EirGrid

Kildare Dublin Grid Reinforcement

Steelstown to Carrickmines Circuit Technology Consultation

PUBLIC INFORMATION

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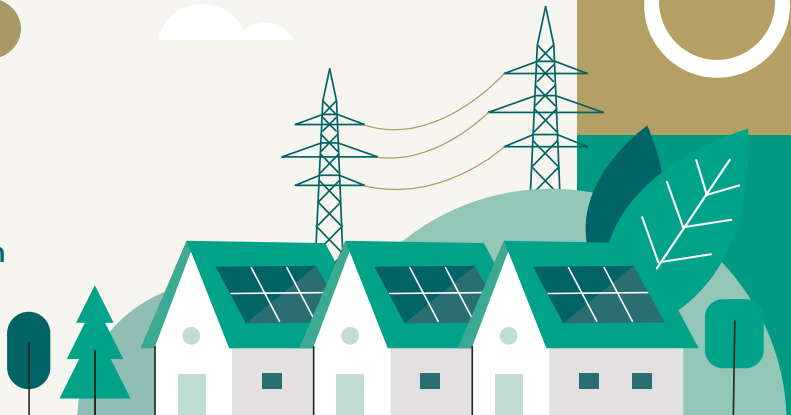
EirGrid.ie/KildareDublin



Who is EirGrid and what do we do?

EirGrid is a state-owned company that develops, manages, and operates Ireland's electricity grid. We are responsible for the safe, secure, and reliable supply of Ireland's electricity, bringing power from where it is generated to the distribution network that supplies the electricity we use every day in homes, businesses, schools and hospitals.

To support renewable targets, we need to significantly increase the amount of electricity generated from renewable sources in our network. This is why we are currently progressing the most ambitious programme of work ever taken on the transmission system in Ireland. This includes reinforcements, upgrades and new infrastructure right across the country.

In November 2024, we were in touch with you to inform you of upcoming grid reinforcement projects in your area. We are now consulting with local communities, stakeholders and landowners on the technology options for a new circuit connecting a proposed new substation in Steelstown to the existing substation in Carrickmines.

We are responsible for the safe, secure, and reliable supply of Ireland's electricity.

What is the Kildare Dublin Grid Reinforcement?

The Kildare Dublin Grid Reinforcement is a proposed programme of works that will accommodate the continued growth in electricity demand in the region, which is being driven by several sectors.

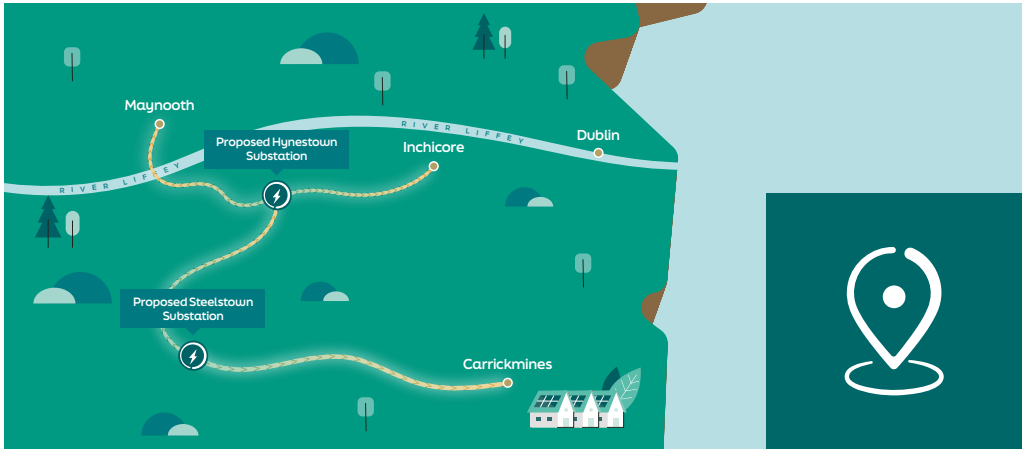
This includes:

- Residential housing;
- Commercial and industrial development;
- Electrification of heat (heat pumps) and transportation (electric vehicles and public transport); and the integration of offshore renewable energy connections

The existing electricity infrastructure in the East Kildare and South Dublin area is at risk of reaching its capacity limit. To address this need, new infrastructure is required to ensure a reliable, sustainable electricity supply to communities, residents, schools, and businesses.

The proposed works included are:

- A new substation in the Hynestown area
- A new substation in the Steelstown area
- Associated circuits to connect these new substations to each other, and to the electricity grid.



What has happened so far?

In May 2025, EirGrid held a public consultation focused on finding the best zones to locate the two new substations. The feedback collected during that consultation is being taken into consideration as the appropriate sites are being determined. You can find a report detailing the outcomes of the consultation on our website www.EirGrid.ie/KildareDublin

EirGrid recently determined that the best performing technology solution for the circuit connecting the two substations to each other, and to the existing substation in Maynooth, is via underground cable. It was determined through the multi criteria assessment (MCA) process that overhead lines would not be a suitable solution for either of these circuit routes. You can read more about how this decision was made on the project website.

The next phase of the Kildare Dublin Grid Reinforcement is to determine the best performing technology option to connect the new substation near Steelstown to the existing substation in Carrickmines.

EirGrid's six-step approach to developing the electricity grid

We have a six-step approach to building new infrastructure and this includes gathering and understanding your and other stakeholders' views during this process. Our 'Have Your Say' publication on our website EirGrid.ie outlines our renewed commitment to engage with, and listen to, stakeholders and communities.

The Kildare Dublin Grid Reinforcement project is currently in Step 3.
The objective of Step 3 is to identify a best performing technology solution and associated study area, to meet the identified need from the shortlist of options identified previously in Step 1 and Step 2.

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
How do we identify needs of the electricity grid?	What technologies can meet these needs?	What's the best option and what area may be affected?	Where exactly should we build?	Apply for planning permission.	Construct, energise (make live), and share benefits.

What is happening now?

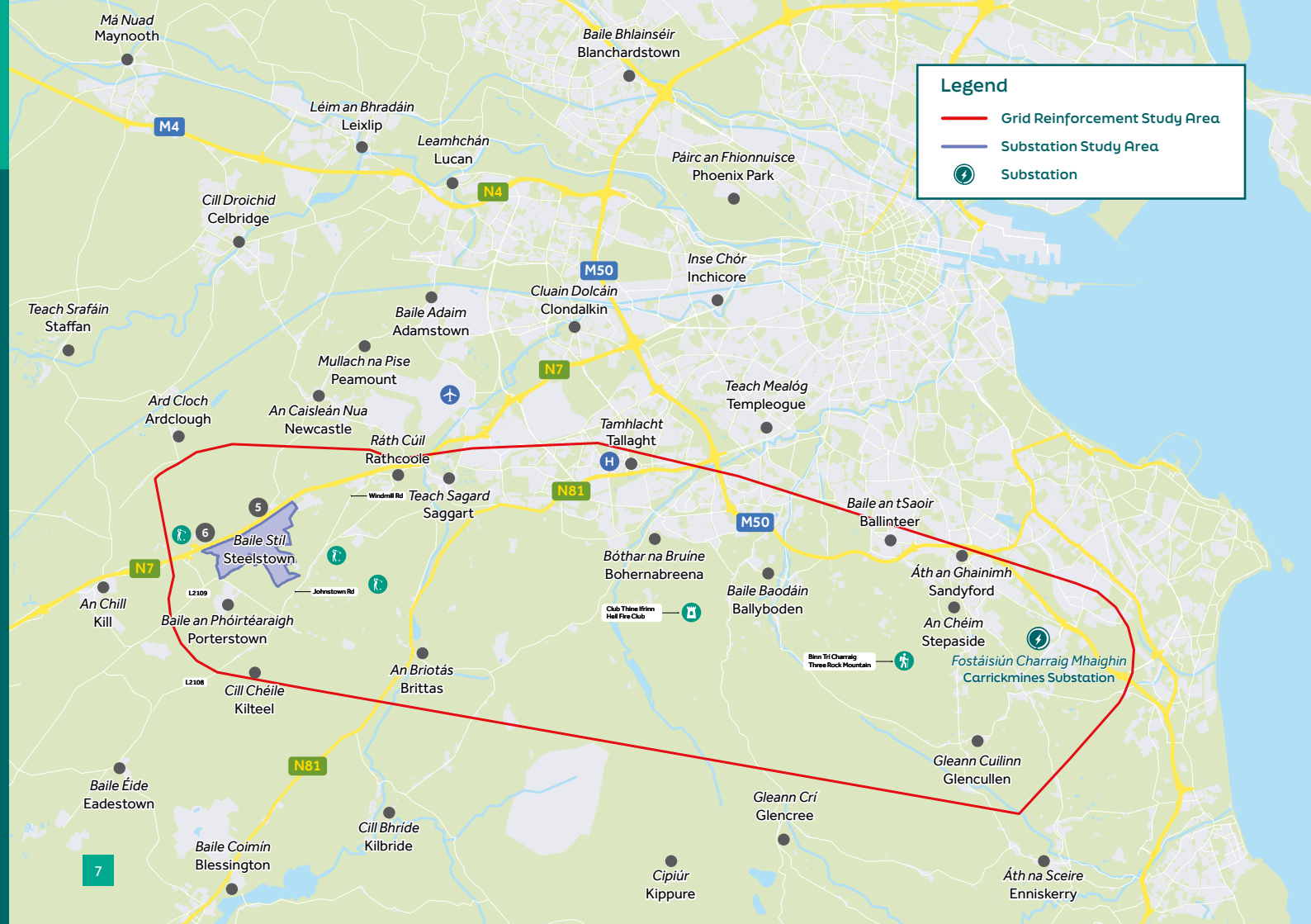
In order to reinforce the grid, circuits are required to connect the two new proposed substations in Steelstown and Hynestown to each other, and to other existing substations.

When we upgrade the grid, we consider various technologies to create suitable options. This includes whether an overhead line or an underground cable is right for a particular project.

EirGrid is now holding a public consultation to seek feedback on the available technology options for a new circuit required to connect the proposed Steelstown substation to the existing substation at Carrickmines.

This circuit is a key component of the Kildare–Dublin Grid Reinforcement project. It will initially operate at 220kV but will be constructed to allow for future operation at 400kV, if required. This approach helps to minimise the need for further works or upgrades in the future.

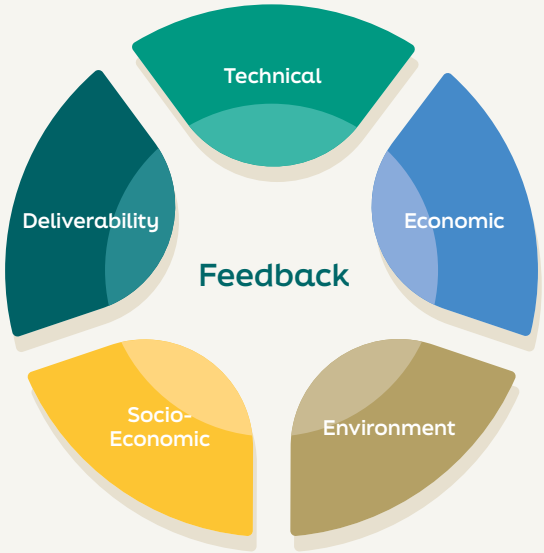
While the project team is continuing to assess potential route options for both overhead and underground solutions, the feedback received during this consultation will help inform the decision on the most appropriate technology.


Legend
Grid Reinforcement Study Area
Substation Study Area
Substation
Má Nuad
Maynooth
Baile Bhlainséir
Blanchardstown
Léim an Bhradáin
Leixlip
Leamhchán
Lucan
Páirc an Fhionnuisce
Phoenix Park
Cill Droichid
Celbridge
Inse Chór
Inchicore
Cluain Dolcáin
Clondalkin
Teach Srafáin
Staffan
Baile Adaim
Adamstown
Mullach na Pise
Peamount
Teach Mealóg
Templeogue
Ard Cloch
Ardclough
An Caisleán Nua
Newcastle
Tamhlacht
Tallaght
Ráth Cúil
Rathcoole
Teach Sagard
Saggard
Baile an tSaoir
Ballinteer
Baile Stíl
Steelstown
Bóthar na Bruíne
Bohernabreena
Áth an Ghainimh
Sandyford
An Chill
Kill
Baile an Phóirtéaraigh
Porterstown
Baile Baodáin
Ballyboden
An Chéim
Stepaside
Fostáisiún Charraig Mhaighin
Carrickmines Substation
An Briotás
Brittas
Cill Chéile
Kilteel
Gleann Cuilinn
Glencullen
Baile Éide
Eadestown
Gleann Crí
Glencree
Cill Bhride
Kilbride
Baile Coimín
Blessington
Cipiúr
Kippure
Áth na Sceire
Enniskerry
M4
N4
M50
N7
N81
L2109
L2108
Windmill Rd
Johnstown Rd
Club Thine Ifrinn
Hell Fire Club
Binn Tri Charraig
Three Rock Mountain
5
6
7

How do we assess technology options?

Prior to consulting with the public, EirGrid applying its MCA assesses technology options to determine which options are feasible under five categories:

- **Technical aspects** compliance with standards and operational aspects
- **Economic factors** implementation costs
- **Environmental factors** biodiversity, habitats, archaeology
- **Socio-economic factors** such as the local economy and amenities
- **Deliverability factors** such as timelines and potential risks



EirGrid assesses technology options to determine which options are feasible under five categories

A detailed report on EirGrid's assessment can be read and downloaded on the project website www.EirGrid.ie/KildareDublin

This MCA process has assessed all three available technology options for the Steelstown to Carrickmines circuit. All three options are currently considered to be deliverable, although significant risks have been identified with each option.

There are a number of factors that need to be considered in the construction of this circuit. The study area includes both densely populated communities and more challenging rural terrain. In addition, cultural heritage features and community amenities must be taken into account when identifying the most appropriate technology for this route.

The road network between the two substations is limited, with many narrow local roads within the study area. Construction activities would therefore require carefully planned traffic management measures, along with ongoing engagement with local authorities.

Underground cables are used at locations across the Irish electricity grid; however, they are not suitable for every project or environment.

There is no single solution that works in all circumstances when considering overhead lines versus underground cables. Instead, we assess each project individually to identify the option that best suits the local area while also securing Ireland's electricity grid for the future.

The following section outlines the three technology options currently under consideration. A separate report providing more detailed information on these technology options is available on the project website at: EirGrid.ie/KildareDublin.

What are the technologies being considered?

Three options are being considered for this circuit. These options are:

- **New 400kV Underground Cable (UGC) along entire route**
- **New 400kV Overhead Line (OHL) along entire route**
- **New 400kV Overhead Line (OHL) with partial undergrounding**

A report with more detailed information on the following technology options can be found on the project website www.EirGrid.ie/KildareDublin

Examples of typical underground cable installation

Underground Cable (UGC)

This option would place the circuit below ground using specially designed, heavily insulated cables. EirGrid, where possible, will endeavour to use the roads network to install cables as this allows for easier access for longterm maintenance and repair.

The cable that would be used is high-voltage XLPE cable with a copper or aluminium core, installed within underground plastic ducts. Joint bays as shown in the above image, are required to join sections of cable and will be located at intervals of approximately 600-800m along the route.

While underground cables remove the visibility of transmission infrastructure from the landscape, they require more intensive, longer periods of construction activity, including excavation along the full length of the route. Faultfinding and maintenance can also take longer compared to overhead lines, increasing the impact on local communities.

Our assessments to date on the UGC option has identified some advantages and disadvantages as outlined here. This is not an exhaustive list as assessments are on-going.

Advantages

- Less visual impact
- More reliable in severe weather
- Long service life
- Low maintenance requirements

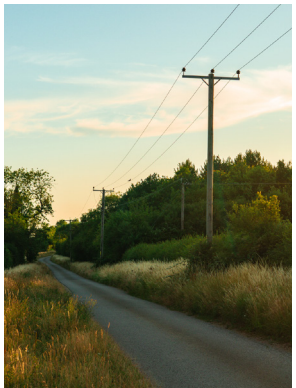
Disadvantages

- More disruption to local road network
- Faults more difficult to locate and repair
- Significantly higher installation costs
- Cannot traverse existing underground utilities
- Longer route may be needed depending on other utilities and available route

Overhead line (OHL)

Overhead lines allow for effective heat dissipation and are designed to meet stringent safety and engineering standards. They can be inspected and maintained with relative ease over the lifetime of the infrastructure.

The overhead section would deliver the new circuit using a series of towers that carry conductors above ground. This is the standard approach for long-distance electricity transmission in Ireland, providing a reliable and efficient way to move large volumes of power across the network.



Based on our assessments, an end-to-end overhead line would present a high risk from a deliverability perspective. There are specific challenges associated with bringing a 400 kV overhead line directly into the Carrickmines substation specifically.

Advantages

- Lower installation and material costs
- Can be constructed quickly
- Easier to repair, inspect and maintain
- Better suited to all terrains including difficult landscapes

Disadvantages

- Less visually appealing
- More vulnerable to damage from storms and bad weather
- Susceptible to potential human interference
- Requires ongoing vegetation management

Overhead line (OHL) with partial undergrounding

Based on our assessments, an underground cable in the Carrickmines area could provide a feasible way to connect into the station while minimising technical complexity.

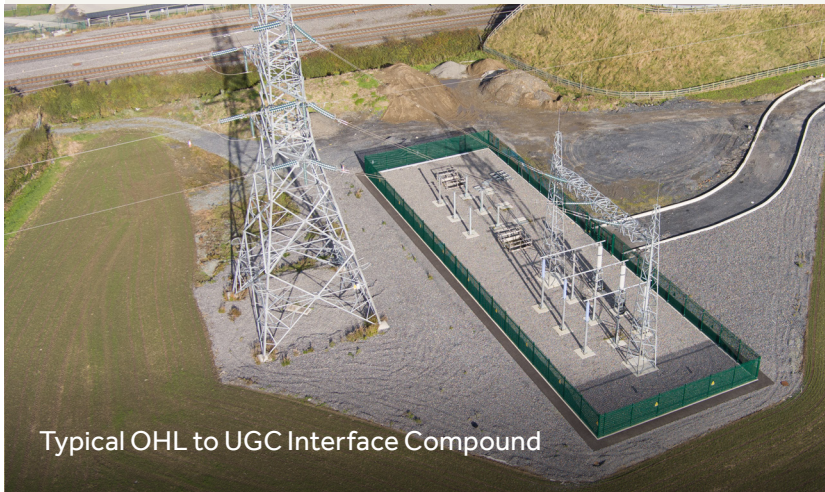
Our assessments have identified the possibility of delivering this project using a combination of both Over Head and Underground technologies. It is possible to deliver the circuit between Carrickmines and Steelstown using overhead lines, while a shorter underground section would be installed near the Carrickmines substation. This would allow the project to balance performance, construction requirements and overall environmental considerations.

Advantages

- Provides solution for particular pinch points improving delivery capability.
- As before for both UGC and OHL

Disadvantages

- Section of land for an OHL to UGC interface compound required to transition the cable from underground to overhead
- As before for both UGC and OHL



Typical OHL to UGC Interface Compound

Have Your Say

We would like to hear your views on the potential technology options. Your feedback, along with further assessments, surveys, and stakeholder engagement, will help us to decide which technology options to bring forward to the next step.

The public consultation will take place from 12 May to 10 July.

All of the project details, including detailed reports and a downloadable version of this document are available to view and download on our website at www.EirGrid.ie/KildareDublin

The feedback collected will be reviewed and considered and will influence design where possible. You can get involved in the consultation and provide feedback in a range of ways:

- **Online:** Consult.EirGrid.ie
- **Email:** KildareDublin@EirGrid.com
- **Feedback Form** at one of our in-person information events
- **Post:** Kildare Dublin Grid Reinforcement Project

  EirGrid PLC
  The Oval
  160 Shelbourne Road
  Dublin 4, D04 FW28

When further assessments and studies have confirmed the most deliverable technologies for this project, EirGrid will continue to engage with the relevant authorities and local stakeholders to establish a selection of potential routes. These routes will be brought forward for public consultation at a later date.

The deadline for submissions is 10 July 2026

If you have any difficulty writing down your feedback, a member of the Public Engagement team will be able to take comments over the phone. If you would prefer to receive any information relating to the consultation through the post, or you need it in another format, please get in touch.

Information Events

Throughout the consultation, EirGrid is holding a series of online and in person drop-in information events. This provides an opportunity for us to present information to you and to provide an opportunity for you to speak to members of the project team about the routes and answer any questions you may have before you submit your views.

Visit one of our face-to-face public information events being held at the following locations across the proposed routes to find out more and speak to the team.

Date & Time	Venue
Wed 3rd June 12 - 8pm	Ballyboden Wanderers GAA Club, Frank Kelly Park, Mount Venus Rd, Cruagh, Dublin
Thu 4th June 12 - 8pm	Rathcoole Community Centre, Main St, Rathcoole, Co. Dublin
Wed 10th June 12 - 8pm	Thomas Davis GAA Club, Kiltipper Rd, Tallaght, Dublin, D24 VE22
Thu 11th June 12 - 8pm	Samuel Beckett Civic Campus, Ballyogan Ct, Ballyogan, Dublin 18, D18 HT72

If you have any queries, please contact:

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Scan Here for EirGrid's Consultation Portal

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