

Community newsletter

May 2025

Enabling a clean energy future for Wales

National Grid needs to reinforce and refurbish parts of the high voltage power network in North Wales.

The way electricity is generated in the UK is changing rapidly to a cleaner, more affordable and secure energy system for the future.

It is predicted that demand for electricity will at least double by 2050 as we shift to clean energy to heat our homes, drive electric vehicles and power our industry.

The Welsh Government wants to meet the equivalent of 70 per cent of Wales' electricity demand from renewable energy sources by 2030. The UK Government has also set a commitment to reach net zero greenhouse gas emissions by 2050, and an ambition to connect 50 GW of offshore wind by 2030.

The existing transmission system was largely built in the 1960s and was designed to connect electricity mainly generated in coal-fired power stations to homes in Wales and England.

To allow new sources of renewable energy to be connected to the network, we need to reinforce and refurbish the existing electricity network between Pentir and Trawsfynydd. This will help to keep the network secure by enabling more clean energy to be delivered to homes and businesses.

This is a major project, and it is essential that the strengthened connection is in place by 2030.

This is part of the Great Grid Upgrade, the largest overhaul of the electricity grid in generations, comprising 17 major infrastructure projects across Wales and England. Progress towards green electricity is the most effective way to ensure energy affordability, with homegrown renewable power expected to help to lower energy bills in the long term.

National Grid's role

We don't generate electricity ourselves. We own and maintain the high voltage network in Wales and England.

It consists of over

7,000

kilometres (km) of overhead line

22,000

pylons

over

700

km of under-ground cable and

300

substations.

We transport large amounts of electricity at high voltage from where it is generated to areas where it is needed.

The local network operator, SP Energy Networks in North Wales, then delivers it at lower voltages to individual homes and businesses.

As a business regulated by Ofgem, we have a legal obligation to connect new sources of energy generation to our transmission network when requested.

What we need to do

This map shows the network in North West Wales.

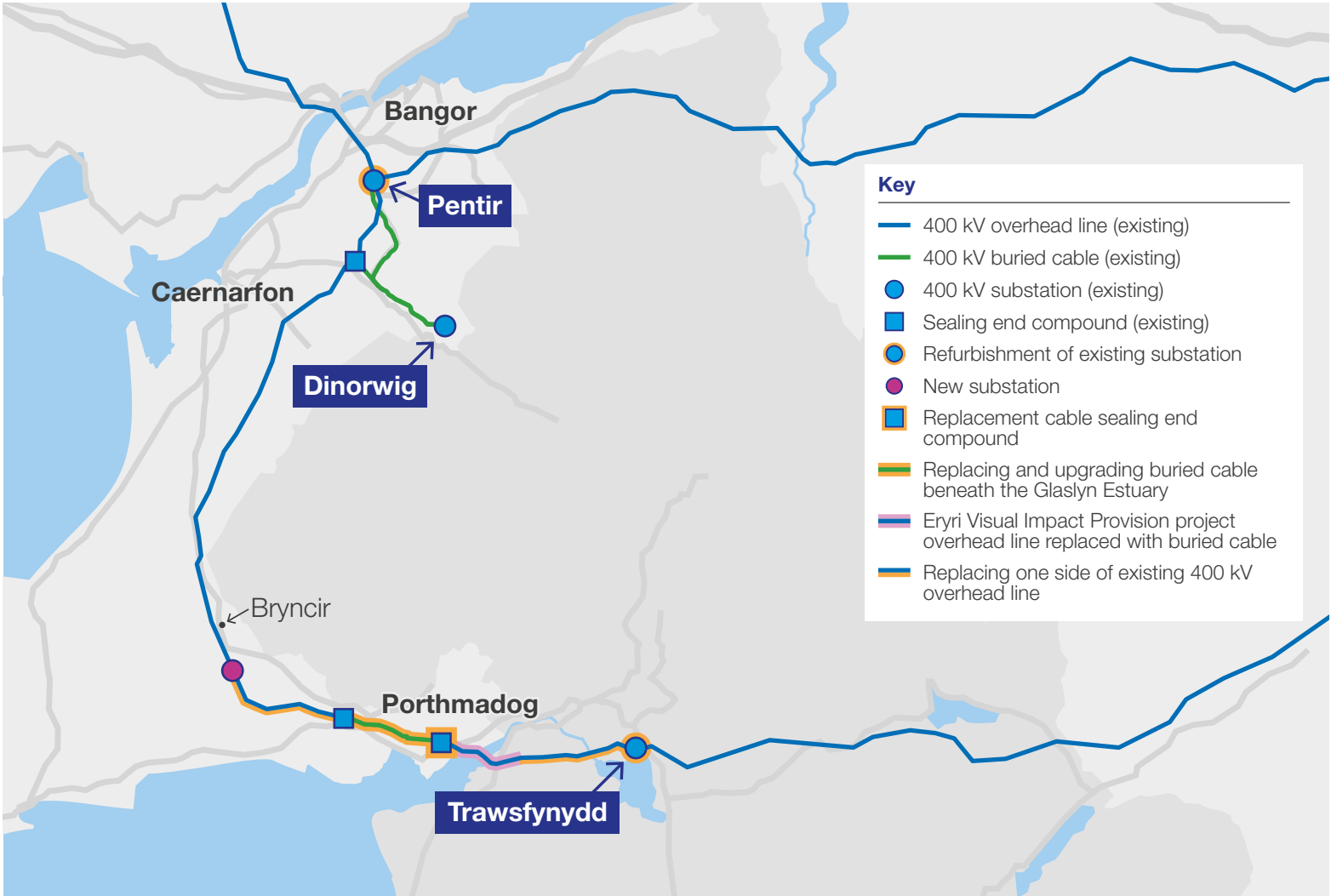
The existing network runs south on overhead lines from the substation at Pentir, before going underground at Wern, passing between Porthmadog and Tremadog and emerging above ground again at Y Garth near Minffordd.

The line continues overhead on pylons to Trawsfynydd, although part of it is being put underground with our Eryri Visual Impact Provision (EVIP) project (see page 4).

Our refurbishment and reinforcement work includes:

- Installing new and replacement underground cables and other equipment within the existing substation sites at Pentir and Trawsfynydd
- Constructing a new substation south of Bryncir
- Replacing one side of the overhead line between Bryncir and Trawsfynydd
- Replacing the underground cables that run beneath the Glaslyn Estuary at Porthmadog from Wern to Minffordd
- Connecting the new Glaslyn cables to the EVIP cables at Minffordd with new equipment, and removing the existing equipment nearby.

We will not need to build any additional pylons as part of this project.



A new substation and strengthened connection near Bryncir

Currently, we use one side of the overhead line between Pentir and Trawsfynydd, while the other side is used by SP Energy Networks to supply electricity to local homes and businesses.

We need to increase the network capacity so that it can also support additional electricity being generated, including by new renewable sources in North Wales.

As part of this, we will replace and upgrade one side of the overhead line between Bryncir and Trawsfynydd.

A new substation will also need to be built south of Bryncir to convert the electricity to a lower voltage, with a short connection to SP Energy Networks' local network.

We already have planning permission for a new substation south of Bryncir from Cyngor Gwynedd, which was granted in 2017. However, we are reapplying as part of this project as we need to amend the design slightly.

Our work at the new substation will include removing one of the existing pylons and replacing it with one nearby.

Replacing and upgrading the existing underground cables

The existing underground cables run from Wern to Garth between Porthmadog and Tremadog, and beneath the Glaslyn Estuary. They were installed in the late 1970s and have been in use ever since.

They are now nearing the end of their operational life and need replacing to maintain the security of electricity supplies for the local area and beyond.

To accommodate the increase in energy being generated in North Wales we need to replace them, and also upgrade the overall capacity of this part of the network with additional cables. Because the existing cables need to stay connected while the new ones are put in, we need to find different routes for our new cables.

As with the existing connection, the new cables will need to pass beneath part of the Glaslyn Estuary and the Traeth Glaslyn Nature Reserve.

We know this is a challenging and environmentally sensitive area that floods regularly, and we are accommodating these sensitivities in our project designs.

The cables will also need to cross the field to the west of the A487 roundabout joining Porthmadog High Street, the top of the playing field at Ysgol Eifionydd, Porthmadog's two heritage railway lines, and the main railway line.

We have already been discussing these technically complex proposals

with the relevant organisations, so we can carry out the work safely and sensitively. We will also work closely with local communities and businesses to minimise any disruption.

In some of these locations, we will use a safe and proven method known as Horizontal Directional Drilling (HDD). This involves drilling a bore hole under an obstacle, installing a duct and pulling the new cable through. This is a precise technique that we have used successfully on many other projects across the UK.





Understanding the area

As we've been developing our project, we have been working with a wide range of stakeholders and experts to ensure that we reduce any impact.

We have carried out extensive ground investigations and surveys, including working with environmental experts to ensure that we understand the project area and its characteristics.

We are working with farmers, landowners and other organisations whose land we need to cross, acquire or access to explain our project and confirm the areas where we think we will need to work.

We will also continue to engage with specialist stakeholders including Welsh Government, Cyngor Gwynedd, local town and community councils, Eryri National Park and Natural Resources Wales (NRW) among others.

Connecting with the new Eryri underground cables

A section of the overhead line within the Eryri National Park, across the Dwyryd Estuary and between Minffordd and Llandecwyn, is currently being put underground in a tunnel.

This work is part of our separate Eryri Visual Impact Provision (EVIP) project and is already well underway.

We will need to connect our new cables to the new Eryri underground cables. To do this safely, we will need to install equipment known as a Cable Sealing End Compound to the north of the new tunnel headhouse at Minffordd. This also means we can remove the existing Cable Sealing End Compound (below) nearby.

Learn more about the Eryri Visual Impact Provision project online at: nationalgrid.com/eryrivip



The EVIP project's tunnel boring machine



Existing Cable Sealing End Compound

Working with local communities

We think it's really important to share information about our project with people living and working locally.

All the ways you can find out more and get in touch with us can be found on page 6. We will also keep people up-to-date by holding information events. The first of our in-person events and online webinars will take place later this month.

While this is a major project, we will carefully plan our work to minimise disruption wherever we can.



Porthmadog High Street

The permissions we will need



We will need planning permissions for the different elements of our project from Cyngor Gwynedd and Eryri National Park. Consent will also be required for the work from the Department for Energy Security and Net Zero (DESNZ).

Before we submit our applications, we will carry out a statutory Pre-Application Consultation in line with Welsh Government legislation. This means we will formally consult with landowners and adjoining

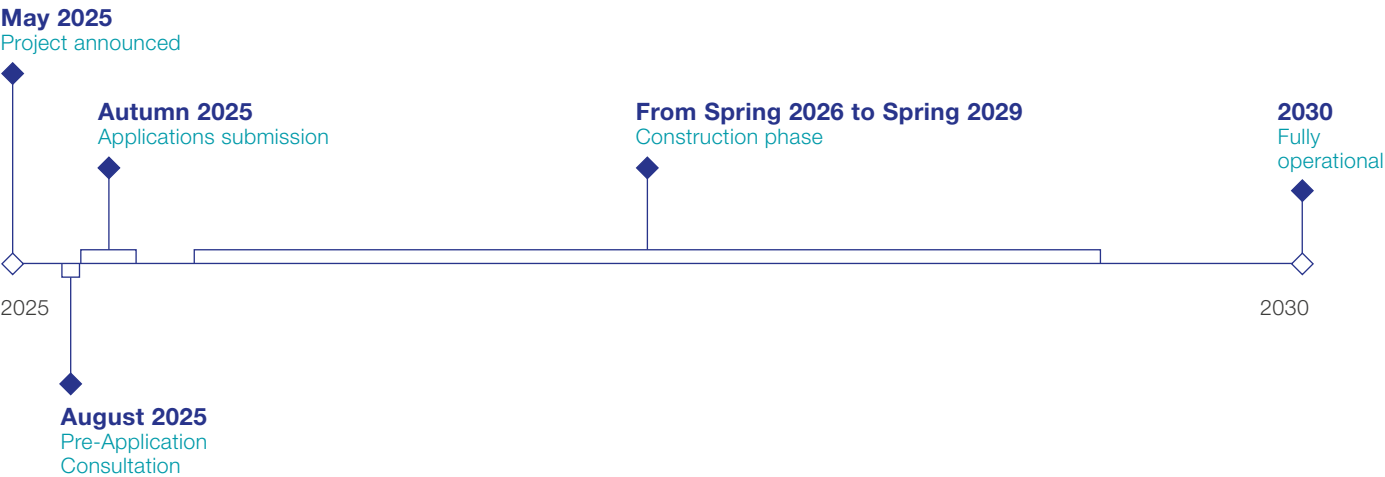
owners, local councillors and community councils, as well as technical consultees.

Comments received from stakeholders will be carefully considered as we finalise our planning and consent applications prior to submission later this year.

We will also post notices locally and make information available for everyone to review.

Project timeline

We currently expect construction to start in early 2026, though this is subject to planning, licences and other agreements.



Find out more

To find out the latest about our work, visit our dedicated project website (see below). Alternatively, you can call us or send us an email.

We are holding the first of a regular series of public information events. You can come along to learn more about the project, talk to members of the team about our work and discuss any queries.

We will also have draft technical plans available to show our work in progress, which the team can talk through.

If you are unable to attend an in-person event, we will also be holding an online event in both Welsh and English.



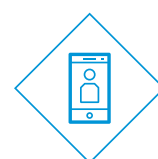
Public information events



Date and time	Venue
Friday 9 May 2025 4–7pm	Garndolbenmaen Village Hall, Garndolbenmaen, Gwynedd LL51 9SQ
Saturday 10 May 2025 10am–1pm ●	Byw'n Iach Glaslyn, Stryd Y Llan, Porthmadog, Gwynedd LL49 9HW
Tuesday 13 May 2025 4–7pm	Porthmadog FC Function Room and Conference Centre, Y Traeth, Porthmadog, Gwynedd LL49 9PP
Thursday 15 May 2025 4–7pm	Tremadog Memorial Institute, Market Square, Tremadog, Gwynedd LL49 9RA
Tuesday 20 May 2025 11am–2pm ●	Neuadd Goffa Penrhyndeudraeth, Griffin Terrace, Penrhyndeudraeth, Gwynedd LL48 6LP

● The EVIP project team will be present at the events marked with this symbol

Attend our webinar



Date and time	
Wednesday 28 May 2025 6–7pm	Webinar – Register on our project website.

Contact us

Call us on: **0800 915 2485**

Send an email to: **Pentir-Trawsfynydd@nationalgrid.com**

Scan the QR code here to visit our website or at:
**[nationalgrid.com/electricity-transmission/
network-and-infrastructure/pentir-thrawsfynydd](https://nationalgrid.com/electricity-transmission/network-and-infrastructure/pentir-thrawsfynydd)**

