



Celtic Interconnector

Underground Cables
2020



The current. The future.



Co-financed by the European Union
Connecting Europe Facility



1. Who are EirGrid and what do we do?

EirGrid as an organisation is responsible for a safe, secure and reliable supply of electricity – now and in the future.

We develop, manage and operate the electricity transmission grid. This grid brings power from where it is generated to where it is needed throughout Ireland. We use the grid to supply power to industry and businesses that use large amounts of electricity.

The grid also powers the distribution network and supplies the electricity you use every day in your homes, businesses, schools, hospitals and farms.

2. What is the Celtic Interconnector Project?

The Celtic Interconnector is a proposed link to allow for the movement of electricity between Ireland and France. It will import and export high voltage electricity as direct current (DC) using a subsea (undersea) cable.

At either end of this cable, the electricity then needs to be converted to alternating current (AC) so it can connect with the national grid in each country. We have worked with our counterpart in France, Réseau de Transport d'Électricité (RTÉ), to develop an interconnector between our two countries.

If planning permission is granted, we anticipate that construction will begin on the interconnector in 2022 and that it will go live in 2026.

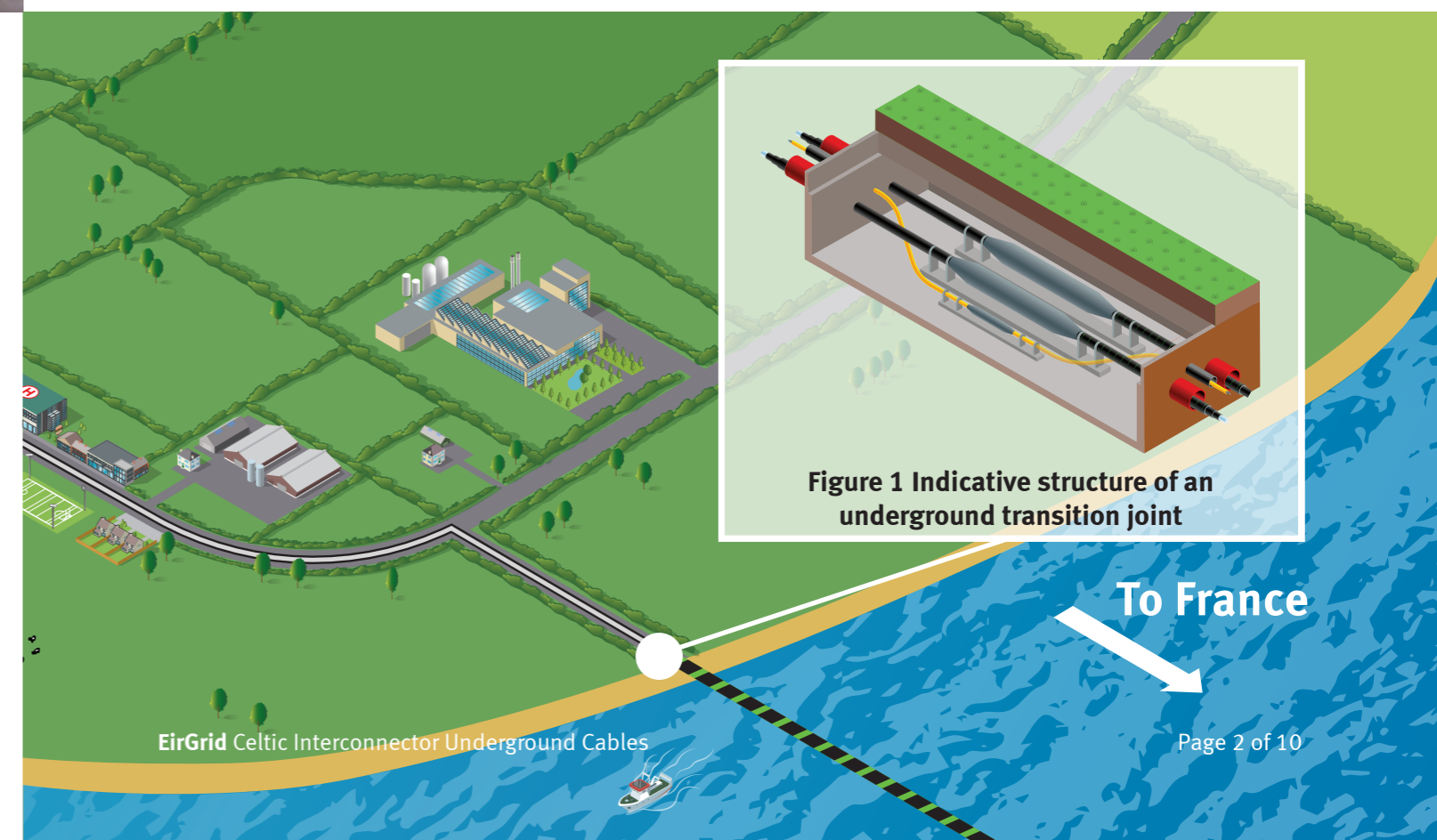
3. Underground Cable Route

3.1. Landfall Location

A landfall location is where the subsea electricity cable will connect to an underground electricity cable. Our landfall studies have identified that Claycastle Beach, south of Youghal, is emerging as the best performing landfall option.

At Claycastle, this connection would be installed behind the beach where the subsea cable comes ashore.

The connection will be made underground using a transition joint and Claycastle Beach will be restored to its original condition once construction is complete (Figure 1). There will be no visible structures on the beach once the cable is installed.



3.2. Onshore Cable Route

After the subsea cable reaches land, an underground cable will then carry the high voltage direct current (HVDC) electricity to the converter station.

Within the first few kilometres of the HVDC cable route from Claycastle Beach towards the converter station, the route runs at the eastern edge of Ballyvergan marsh, an ecologically delicate area. The installation works here can be carried out sensitively to minimise their impact.

The emerging route of the HVDC cable then proceeds to Churchtown (Figure 2), mainly along the N25. We are very aware that the N25 is an important National Primary Road and any impacts to users of the N25 will be minimised by the use of traffic management. To minimise the potential issues caused by the works in Killeagh and Castlemartyr, we are exploring options that could divert the cable off the public road network around these villages.

We will continue to explore options and engage with stakeholders regarding the cable routes as the project develops.



Figure 2 Celtic Interconnector emerging HVDC Underground Cable Route Claycastle to Churchtown

From Churchtown the emerging route of the HVDC cable then proceeds to the potential converter station site (Figure 3), making use of the local road network bypassing Midleton to the north. Figure 3 shows a potential route from Churchtown to a converter station sited at Ballyadam, near Carrigtwohill, which is one of the converter station sites under assessment. The map also shows a sample route from this site to the connection point in Knockraha. This connection would be a high voltage alternating current (HVAC) underground cable.

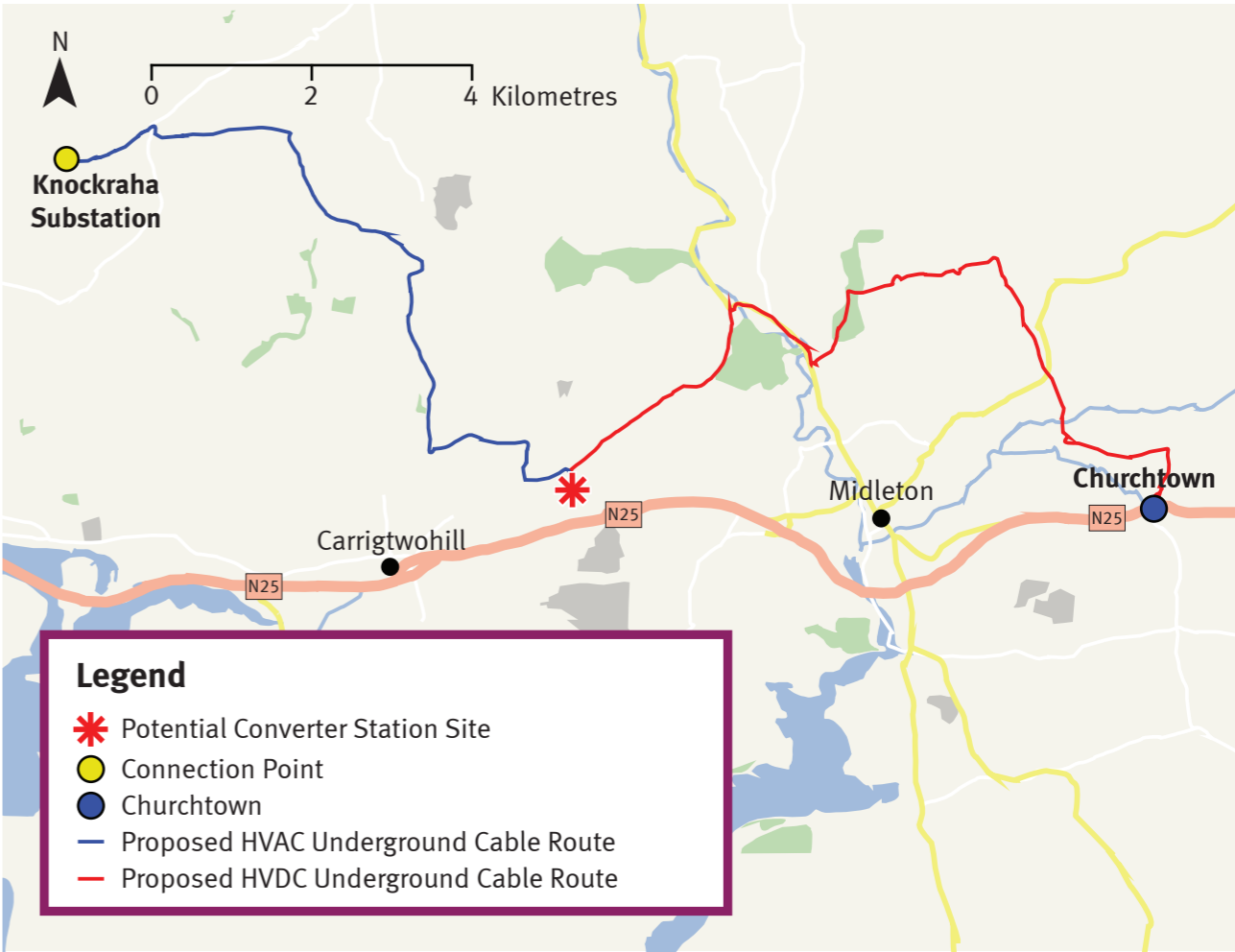


Figure 3 Celtic Interconnector emerging HVDC Underground Cable Route Churchtown to Ballyadam and potential HVAC Underground Cable Route to Knockraha

4. What will be the impact of construction of underground cables on local residents?

The emerging routes of the underground cables are being planned to avoid as many environmentally sensitive places as possible and minimise disruption. They will run along the N25 and local roads which is the preferred option for access and maintenance purposes. In some instances, it may be necessary to route the cable across private land. The cables will typically be installed within plastic ducts placed within trenches excavated within the road.

4.1. HVDC Cable

For the HVDC Cable, the trench will be approximately 0.8m wide and approximately 1.1m to 1.3m deep (Figure 4). Trenching and ducting works will typically progress at approximately 100m per day per crew working on the N25 and 50m per day on local roads.

Once the plastic ducts have been installed the trenches will be backfilled with suitable material and the road surface reinstated. The electricity cables will then be pulled through the ducts at a later stage once all trench excavation and reinstatement works are complete, with a gap of several months likely between these two phases of works.

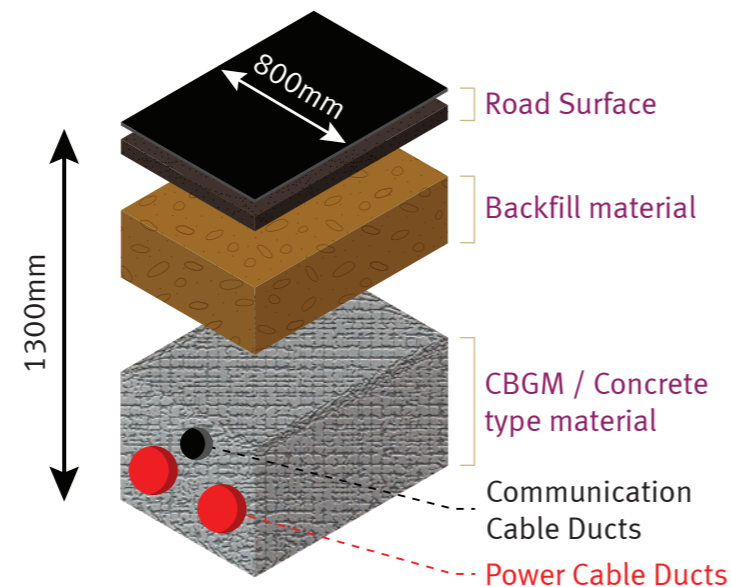


Figure 4 Indicative HVDC Cable Standard Duct arrangement – Cross-section

4.2. HVAC Cable

For the HVAC cable, the route and the exact type of cabling to be used has not yet been confirmed. It may be the case that we have to use two cables per phase, resulting in a total of 6 power cables for the HVAC route (Figure 5). This would generally mean that the trench will be approximately 2m wide and approximately 1.3m deep. The installation of this cable is similar to the HVDC cable.

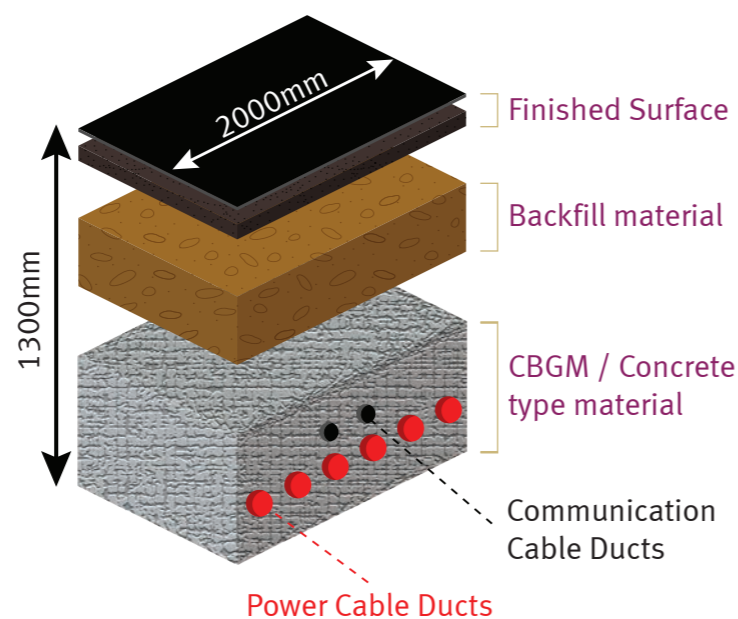


Figure 5 Indicative HVAC Cable Standard Duct arrangement - Cross Section

4.3. Installation of an underground cable route

The installation is carried out in three stages:

1. Preparation of a trench and installation of plastic ducts.
2. Placement of power cable into the ducts and associated works.
3. Jointing of cable sections.

Stage 1 - Preparation of a trench and installation of plastic electricity ducts

Plastic ducting is first laid in the trench (Figure 6). The ducting is bedded on sand and is then surrounded by lean mix concrete. The cables arrive on site in lengths of up to 750m and are required to be joined on site to create a continuous cable from end to end. This takes place in structures known as joint bays which are installed below ground at fixed intervals corresponding to the cable length.

Joint bays are installed at this stage of the project for use subsequently in cable installation and jointing. Public warning tiles are installed over the ducts to alert future construction workers when digging up the road. Note that contact should be made with EirGrid in advance of any proposed construction works in proximity to the underground cables. Once this work is completed, the road is reinstated to the road authority requirements.



Figure 6 Installation of plastic ducts

Stage 2 - Installation of the cable in the ducts

The construction works associated with this stage are less disruptive than the initial laying of the plastic ducts. The cables are delivered to the site on a cable drum and stand (Figure 7) and are pulled through the ducts with the use of a cable winch.

For each section of cable, two working areas are required, one at each end. The first working area will be required for the cable drum and stand and the other for the motorised winch. Once the cable is installed the cable will be trimmed and sealed within the duct. By way of example the installation of a 1,200m DC cable section at each end of a section, takes approximately five working days.



Figure 7 Cable Drum



Figure 8 Installation of cable into the ducts

Stage 3 - The jointing of the cable connections

The individual sections of cable must be connected in a process called jointing. This work is carried out in containers, called jointing huts, or in a jointing tent by specially trained technicians in a controlled environment to ensure the reliability of each joint (Figure 9). The jointing huts fit over the underground joint bay.



Figure 9 Jointing of cable sections

4.4. Will there be traffic disruption?

For a project of this size, some disruption to traffic will occur during construction. The cable installation along the route of this project is likely to take approximately 2 years. However, EirGrid will work with local authorities, community groups and individual stakeholders to put traffic management plans in place to minimise impacts. The procedure we use to install the ducting will help to minimise disruption to existing roads users.

During roadworks, local access to dwellings and businesses will be maintained, along with keeping traffic moving through suitable management on the N25. On the national road, the works are expected to progress at approximately 100 metres a day and off the national road at 50 metres a day, meaning people can reasonably expect to have work directly outside their home, business or place of work for limited periods of time only.

There may be times when the work period may be longer due to the installation of a joint bay. A joint bay is the housing within which the joint is located and is permanently installed underground.

4.5. Cable crossing of natural features and other infrastructure

There will be times where the cable route will have to cross obstructions. Various techniques can be used and will be selected as appropriate to the particular crossing requirements. The vast majority of cable installation will use a technique called Open Cut.

Another technique is called Horizontal Directional Drilling (HDD). This can be used to avoid existing natural features such as ecologically sensitive rivers and existing infrastructure such as railway lines. It provides an effective means to cross beneath rivers or railway lines without excavation in the river bed or interfering with railway lines.

4.6. Electromagnetic Fields (EMFs)

When we manage and develop the grid, we always follow all applicable health and safety standards. We prioritise the protection of our workers and those who live or work near our infrastructure. There is considerable research by independent health and scientific bodies on this topic. There is no evidence that EMF from underground cables has any adverse effects on human, plant or animal health.

Please see <http://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-The-Electricity-Grid-and-Your-Health.pdf> for further information on health and safety and specific information on EMF and cables.

4.7. What does this mean for me?

It is EirGrid's preference and practice to install high voltage cables in the public road network; however high voltage cable is a highly specialised product and has certain technical requirements. For example, the cable will not tolerate sharp bends in the route. For this reason, routes are preferred to be straight with slow, managed bends where necessary. Other technical requirements such as joint bays and constraints on the road such as water crossings and other services mean that there are times when there is no alternative but to come off the public road.

If the proposed underground cable route is required to pass across your land, we will contact you directly and an EirGrid representative will call to discuss the project with you. If you have any queries in regard to this, please feel free to contact the project team directly with any queries you may have.

For the majority of people living and working near the proposed cable the route will not impact on their property but may impact on their use of the public road for a short period of time. EirGrid is keenly aware of this. Construction of the route along roadways will be carried out in sections to minimise disruption and we will work closely with residents, communities and local authorities at all times throughout the project's construction to minimise disruption. Any disruption to traffic patterns will be localised and short term and all roads will be fully reinstated after the works.

5. Next Steps

Step 1 Completed identifying needs of the grid.

Step 2 Completed identifying the technologies that can meet these needs.

Step 3 Completed identifying the best technology option and the area that may be affected.

Step 4 Where exactly should we build?

Step 5 Apply for planning permission.

Step 6 Construct, energise (make live), and share benefits.

Step 4 At a glance

What's happening?

The project is currently in Step 4. At the end of Step 4, we will confirm the best performing option for the converter station site and landfall location. We will also confirm the general routes for the underground HVDC and HVAC cables.

The best performing project option will be subject to further design and appraisal. It will then be brought into the statutory consenting process (application for planning permissions) for the proposed development – Step 5.

How long will this take?

The submission of the consents application files is expected to be completed by early 2021.

What will happen next?

The planning application will include preparation of environmental and ecological appraisals and reports. Engagement will continue throughout the remaining steps of the project. This will lead up to and follow the submission of the planning consents file and the subsequent response from the planning authority.

If successful, it is anticipated that in 2022 there will be a final decision made to undertake the project, and the project would commence construction in 2022 and then go live in 2026.

Stay Up to Date

The best way to receive regular updates on the project is by email. If you would like to receive email updates please send us your email address to: celticinterconnector@eirgrid.com

You can also contact our community liaison officers directly at the numbers on the next page and keep up to date by following the project development at www.eirgrid.ie/celticinterconnector

Supporting documentation

To learn more about our assessments and process, visit our website at: www.eirgrid.ie/celticinterconnector

Contact Details for Celtic Interconnector Project

Phone

Michelle Walsh,
Celtic Interconnector Community Liaison Officer
+353 (0)85 870 4999

Eoghan O'Sullivan,
Community Liaison Officer
+353 (0)87 247 7732

EirGrid Customer Relations
+353 (0)1 237 0472

Email

info@eirgrid.com
celticinterconnector@eirgrid.com

Websites

www.eirgrid.ie/celticinterconnector
www.celticinterconnector.eu

Address

The Celtic Interconnector Project Manager
EirGrid plc
The Oval
160 Shelbourne Road
Ballsbridge
Dublin
D04 FW28
Ireland



Tionscadal Éireann
Project Ireland
2040



Printed on recycled paper