

CP1021

East Meath to North Dublin Network Reinforcement Project

Autumn 2020



The current. The future.

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This document incorporates the Generation Capacity Report for Ireland and the Generation Capacity Statement for Northern Ireland.

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Feedback

1. Who are EirGrid – and what do we do?

EirGrid operates and develops the electricity grid in Ireland. This includes interconnection with neighbouring grids and the wholesale electricity market.

The electricity grid brings power from where it is generated to the ESB distribution network – that supplies every home, farm and small business in Ireland. The grid also directly powers employers that use large amounts of electricity. EirGrid ensures that electricity is always available, at the most economic price possible – today, tomorrow and for decades to come. Electricity can be generated from clean and renewable sources like wind and solar power. These will replace polluting sources of energy like coal and oil. Because of this, electricity will increasingly be used for more reasons, like transport and heating.

To prepare for this, the electricity grid must be made stronger and more flexible. It will need to carry more power, with most of this power coming from clean, renewable sources. This change will require significant amounts of new grid infrastructure - such as new underground cables, pylons and substations.

2. Why is the project East Meath to North Dublin Network Reinforcement Project CP1021 needed?

In recent years power generation has diversified. Much of our power generation, both fossil fueled and renewable, is located on the south west and west coast of Ireland and must be transported to where it is needed. More recently, the landscape of the Irish economy is also changing with East Meath and North Dublin more than any other part of Ireland seeing an increased demand on power.

EirGrid predicts that this trend will increase year on year to 2025 and beyond.

Project CP1021, East Meath to North Dublin is a response to 2 key issues affecting the north Dublin region due to these increases in demand:

- increased demand in East Meath and North Dublin;
- reduced fossil fuel generation in Dublin.

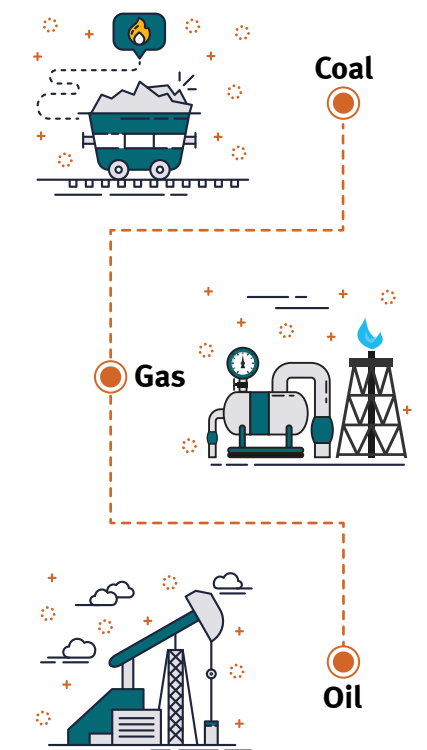
(For further information please see Tomorrow's Energy Scenarios 2019 -<http://www.eirgridgroup.com/customer-and-industry/energy-future/>)

2.1. Increased demand in East Meath and North Dublin

There has been a surge in power demand from large energy users around East Meath and North Dublin. These large energy users are located at, or near, the existing substations at Clonee, Corduff, Finglas, and Belcamp.

In addition, demand from new housing, commercial and SME developments has consistently increased within the region. There are a limited number of existing electricity transmission circuits, (overhead lines and underground cables) to supply these areas, and power flows on these existing electricity circuits are expected to reach capacity as the demand in the region continues to increase.

2.2. Reduced Fossil Fuel Generation in Dublin



This project is driven in part by the need to reduce reliance on fossil fuels in Dublin as this will be displaced by renewable or more efficient fossil fuels elsewhere in the country.

There are four major generation stations in Dublin connected at Finglas, Corduff, Shellybanks, and Irishtown respectively. The generators at Finglas, Corduff, and Shellybanks can be used to supply the load in East Meath and North Dublin.

Over time these generators are likely to be displaced by newer, more efficient, fossil fueled generators and increasing levels of renewables.

This means the power produced elsewhere in the country is transported to where it is needed around Clonee, Corduff, Finglas, and Belcamp on transmission circuits.

The existing circuits in the area between the Woodland substation and Clonee, Corduff, Finglas, and Belcamp, are forecasted to reach capacity as the balance of power generation and demand in the area changes, **and we transition to a more sustainable electricity grid supported by 70% electricity consumption via renewable energy sources by 2030.**

Project CP1021 will add capacity to the network between East Meath and North Dublin to ensure the power can be transmitted reliably.



Currently, just 30% of the electricity that we use comes from renewable energy.

Last year's Government's Climate Action Plan 2019 has set the target of achieving 70% of electricity consumption via renewable energy sources by 2030.

3. What is project CP1021 (East Meath to North Dublin)?

Reinforcement of this part of the network is needed to continue to support the security of supply along all circuits feeding the east of Meath and the north of Dublin between Woodland, Clonee, Corduff, Finglas and Belcamp substations. The starting point for the reinforcements examined in this project will be from Woodland substation and the end point will be Corduff, Finglas or Belcamp substations.

A long list of reinforcement options has been developed to identify the best possible solution for this project. The options have been measured against both technical and economic criteria.

Options that make use of the existing assets as well as new circuit options are being considered. Both Overhead line and Underground cable options will be analysed as part of the technical analysis.

The Woodland substation is central to a number of existing projects to secure the future of electricity supply. These are CP0966 Kildare –Meath Grid Upgrade project and the North South Interconnector project.

KEY FACTS



Competition

Apply downward pressure on the cost of electricity to consumers



Sustainability

Help facilitate Ireland's transition to a low carbon energy future



Security of Supply

Enhanced security of supply for Irish electricity consumers

4. Technologies

The project is at a very early stage of development and we are currently evaluating seven possible options, consisting of both overhead line (OHL) and underground cable (UGC) technologies that link the substations.

These options include a new 220 kV overhead line; a new 400 kV overhead line; a new 220 kV underground cable, and a new 400 kV underground cable.

We are now at Step Two of our six-step process for developing projects. See page 8 for further information on this.

The technologies under evaluation are:

- High-voltage Alternating Current (AC) solution options:
 - AC is the standard technology that is used throughout the Irish and international electricity networks and a solution based on this would integrate well into the grid.
- High-voltage Direct Current (DC) is an alternative technology that is typically used for the transfer of large amounts of power over long distances. It is not being considered for this project.

- Underground cables and overhead lines.
- 220 kV and 400 kV voltage levels:
 - The voltage level 110 kV would not deliver the capacity required to solve the identified problem.

5. List of Options

By combining a number of strong connection points on the electricity grid with the technology options identified above, we were able to create a long-list of 21 possible project solutions.

Details of this long-list are available on www.eirgridgroup.com/the-grid/projects/cp1021/the-project/

We then compared all of the options in the long list using two criteria – technical performance and economic performance.

The list was then refined to the five best-performing options:

1. **Corduff – Woodland**
New 400 kV OHL Circuit
2. **Corduff – Woodland**
New 400 kV UGC Circuit
3. **Corduff – Woodland**
New 220 kV OHL Circuit
4. **Finglas – Woodland**
New 220 kV OHL Circuit
5. **Finglas – Woodland**
New 400 kV UGC Circuit
6. **Finglas – Woodland**
New 400 kV OHL Circuit
7. **Belcamp – Woodland**
New 400 kV OHL Circuit

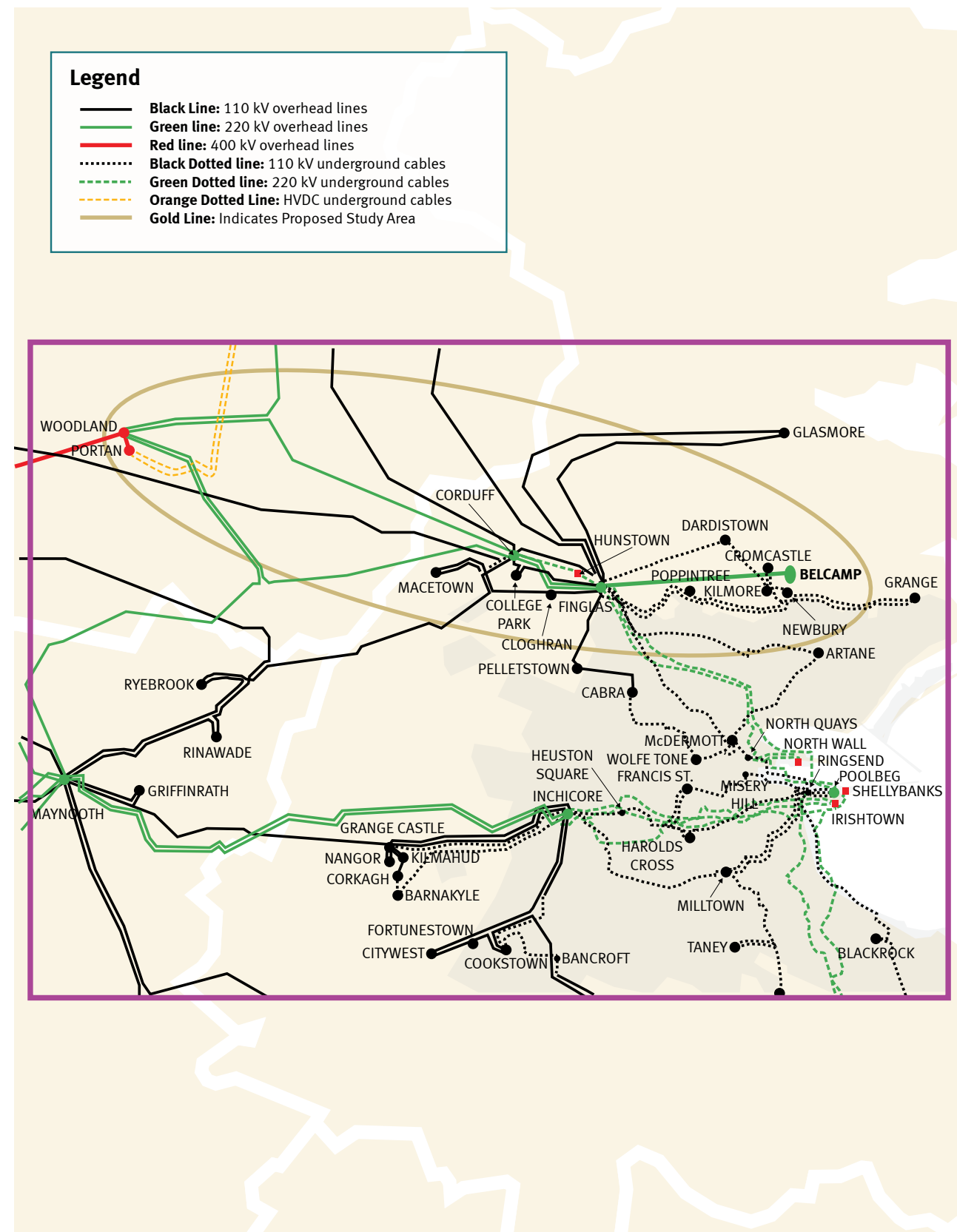
We propose to bring forward these seven options for further study. The options will be evaluated using a set of five criteria to further distinguish between the options performances.

The five criteria are:

- Technical performance;
- Economic performance;
- Environmental aspects;
- Deliverability aspects; and
- Socio-Economic aspects.

By using these criteria we will further refine the best performing options to a shorter list. At the end of Step 2, we will have a short list of best performing options that will be considered for further more detailed evaluation and analysis in Step 3.

6. Proposed Study Area



7. How we develop projects

Many people might not take an active interest in a project until we identify a precise route. However, it is important that we gather your views before this point.

We want you to know how and why we plan our projects, so you can give us feedback as early as possible.

Designing an electricity transmission project can be a complex and lengthy process.

Because of this, we use a consistent project planning process to explore options and make decisions. This means we follow the same steps for every project.

The decision-making tools we use, and the amount of engagement we carry out at each step, depends on the scale and complexity of each project.

Step 1

How do we identify the future needs of the electricity grid?

Step 2

What technologies can meet these needs?

Step 3

What's the best option and what area may be affected?

Step 4

Where exactly should we build?

Step 5

The planning process

Step 6

Construction, energisation and benefit sharing

Feedback

This document discusses our investigation to reinforce the transmission network in East Meath and North Dublin.

Its purpose is to provide information to interested parties on our investigations to date in a transparent way. We welcome your feedback on the range of technologies we have investigated, and the remaining 7 options. We also welcome your views on the options we have chosen to go forward, and the ones we have ruled out. We will consider your views, and other factors, to make a decision on the most appropriate technical solutions to bring forward to the next step.

If you have any comments on the technology options outlines above, or any other aspects of the development, please send them to EastMeathNorthDublin@eirgrid.com

We will provide detailed project information and updates at:

<http://www.eirgridgroup.com/the-grid/projects/cp1021/the-project/>

For further information please contact Community Liaison Officer Grainne Duffy on 085 887 4798.



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