

Bodelwyddan substation extension proposals

Summary Document



nationalgrid

Our proposals

We are consulting on our proposals to extend our Bodelwyddan substation, in Cefn Meiriadog south of St Asaph Business Park, so we can safely connect new sources of clean renewable energy in North Wales to the electricity network.

As a separate but related part of our work, we also need to change how the existing overhead line enters and leaves the expanded substation.

It's part of a major programme of works across Wales and England to meet growing homegrown generation and demand, help regional businesses grow and keep electricity bills as affordable as possible.



National Grid's role

National Grid Electricity Transmission (NGET) operates at the heart of the energy system, connecting millions of people safely, reliably and efficiently to the energy they use every day.

We don't generate energy ourselves. We own and maintain the high-voltage electricity transmission network in Wales and England, transporting

electricity via our high voltage network to the local distribution system so it reaches homes and businesses.

We are consulting local people and organisations on our proposals between 10 October and 7 November 2023.

Supporting Wales's energy ambitions

Wales and UK Governments have set ambitious targets for developing new homegrown sources of renewable energy at scale over the next decade.

The Welsh Government has set a target of meeting the equivalent of 70% of Wales's electricity demand from renewable energy sources by 2030.

To help achieve these, we're working closely with both UK and devolved Governments, as well as other important stakeholders, to look at future scenarios for upgrades to our electricity transmission system.

It's also expected that demand for electricity will at least double by 2050 as we shift to clean energy to drive electric vehicles, heat our homes and power our industry. To meet this demand, new UK based sources of energy generation will need to connect to our electricity network.

Together, this means a once-in-a-generation grid upgrade is needed across Wales and England, to make the energy transmission network fitter, greener and reliable for our future.



Connecting new sources

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

Electrical substations, such as Bodelwyddan substation, play a key part in transmitting electricity through our national network.

One of the main typical roles of substations is to convert electricity into different voltages.

The voltage is stepped up or down through equipment called transformers, which sit within the substation site. This is so the electricity can be transmitted throughout the country by National Grid and then delivered at a lower voltage to local homes and businesses by the Distribution Network Operator, in this case SP Energy Networks.

Bodelwyddan substation at Cefn Meiriadog is also a connection point for sources of energy generation into the transmission network.



UK energy system roles

The UK's electricity system is sophisticated and complex.

Developers, the system operator, networks, the regulator Ofgem and UK Government all play their role in generating, transmitting, distributing, maintaining and regulating reliable supplies to our homes and businesses.

Developers
 Developers e.g. RWE, bp and EnBW propose, develop, consent, build, own and operate sources of energy generation.
 Rapid change in the energy landscape has transformed the type and volume of these projects wanting to connect to the network.
 Over 300GW is currently contracted to connect in Wales and England, compared with 65GW connected today. Since April 2023 that's grown by 100GW.



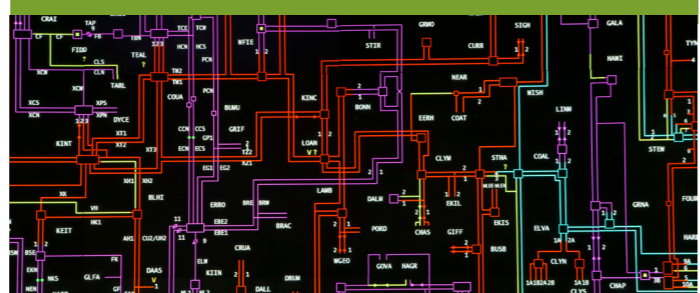
Transmission networks
 We at National Grid Electricity Transmission (NGET) own and maintain the high-voltage electricity transmission network in Wales and England. This is like the motorways of the electricity network, moving energy over long distances. We are a legally separate entity to National Grid ESO.



Distribution Networks
 Those such as the one operated by SP Energy Networks in North Wales and North West England, are like the A-roads of the networks, carrying electricity at lower voltages into your home or business.



National Grid Electricity Systems Operator (ESO)
 Moves electricity around Great Britain, balancing supply and demand every second of every day.
 As more renewable sources of electricity come onto the system and we move towards a decarbonised future, its role is to ensure its system and the wider transmission network can cope with all these changes. Its networks team plans the network in almost real time through to 20 years ahead.



Our proposed extension to Bodelwyddan substation

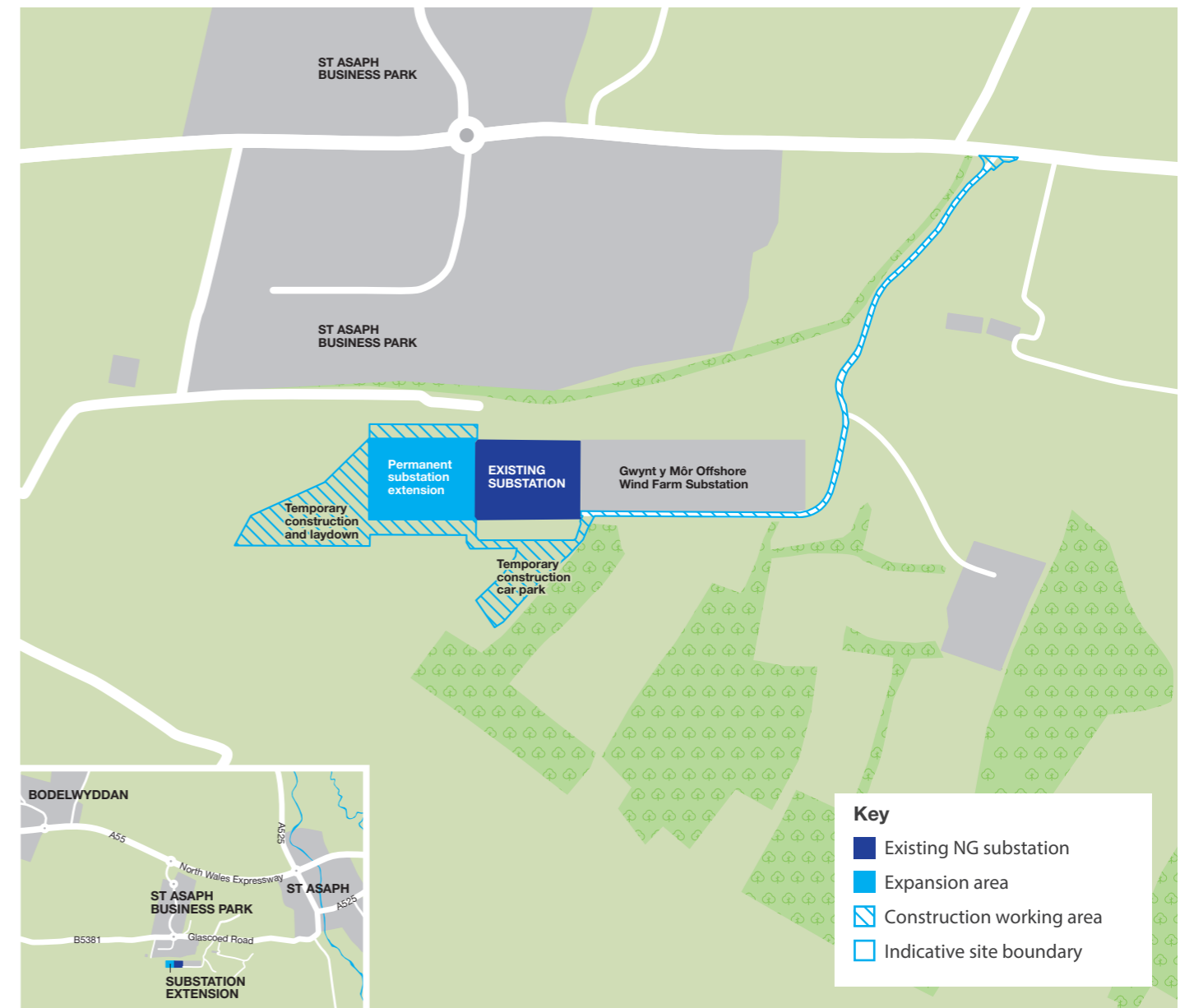
We need to connect proposed new energy generation projects in North Wales to our network, such as bp and EnBW's Mona and RWE's Awel Y Môr offshore wind farms. We also need to connect the MaresConnect subsea interconnector cable between Wales and Ireland.

Within the substation there will be a new building that will house equipment, and this will have a footprint of approximately 1,263 square metres. The substation extension will be in a similar layout and at the same height as the current substation.

We have considered a number of options on how and where is best to do this efficiently, safely and economically.

After assessing potential options, it was concluded that we need to extend our existing Bodelwyddan substation.

We are therefore consulting on our proposal to extend the substation to the west by approximately 8,800 square metres. This extension includes areas for new gantries, an access road and developer cable sealing ends.



Other work we need to do

We need to change how the existing overhead line, that currently runs between Pentir in Gwynedd and Connah's Quay in Flintshire, enters and leaves the expanded substation.

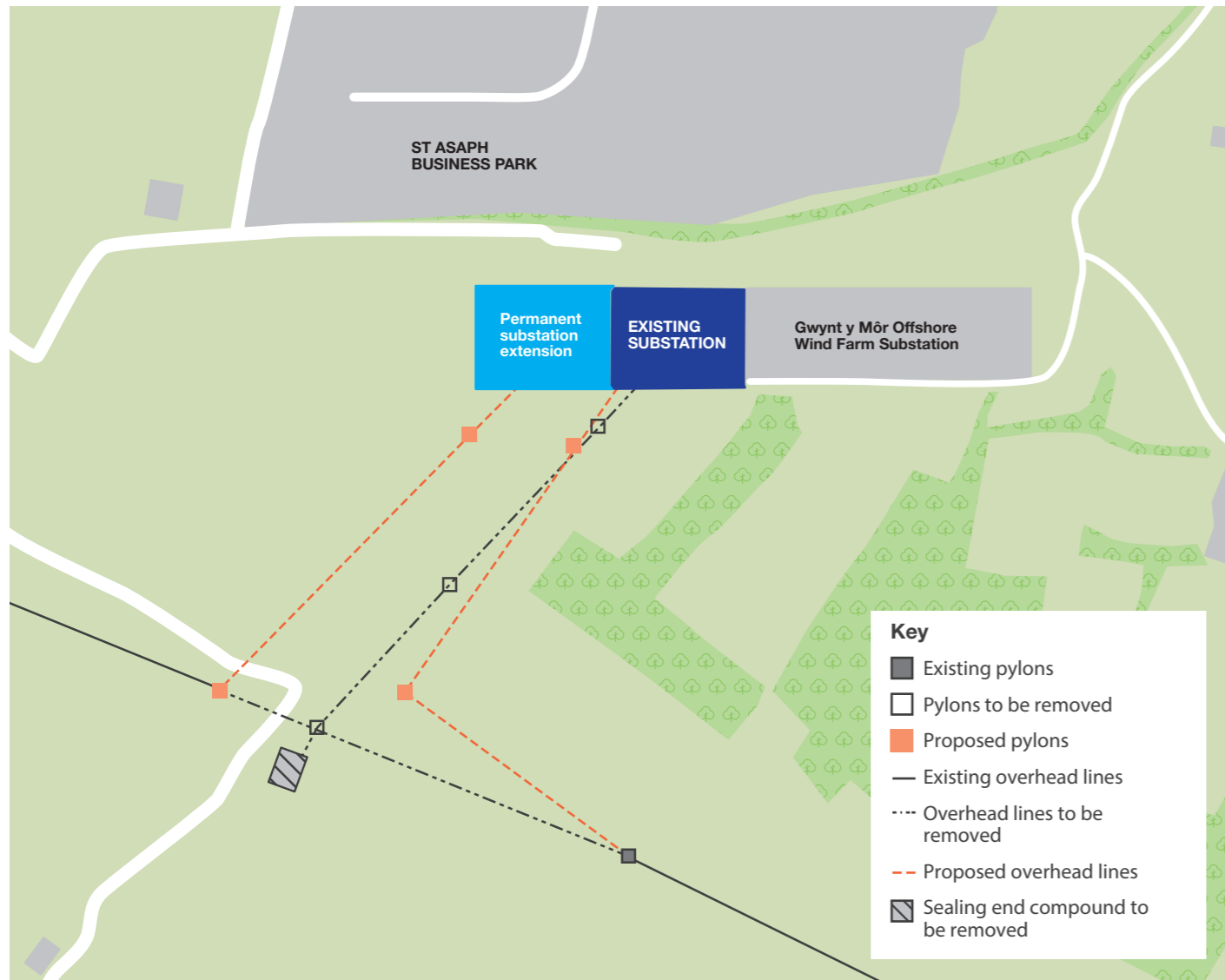
Having considered a number of options on how to do this, we propose to adjust the current 'T' arrangement and split the existing single route into two. We've concluded this is the most efficient option that requires the least changes to the existing configuration.

We will do this by removing one pylon and two gantries. We would replace these with four new pylons in broadly the same area south of the substation, with the reconfigured circuits entering and leaving the site separately.

This element of the work on the existing overhead line follows a different consent process, which requires us to seek approval from the Secretary of State under Section 37 of the Electricity Act 1989. Denbighshire County Council and other organisations and stakeholders will be asked for their views as part

of this process. You can also take part in this process and make representations on the consent application.

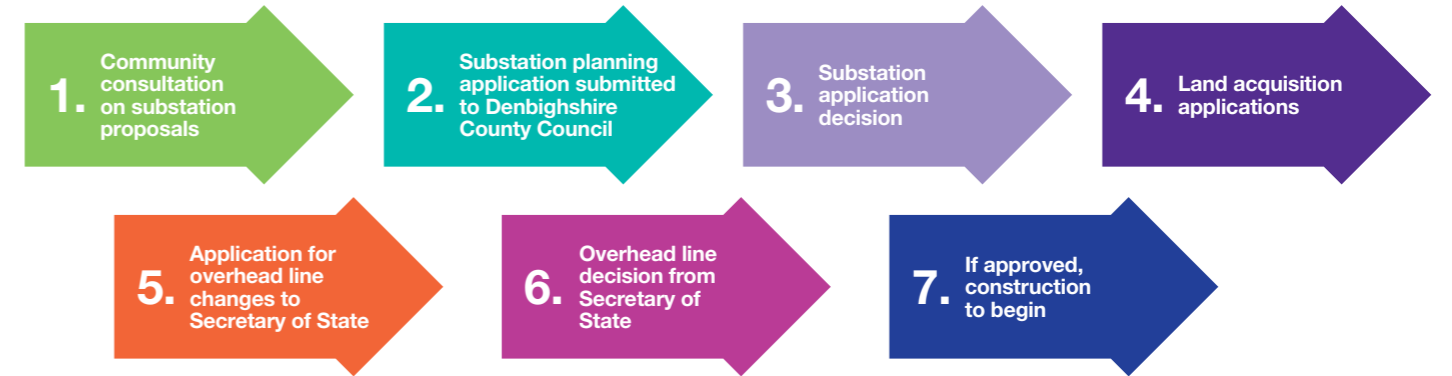
The overhead line works are related to the substation extension, so we think it's important to explain this aspect here so people can see and understand the work we need to do as a whole.



Next steps

After our consultation closes on 7 November 2023, we will review all of the written responses we receive. We will then collate and respond to the feedback in a Pre-Application Consultation Report that will form part of our planning application to be submitted to Denbighshire County Council later this year.

They will then consider our application before making a decision.



Get in touch

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