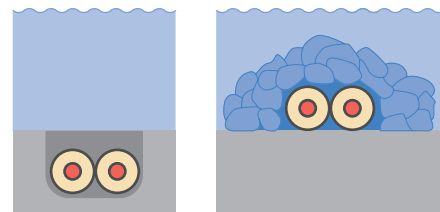


Ø 10-20 cm

- 1 Copper or aluminium conductor
- 2 Insulation
- 3 Metal screen
- 4 Armour
- 5 Outer protective casing

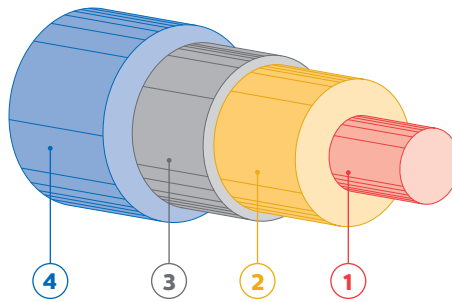
### Submarine cable laying

Each cable will be placed on the sea bed with the help of a cable-laying ship. Generally-speaking, the cables will be buried for protection except where the ground is too hard, where they will be covered.



Buried Covered

### The underground cable

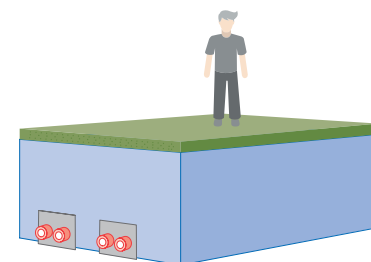


Ø 10-20 cm

- 1 Copper or aluminium conductor
- 2 Insulation
- 3 Metal screen
- 4 Outer protective casing

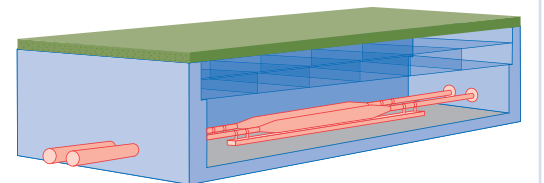
### Trench

Each trench will contain a pair of cables, and the two trenches will be separated by a minimum distance of 1 m. Once work is completed, they will be covered over to hide them from sight.



### Junctions

The underground cables will be installed in sections of approximately 1 km, each connected via a junction chamber. A similar, albeit slightly larger, device will be used to connect the submarine cables to the underground cables. These devices will be located far from the shore and will eventually be covered over because permanent access is not required, leaving them totally hidden from view.



# A project of European interest to be built together

**This project** poses a challenge for France, Spain and Europe in the achievement of their goals towards energy transition. For this reason, on 14 October 2013, this project was designated by the European Commission and the European Parliament as a 'Project of Common Interest' (PCI) within the framework of the European regulations on Trans-European energy infrastructure (347/2013).

**Increased interconnection capacity...**

The Bay of Biscay link will enable an interconnection capacity of 5,000 MW, compared with the existing 2,800 MW.

**...for harnessing synergies**

The energy mix and periods of peak demand are different and complementary in the two countries.

**...and boosting energy efficiency**

Increased interconnections reduce the cost of generation and streamline the energy system. (\*)

\* According to the ENTSOe study entitled 'Ten Years Network Development Plan 2016'.

**+INFO:**  
TYNDP 2016



<http://tyndp.entsoe.eu/>

## Public participation

Each State will analyse and authorise the project based on its own procedures for electricity infrastructure. Besides prior consultation in each country based on their respective regulations, France and Spain must guarantee public participation and public access to information in accordance with European requirements for all Projects of Common Interest. These actions can be undertaken in a variety of ways but should at least have a website dedicated to the project, public meetings and a specific organisation capable of guaranteeing the collection of comments and responding to any type of question. This will ensure the population feels involved in the various stages to define the routes and technical specifications of the project. During the public consultation and information stages, a number of routes will be proposed and the most suitable will be the one generating the lowest environmental impact.

1. <https://www.ecologique-solidaire.gouv.fr/interconnexions-electriques-manuel-des-procedures>
2. <http://www.minetad.gob.es/energia/es-ES/Documents/manual-procedimiento-autorizacion-PCIs.pdf>

**+INFO:**

1. **Procedures manual (FR)**



2. **Procedures manual (SP)**



## Project calendar



## The project leaders

**INELFE** is a simplified joint-stock company with shares held equally by Red Eléctrica de España (the public transmission grid manager in Spain) and its French counterpart, Réseau de Transport d'Electricité. Its mission is to build and implement interconnections between the two countries in order to increase the electricity exchange capacity between the Iberian Peninsula and the rest of Europe.

**Juan Prieto**  
Project leader  
in Spain

**Antonio Miranda**  
Consultation process  
manager in Spain

**Etienne Serres**  
Project leader  
in France

**Marc Chambily**  
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