

# Step 3 Preferred Options Report

Celtic Interconnector



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# 1 Introduction

## 1.1 Purpose of this Report

The Celtic Interconnector is a proposed electrical link which will enable the movement of electricity between Ireland and France.

The project is following EirGrid's six-step approach to grid development as outlined in EirGrid's *Have your Say*<sup>1</sup> document, as illustrated in Figure 1 below. This approach facilitates engagement and consultation with stakeholders and the public which helps us to explore options fully and make more informed decisions.

**Figure 1: EirGrid's Six-step Approach to Grid Development**



Source: EirGrid

The process to date has identified a number of Converter Station Location Zones (CSLZs) and Landfall Locations, as detailed in the *Onshore Constraints Report*<sup>2</sup> and the *Offshore Constraints Report*<sup>3</sup>. These options were evaluated, and a shortlist of options were proposed, as detailed in the *Step 3 - Performance Matrix Assessments*<sup>4</sup> for further, more detailed study. Each of these reports should be referred to for a complete overview of the project to date.

Consultation on the shortlist of CSLZs and Landfall Locations took place from 11<sup>th</sup> April to 10<sup>th</sup> June 2019.

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<sup>1</sup> [http://www.eirgridgroup.com/\\_/uuid/7d658280-91a2-4d4b-b438-ef005a857761/EirGrid-Have-Your-Say\\_May-2017.pdf](http://www.eirgridgroup.com/_/uuid/7d658280-91a2-4d4b-b438-ef005a857761/EirGrid-Have-Your-Say_May-2017.pdf)

<sup>2</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Onshore-Constraints-Report.pdf>

<sup>3</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Offshore-Constraints-Report.pdf>

<sup>4</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Performance-Matrix-Assessments.pdf>

**The purpose of this report is to document the Step 3 consultations undertaken and to consider the feedback received in the context of the shortlist of CSLZs and Landfall Locations that will be progressed to Step 4.**

## 1.2 Report Context

The confirmed shortlists will be progressed to Step 4, *Where exactly should we build?*

More detailed location specific studies and analysis, along with landowner and community engagement, will be carried out in Step 4A with the aim of identifying the proposed Best Performing Option (BPO) for the location of the converter station, landfall and underground cable routes. Feasible project options, and the findings of studies, will be presented in Step 4A. These findings, and feedback from the public engagement process, will then form the basis for further information gathering.

An ongoing public engagement campaign will take place throughout Step 4 to inform project stakeholders, elected representatives and statutory bodies as to the project's development and identification and evaluation of potential BPOs and to seek feedback and input to the process.

## 1.3 Step 3 Project Description

The Celtic Interconnector project involves the construction of an electrical circuit between Ireland and France using HVDC technology, the global standard for the transfer of electricity over long distances using underground technology.

The interconnector will have a capacity of 700MW (equivalent to the power used by 450,000 homes) and measure approximately 575km in length.

The longest spatial element of the Celtic Interconnector will be the submarine circuit which will measure approximately 500km out of the total 575km. The interconnector will form a link between the south coast of Ireland and the coast of Brittany in North West France (Nord-Finistère).

The main elements of the interconnector are illustrated in Figure 2 and comprise:

- A submarine circuit, approximately 500km in length placed on or beneath the seabed between France and Ireland.
- A landfall point where the submarine circuit will come onshore;
- A High Voltage Direct Current (HVDC) underground land circuit between the landfall point and a converter station;
- A High Voltage Alternating Current (HVAC) underground land circuit between the converter station and the connection point to the grid (i.e. Knockraha Substation); and
- A converter station compound, to convert the electricity from HVDC to HVAC, which is used on the respective transmission grids in each country. The converter station compound may be approximately 4 hectares in area. The converter station building will be up to 25 metres in height.



**Figure 2: Celtic Interconnector Project Elements**



Source: EirGrid

A fibre optic cable would also be laid along the entire route for operational control, communication and telemetry purposes.

A HVDC cable trench to facilitate an underground connection between the landfall point and the converter station would be in the order of 0.8 metres in width.

A HVAC cable trench to facilitate an underground connection between the converter station and the connection point to the grid would be in the order of 2 metres in width.

Onshore HVDC / HVAC cable routes will seek to follow the public road network in the first instance.

The following shortlists, as detailed in the *Step 3 - Performance Matrix Assessments*<sup>5</sup>, was consulted on by EirGrid between April 2019 and June 2019.

**Table 1: Step 3 Shortlists**

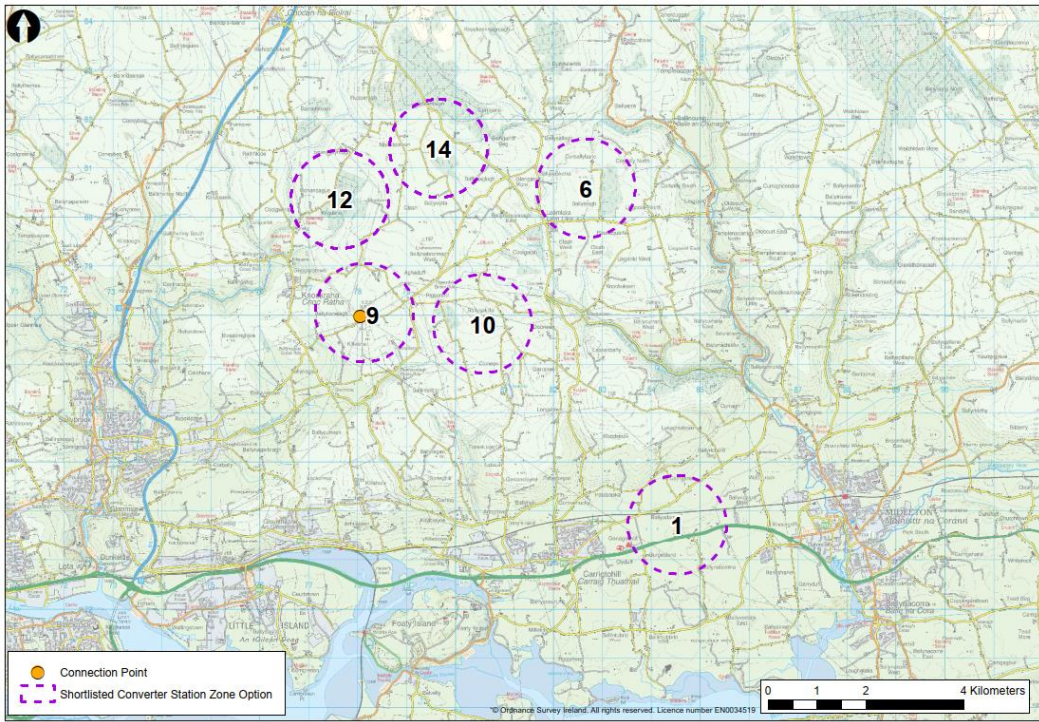
CSLZ	Landfall Location
CSLZ 1 – Ballyadam	Ballinwillling Strand 2 (BW2)
CSLZ 6 – Leamlara	Redbarn Beach
CSLZ 9 – Knockraha	Claycastle Beach
CSLZ 10 – Pigeon Hill	
CSLZ 12 – Kilquane	
CSLZ 14 – Ballyvatta	

Source: <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Performance-Matrix-Assessments.pdf>

The locations of these options are presented in Figure 3 and Figure 4 overleaf.

<sup>5</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Performance-Matrix-Assessments.pdf>

Figure 3: Shortlist of CSLZs



Source: Mott MacDonald

Figure 4: Shortlist of Landfall Locations



Source: Mott MacDonald

## 2 Step 3 Consultation Process

### 2.1 Introduction

EirGrid published its assessments and supporting information on the proposed shortlists of Converter Station Location Zones (CSLZs) and Landfall Location options, as outlined below, on 11<sup>th</sup> April 2019:

- Offshore Constraints Report;
- Onshore Constraints Report and Mapping
- Strategic Social Impact Assessment Scoping Report;
- Step 3 - Performance Matrix Assessments;
- Project Update Brochure - Step 3 Consultation (Spring 2019).

The following sections summarise the consultations carried out on the above-mentioned reports.

### 2.2 Consultation Events and Processes

EirGrid held a round of consultation events in East Cork on Step 3 from between 23<sup>rd</sup> April and 3<sup>rd</sup> May 2019, as follows:

- 23<sup>rd</sup> April 2019 in Lisgoold,
- 24<sup>th</sup> April 2019 in Knockraha,
- 30<sup>th</sup> April 2019 in Carrigtwohill,
- 1<sup>st</sup> May 2019 in Midleton,
- 2<sup>nd</sup> May 2019 in Cloyne, and
- 3<sup>rd</sup> May 2019 in Youghal.

Prior to the launch of the public consultation, EirGrid wrote to registered landowners within the shortlisted CSLZs and in proximity to the shortlisted Landfall Locations along with existing stakeholders on EirGrid's project database, statutory bodies and elected representatives (local councillors, TDs, MEPs) to advise them that EirGrid had published its assessments and supporting information on the proposed shortlists.

EirGrid also advised stakeholders of the dates of the public information meetings along with the various means in which feedback on the project could be submitted, as detailed below:

- Completing an online feedback form on the EirGrid project website;
- Attending the public information meetings and giving feedback in person; and
- Contacting the project team by email, phone or in writing to the contact details provided.

### 2.3 Consultation with Statutory Bodies

In addition to the consultations detailed above, meetings have been held with the following Statutory Bodies. These meetings sought to explain how the various assessments were carried out and to seek further information to inform Step 4 of the process.

- An Bord Pleanála (Project of Common Interest Unit)
- An Bord Pleanála (Strategic Infrastructure Unit)
- Cork County Council (Planning and Environmental and Roads)

- Transport Infrastructure Ireland
- Department of Housing, Planning and Local Government (Marine Planning and Foreshore)

Meetings were also held in Midleton and Cobh with local elected representatives in the East Cork and Cobh-Glanmire Municipal Districts.

## 3 Consideration of Step 3 Feedback Received

### 3.1 Step 3 Consultation Feedback

Responses to consultation were submitted via an online form, by email, by post, and records of engagement completed during local consultation events. In total, 1,037 responses were received. Out of those, 770 were identified as campaign responses of which there were five distinct types (or templates).

**Table 2: Response Types Received**

Response type	Total Number of responses received
Online feedback form	17
Records of engagement	113
Letters and emails (excluding campaign responses)	137
Letters and emails (campaign responses)	770
<b>TOTAL</b>	<b>1,037</b>

Source: Celtic Interconnector Step 3 Consultation Report (Traverse, August 2019)

Traverse, a specialist public consultation and engagement consultancy, were engaged by EirGrid to receive, collate and independently analyse responses to the Step 3 consultation. A copy of their Step 3 Consultation Report, which provides a summary of the responses received to the Step 3 consultation on the proposed Celtic Interconnector project, undertaken by EirGrid between 11 April and 10 June 2019, can be viewed on the EirGrid website<sup>6</sup>.

The following sections consider the feedback received, as detailed in the above referenced report, in the context of confirming options for further assessment with the aim of identifying the proposed Best Performing Option (BPO) for the location of the converter station, landfall and underground cable routes.

### 3.2 Consideration of Step 3 Feedback on the Shortlist of Landfall Locations

The majority of responses in relation to the shortlist of landfall locations related to socio-economic considerations.

At this stage of the project it is expected that the potential for disturbance and disruption on local amenities and tourism and the local economy associated with the installation of the cable would be temporary in nature. It is anticipated that access to the beach car park will be restricted for a few days when the ducting to the transition pit is being installed. Further, access along the beach will be restricted when the cables are being installed. More detailed studies and analysis will consider the potential for mitigation by avoidance (i.e. in terms of timing of works), where possible, such that works can be carried out outside the busy summer season. Further

<sup>6</sup> <http://www.eirgridgroup.com/the-grid/projects/celtic-interconnector/related-documents/>

mitigation that will be implemented will include a Traffic Management Plan (TMP) to ensure that construction activities, so far as is practical, do not adversely impact amenity, traffic or the environment in the surrounding area in terms of noise, access, disruption and / or nuisance.

In terms of coastal erosion, the coastal erosion barriers at Ballinwilling are an obstacle that will need to be considered in the design process. Coastal erosion in general however will not render the shortlist of landfall locations unsuitable at this stage of the project.

### 3.3 Consideration of Step 3 Feedback on the Shortlist of Converter Station Location Zones

While a range of concerns were raised, written responses to the Step 3 public consultation and information events focused on issues relating to:

- Noise;
- Traffic disruption, restricted access and the local road network;
- Visual impact;
- Ecology;
- Health concerns;
- Cultural heritage,
- Water and water supply; and
- Flood risk, water contamination and water supply; and
- Land use planning.

EirGrid have prepared a Consultation Response Document to the key concerns that emerged during the consultation, which can be viewed on the EirGrid website<sup>7</sup>.

The assessments of the aspects and concerns detailed above will all inform the consenting process for the project and will consider the existing baseline environment, the preliminary design and layout of the converter station and the location and type of sensitive receptors (e.g. human and ecological) relative to the proposals. If required, mitigation by avoidance, design, seasonal constraints, use of buffer distances and / or screening will be employed to ensure that associated effects are minimised as far as is reasonably practicable.

The level of an impact is however project and location specific and a BPO for the converter station site has not yet been identified. Accordingly, the feedback received will not render the shortlist of CSLZs unsuitable at this stage of the project. Information gathered to date, including feedback from consultations, the proximity of sensitive receptors (e.g. human and ecological), and the potential for mitigation by avoidance, will all inform the identification of the proposed BPO for the location of the converter station, landfall and underground cable routes. Consideration of the particular feedback received is presented below.

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<sup>7</sup> <http://www.eirgridgroup.com/the-grid/projects/celtic-interconnector/related-documents/>

### 3.3.1 Noise Nuisance

The construction of the converter station and the installation of the cables will result in some noise during the period of the works. The timing of specific works, adherence to noise limits and the employment of mitigation measures, as appropriate, will be controlled and implemented in line with a Construction Management Plan (CMP) to ensure that temporary construction noise is minimised as much as possible.

The main sources of noise during the operational phase of the converter station will be associated with the transformers and the cooling fans for the converter valves. A number of design measures are available to mitigate such noise and the design of the converter station will incorporate these to ensure that the resulting operational noise is minimised as much as possible.

### 3.3.2 Traffic Disruption / Restricted Access and the Local Road Network

The converter station will be connected by land circuits to Knockraha 220kV station (HVAC) and to the landfall (at HVDC). It is EirGrid's preference to install the HV underground cables within the existing public road network. In general, the typical trench width for the HVDC cable will be 0.8m and the typical trench width for the HVAC cable will be 2m. The capacity of the local road network will be a factor in the selection of the BPO for the converter station location. In general, subject to the local road network, the closer the converter station is to Knockraha station, the shorter the HVAC cable route will be, and the less potential there will be for significant traffic impacts, associated with the HVAC cable route.

The construction of the converter station and the installation of the cables has the potential to result in temporary traffic disruption, however a comprehensive Traffic Management Plan (TMP), which will form part of the CMP, will be developed and agreed with Cork County Council, further to engagement with local community organisations and groups, prior to the commencement of works. Installation of the cables along roadways will be carried out in sections which, in conjunction with the TMP will ensure that, so far as is reasonably practical, construction activities do not adversely affect amenity, traffic or the environment in the surrounding area.

Once constructed, the converter station itself will be unmanned and will be operated remotely.

### 3.3.3 Visual Impact

Some respondents suggested that zones had been identified with specific references, in the context of visual impacts, to siting of the converter station on ridges and proximity to properties. No sites have been identified at this stage of the project. The identification of forests offering potential for visual screening does not necessarily mean that the converter station would be located within a forest as there is the potential for development adjacent to vegetative and / or topographical screening, or a combination of both, to offer visual screening potential. As such, development within a commercial forest may not be required.

Step 4A will include further assessments, including mitigation by design, aimed at avoiding or mitigating the potential for significant visual impacts where possible.

### 3.3.4 Ecology

A number of respondents raised concerns relating to ecological impacts. In the identification of shortlisted CSLZs designated ecological sites have been avoided. Specific reference was made to Leamlara Woods proposed Natural Heritage Area (Site Code 1064), however, with reference

to the mapping included in the *Onshore Constraints Report*<sup>8</sup>, it is noted that this site is located over 1 kilometre from the boundary of the nearest shortlisted CSLZ.

Due to seasonal constraints, ecological surveys (including bird surveys) have commenced on lands where access could be arranged. The findings of these studies and assessments will be included in the Step 4A Report.

### 3.3.5 Health Concerns

Concerns were raised in relation to potential health implications and specifically in relation to electric and magnetic fields (EMF) associated with electric power systems on humans and animals.

EirGrid operates the transmission grid to stringent safety recommendations which are made by national and international agencies. Several of these recommendations come from the International Commission for Non-Ionizing Radiation Protection (ICNIRP). This is an independent body, funded by public health authorities around the world. ICNIRP has investigated the safety of EMFs for decades, and provides guidance on safe levels of exposure. The HSE (Health Service Executive) in Ireland recommends that ICNIRP guidelines are followed to protect the health of the public.

In Ireland the following bodies are responsible for policy and provision of guidance relating to EMF;

- The Environmental Protection Agency (EPA) is responsible for the provision of advice and guidance in relation to public exposure to electromagnetic fields<sup>9</sup>;
- The Department of Communications, Climate Action and Environment (DCCAE) is responsible for national policy regarding EMF<sup>10</sup>; and
- The Health & Safety Authority (HSA) regulates exposure to EMF in the workplace.

The DCCAE recommendation is that ICNIRP guidelines are followed to protect the health of the public. EirGrid will ensure that the Celtic Interconnector is designed to make sure that public exposure to EMFs is compliant with the guidelines issued by ICNIRP. Further information relating to EMF is also available on the EirGrid website [here](#).

### 3.3.6 Cultural Heritage

The cultural heritage value of the area of Knockraha, and in particular the area of Kilquane ('The Rea') forest, in the context of the War of Independence, was raised by a number of respondents.

Recorded and protected onshore cultural heritage sites have been identified in the constraints mapping provided with the *Onshore Constraints Report*, however, having regard to the feedback received an archaeological, architectural and cultural heritage constraints study of the shortlisted CSLZs has been commissioned. This includes consideration of undesignated cultural

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<sup>8</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Onshore-Constraints-Report.pdf>

<sup>9</sup> <https://www.epa.ie/radiation/emf/role/#d.en.64773>

<sup>10</sup> <https://www.dccae.gov.ie/en-ie/environment/topics/environmental-radiation/electromagnetic-fields/Pages/default.aspx>



heritage sites within CSLZ 9 and CSLZ 12, associated with the War of Independence, the findings of which will be included in the Step 4A Report.

### 3.3.7 Flood risk, water contamination and water supply

Concerns were raised in the context of flood risk, water contamination, and interruption to water supply.

With reference to water supply, once feasible development sites within the shortlisted CSLZs have been identified site specific studies can commence to comprehensively evaluate location specific hydrology and hydrogeology (including water quality and supply), so that significant impacts can be mitigated.

The potential for the development to be at risk of flooding, and the potential for the development to result in off-site flood risk, will be factors in the selection of the BPO for the converter station location. With regard to CSLZ 1 (Ballyadam), which has been suggested by a number of respondents as a converter station site, it is understood that this zone is located within an area of karst and that development within areas of karst may be challenging and could result in a flood risk to surrounding areas. While the *Onshore Constraints Report* identified the risks associated with the zone, when compared to the other zones under consideration for a critical infrastructure project of this nature, a more detailed karst and flood risk assessment of CSLZ 1, in the context of the development of a converter station, is being undertaken, the findings of which will be included in the Step 4A Report.

### 3.3.8 Land Use Planning

Land use planning constraints, including greenbelt areas identified in Cork County Development Plan 2014, are presented in the constraints mapping appended to the *Onshore Constraints Report*. It is anticipated that the converter station compound will result in a change of land use, however, there are no land use planning restrictions associated with a converter station in terms of land sterilisation.

A number of respondents suggested that the converter station should be located within a brownfield site or an industrial or enterprise or business park. In planning terms, it is anticipated that the converter station will be classed as a utility development and not an industrial or enterprise development. Converter stations are also unmanned, and do not offer significant employment opportunities once operational.

Cork County Development Plan 2014 includes the following objectives in terms of land use planning:

- *County Development Plan Objective ZU 4-1: Development Potential of Brownfield Sites*
  - *Recognise the employment potential of brownfield sites in both urban and rural areas in the County and their contribution to a more sustainable pattern of development.*
- *County Development Plan Objective ZU 3-7: Appropriate Uses in Industrial Areas*
  - *Promote the development of industrial areas as the primary location for uses that include manufacturing, repairs, medium to large scale warehousing and distribution, bioenergy plants, open storage, waste materials treatment, and recovery and transport operating centres. The development of inappropriate uses, such as office based industry and retailing will not normally be encouraged. Subject to local considerations, civic amenity sites and waste transfer stations may be suitable on industrial sites with warehousing and/or distribution uses.*
- *County Development Plan Objective ZU 3-5: Appropriate Uses in Enterprise Areas*

- *Promote the development of Enterprise Areas as the primary locations for the development of employment uses that are inappropriate to town centre's and require environmental standards higher than those in business and industrial areas, such as office based industry and business parks.*
- *County Development Plan Objective ZU 3-6: Appropriate Uses in Business Areas*
  - *Promote the development of New Business Areas as the primary locations for the development of employment uses such as light-industry, wholesale and non-retail trading uses, car-showrooms and small / medium scale manufacturing / repairs / warehousing / distribution uses.*
  - *Other uses that could be included in certain specific circumstances could include retail warehousing and office development not suited to town centre or edge of centre locations. Uses specifically excluded from the business category would include waste management activities and general retail development. Retail warehousing could be accommodated where the specific zoning objective allows.*

The development of a converter station within a brownfield site or an industrial, enterprise or business park may not be in line with the planning objectives of Cork County Council as detailed above as it will not offer significant employment potential once operational. Further consultation will however be carried out with Cork County Council Planning Department prior to the identification of the EBPO for the siting of the converter station in this regard.

### 3.4 Confirmation of Step 3 Preferred Options

In accordance with EirGrid's Framework for Grid Development, more detailed analysis of the shortlisted options, as detailed in the table below, will be carried out in Step 4A against technical, economic, deliverability, environmental and socio-economic criteria with the aim of identifying an Emerging Best Performing Option (BPO) for the location of the converter station, landfall and underground cable routes. The analysis will consider the additional targeted studies that will be carried out based on specific responses received, as detailed above.

**Table 3: Step 3 Shortlist**

CSLZ	Landfall Location
CSLZ 1 – Ballyadam	Ballinwilling Strand 2 (BW2)
CSLZ 6 – Leamlara	Redbarn Beach
CSLZ 9 – Knockraha	Claycastle Beach
CSLZ 10 – Pigeon Hill	
CSLZ 12 – Kilquane	
CSLZ 14 – Ballyvatta	

Source: <http://www.eirgridgroup.com/site-files/library/EirGrid/Celtic-Interconnector-Project-Step-3-Performance-Matrix-Assessments.pdf>

Once the EBPO has been identified further targeted studies and assessments will be carried out in addition to a further round of consultation and public information meetings in East Cork to seek further information and feedback on the assessment process and the proposed EBPO.

EirGrid will consider and analyse the findings of the studies and assessments and all consultation feedback received before confirming the final BPO for the project (Step 4B).

The confirmed BPO will then be progressed to Step 5, *The Planning Process*. Environmental and technical documents to assist the consenting authorities in making their decision on the proposed development will be prepared in 2020. The consent applications are expected to be

submitted to the consenting authorities in mid-2020, with a decision expected before the end of 2021.

