Green Gen Vyrnwy Frankton

Route Alignment Document

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GREEN GEN CYMRU

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Contents

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Glossary

Term	Definition
Access points	A location connecting a construction site to the public highway.
Access routes	Public highway used by construction traffic to access a construction site.
Air-Insulated Switchgear	Switchgear that adopts the air as the insulation medium.
Ancient Woodland	Land that has been continually wooded since at least 1600 in England. Regarded as 'irreplaceable habitat' in national planning guidance. Ancient woodland greater than 2ha is recorded on the Natural England Ancient Woodland Inventory.
Cable	An insulated conductor designed for underground installation.
Cable sealing end compound	The compound area surrounding the terminal pylon, where an overhead line converts to an underground cable when for example entering a Substation.
Conductor	The overhead wire that carries electricity from one place to another. For example, the line between two pylons.
Construction	The process of building the permanent features of the Project and will involve temporary features such as construction compounds.
Corridor	Strategic area of land between two points of connection within which potential route options can be identified for comparative environmental appraisal.
Development Consent Order (DCO)	The consent issued by the UK Government under the Planning Act 2008 for a Nationally Significant Infrastructure Project.
EIA Regulations 2017	Provide the criteria of a development for when an Environmental Impact Assessment is required.
EIA Scoping Opinion	Confirms the need for an EIA assessment and provides further guidance on the expected context of the EIA.
EIA Scoping Report	Sets out the need for an EIA along with the proposed content of the assessment.

Term	Definition
Environmental Impact Assessment (EIA)	The process used for describing, analysing and evaluating the range of environmental effects that are caused by a proposed development.
Environmental Statement (ES)	The document that sets out the findings of the EIA.
Future Wales: the national plan to 2040	The Welsh Government's national development plan for Wales. It provides the policy context against which developments of national significance applications are determined and influences all levels of planning policy in Wales and will help to shape strategic and local development plans prepared by councils and national park authorities.
Gas-Insulated Switchgear	Switchgear that combines vacuum switching technology with clean air insulation.
Grid Connection	Either an overhead line or an underground cable used to transmit electricity.
Holford Rules	Established practice for routeing overhead lines in the UK.
kV	Kilovolt (one thousand volts).
L7 (c) Tower	A steel lattice tower with six cross-arms (three on each side).
Limits of Deviation	Represent the maximum deviation for permanent infrastructure. The LoD allow for the adjustment to the final positioning of the Project features to avoid localised constraints or unknown or unforeseeable issues that may arise.
Local planning authority	The public authority whose duty it is to carry out specific planning functions for a particular area.
Mid Wales Energy Parks	The seven energy parks proposed to be located within Mid Wales.
National Grid Electricity Transmission	The electricity transmission licensee in England & Wales.
National Policy Statements	Set out government policy on different types of national infrastructure development.

Term	Definition
Nationally Significant Infrastructure Project	A project of a type and size required to go through the consenting process as defined by the Planning Act 2008. The Act includes thresholds to defined relevant projects and these can be located wholly in Wales, wholly in England or be “cross border”.
Overhead line	An electric line installed above ground supported by lattice steel pylons or wooden poles.
Planning Inspectorate (PINS)	The body responsible for managing the legal process for Development Consent Order applications.
Project	The Vyrnwy Frankton Project.
Project’s draft Order Limits	The Order Limits are defined as the maximum extent of land within which the Project may be carried out, and includes land required on a permanent and temporary basis to build and operate the Project.
Pylon	Transmission line supports.
SP Energy Networks	The electricity distribution network operator for Merseyside, Cheshire, North Wales, and North Shropshire.
Statutory Consultation	A statutory consultation on a developed design together with preliminary environmental assessments. Statutory consultations are bound by legal requirements, in this instance The Planning Act 2008.
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
Switching Station	It allows the power to be isolated from a substation.
Transmission Entry Capacity (TEC)	This is the allowed capacity a larger generator can export onto the transmission network, as agreed in the connection agreement.
Underground cable	Electricity cables that are buried below the ground.

1 Introduction

1.1.1 Green Generation Energy Networks Cymru Limited (Green GEN Cymru) is working to develop a stronger, more resilient renewable electricity network that would distribute clean, green energy to homes, hospitals, schools, businesses and communities both in Wales and nationally. Green GEN Cymru aims to build and operate a new 132kV connection, the Project, to distribute energy to the existing electricity transmission network. The Project would support the UK Government's Net Zero targets for 2050 and the Welsh Government's target for 100% renewable electricity in Wales by 2035.

1.1.2 The Project comprises an approximately 50km double circuit 132kV connection from the new 132kV Grug y Mynydd Collector Substation (which would be close to the existing Tirgwynt Wind Farm and proposed wind farms being promoted by Bute Energy Ltd (Llyn Lort Energy Park) and Vattenfall (Mynydd Lluest y Graig Wind Farm) in Powys, Wales) to the existing 400kV network in Shropshire, England.

1.1.3 Green GEN Cymru undertook the first stage of consultation (non-statutory consultation) between 6 September and 18 October 2023. The consultation asked for feedback on the following:

- The proposed search area for the collector substation and cable sealing end compound in Powys.
- The preferred route for the connection through Powys and Shropshire.

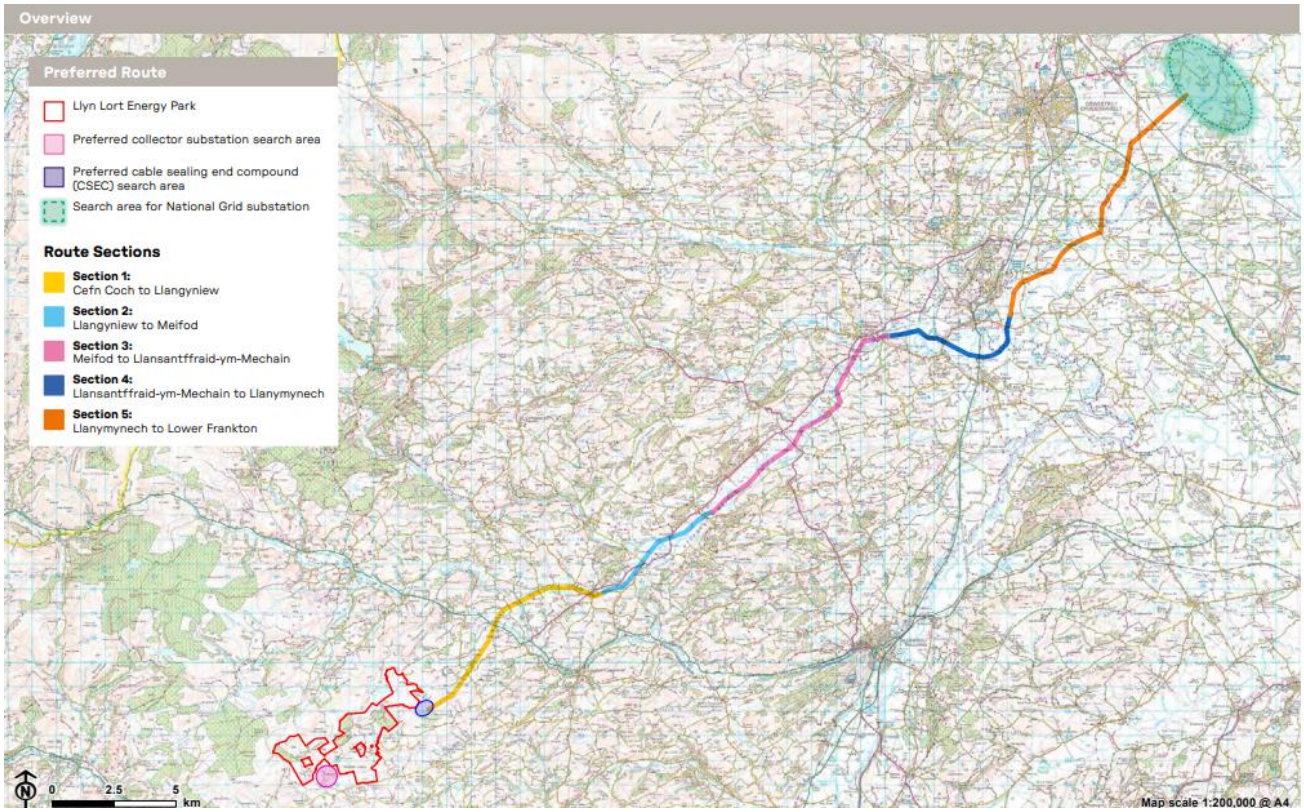
1.1.4 As part of the non-statutory consultation Green GEN Cymru published the Green GEN Vyrnwy Frankton Routeing and Consultation Document (RCD)[1]. The RCD presents the methodology used to select the preferred route for the Project and provides an overview of the routeing process.

1.1.5 This Route Alignment Document (RAD) describes how the Project has evolved since the non-statutory consultation in response to feedback to that consultation and further environmental and engineering studies.

1.1.6 The preferred route presented at the non statutory consultation is shown on Figure 1.1.

[1] https://d141qvydpnmd03.cloudfront.net/RCD-with-appendicies.pdf

Figure 1.1 Preferred Route for Non-Statutory Consultation



1.1.7 The Project has evolved since the non-statutory consultation. The current proposals for the Project, which are the subject of the 2025 statutory consultation, comprise:

- A new double circuit 132kV connection comprising an Overhead Line (OHL) with a small proportion of Underground Cable (UGC) from the new 132kV Grug y Mynydd Collector Substation (would be close to the existing Tirgwynt Wind Farm and proposed wind farms being promoted by Bute Energy Ltd (Llyn Lort Energy Park) and Vattenfall (Mynydd Lluest y Graig Wind Farm) in Powys, Wales) which will accommodate incoming Overhead Lines from additional proposed energy sites.
- A new UGC, which will be routed from the Grug y Mynydd Collector Substation, through the proposed Llyn Lort Energy Park to avoid conflicting with the proposed turbines and connect to a new Cable Sealing End Compound (CSEC) near Cors y Carreg which is required to transition from a UGC to an OHL.
- A new OHL which will be supported on a type of tower referred to as an L7 design, a steel lattice tower with six cross-arms (three on each side).

- A new Switching Station near Lower Frankton which allows the power to be isolated from the substation being developed by National Grid Electricity Transmission to connect to the existing 400kV National Electricity Transmission System (NETS) in Shropshire, England.
- There will also be temporary works associated with the construction of the Project.

1.2 Who are Green Gen Cymru?

1.2.1 Green GEN Cymru is part of the Windward Energy Group. Windward Energy was founded in 2018 and operates a number of companies across the UK that are developing infrastructure that will play a part in the country's transition to net zero.

1.2.2 Green GEN Cymru is proudly based in Wales and will design, build, and operate a new 132kV distribution network needed to unlock Wales's energy potential, meet the future needs of its people communities and businesses and help Welsh Government meet its target of 100% of Welsh electricity needs from renewable sources by 2035.

1.2.3 On the 5th July 2024, Green GEN Cymru was granted an Independent Distribution Network Operator (IDNO) Licence from Ofgem so that it can build, operate and maintain a 132kV network. IDNOs are companies that develop, own, operate and maintain smaller, local electricity distribution networks (up to 132kv) within the regional Distribution Network Operator (DNO) network. In Mid Wales, the DNO is SP Energy Networks. As an IDNO, Green GEN Cymru have the benefit of the powers within the Electricity Act 1989.

1.2.4 As with DNOs, an IDNO holds an electricity licence under Section 6(1)(c) of the Electricity Act 1989. DNO and IDNO Licences also share the same standard licence conditions. The Electricity Act 1989 places a duty on electricity distributors to '*develop and maintain an efficient, co-ordinated and economical system of electricity distribution*.'

1.2.5 Green GEN Cymru are required to adhere to the provisions of the Electricity Act 1989, including Schedule 9, which confirms that the licensee '*shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and shall do what he reasonably can to mitigate any effect which the proposals would have*

on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.'

1.2.6 The lack of grid capacity in mid Wales is well established and is hindering not only the development of new renewable generation but also the economic growth of the region. With electricity use potentially tripling by 2050 in Wales, these capacity issues will only intensify.

1.2.7 The Mid Wales Energy Parks have a combined TEC value of nearly 1gW, and as IDNO, Green GEN Cymru have received a number of connection agreements with renewable generators and are attracting interest from a number of others.

1.2.8 The Green GEN Cymru Phase Two Grid Connection Strategy[2] identified strategic options to determine how best to achieve a connection between the proposed energy generation in Mid Wales and the NETS.

1.2.9 Green GEN Cymru's proposals are in line with commitments to tackling the climate emergency and the new connections would become part of a more resilient network for the region – creating capacity to support local investment and providing for a future in which we all use more electricity. It has the potential to create new skills and jobs, nationally and locally. It will support the adoption of low carbon technologies into homes and businesses, such as electric heating and charging points for domestic and agricultural vehicles.

1.3 The Development Consent Process

1.3.1 If progressed with significant elements of OHL, the Project would be classified as a Nationally Significant Infrastructure Project (NSIP) as defined under Part 3 Section 14 and Section 16 of the Planning Act 2008[3] (Ref. 1.1) as it meets the criteria:

Section 14(1) 'In this Act "nationally significant infrastructure project" means a project which consists of any of the following— (b) the installation of an electric line above ground'

Section (16)(1) 'The installation of an electric line above ground is within section 14(1)(b) only if (when installed) the electric line will be—

[2] https://d141qvydpnmd03.cloudfront.net/Green+GEN+Phase+2+Grid+Connection+Strategy.pdf

[3] https://www.legislation.gov.uk/ukpga/2008/29/contents

(a) wholly in England,

(b) wholly in Wales,

(c) partly in England and partly in Wales, or

(d) partly in England and partly in Scotland.'

1.3.2 All NSIPs in England and Wales require an application for development consent. Green GEN Cymru intends to apply for the granting of an order for development consent for the Project to the Secretary of State (SoS) for Energy Security and Net Zero as it comprises the installation of 132kV electricity transmission infrastructure over approximately 50km that will be located partly in England and partly in Wales.

1.3.3 Section 16 of the Planning Act 2008 provides that OHL projects located partly in England and partly in Wales are NSIPs. Although section 16(3B) of the Planning Act 2008 provides that OHL developments associated with a devolved Welsh generating station will not be an NSIP, this will not be relevant to the Project as it is not located wholly in Wales. The Project will therefore be consented through a single DCO application and will not require a separate development of national significance consent from the Welsh Ministers for the portion of the Project located in Wales.

1.3.4 The Application for a DCO will be submitted to PINS, which will examine the Application and make recommendations to the SoS for Energy Security & Net Zero who will make the decision on the Application.

National Policy Statements

1.3.5 Section 104 of the Planning Act 2008 states that the SoS must have regard to any relevant National Policy Statements (NPS). The relevant NPSs for the Vyrnwy Frankton project are the:

- Overarching NPS for Energy (EN-1)[4]; and
- NPS for Electricity Networks Infrastructure (EN-5)[5].

[4] Department for Energy Security & Net Zero (2023). Overarching National Policy Statement for Energy (EN-1): https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1

5 Department for Energy Security & Net Zero (2023). National Policy Statement for electricity networks infrastructure (EN-5): https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5

Overarching National Policy Statement for Energy (EN-1)

1.3.6 NPS EN-1 sets out the need for new nationally significant infrastructure to achieve energy security and reduce greenhouse gas emissions.

1.3.7 Paragraph 2.1.3 of NPS EN-1 recognises that:

'To produce the energy required for the UK and ensure it can be transported to where it is needed, a significant amount of infrastructure is needed at both local and national scale. High quality infrastructure is crucial for economic growth, boosting productivity and competitiveness'.

1.3.8 Paragraph 3.3.62 of NPS EN-1 states that:

'Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure'.

1.3.9 Recognising the national security, economic, commercial, and net zero benefits of CNP Infrastructure, paragraph 3.3.63 of NPS EN-1 makes clear that:

'Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible.'

1.3.10 Paragraph 3.3.65 also confirms that

'There is an urgent need for new electricity network infrastructure to be brought forward at pace to meet our energy objectives.'

National Policy Statement for Electricity Networks Infrastructure (EN-5)

1.3.11 NPS EN-5 covers above ground electricity lines, with voltages that are expected to be 132kV or above. NPS EN-5 sets out the factors that should be taken into account during site/route selection and the potential impacts that are specific to electricity networks infrastructure.

1.3.12 Paragraph 2.2.10 of NPS EN-5 states that:

'As well as having duties under Section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new

electricity networks infrastructure, to “have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and …do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.’

1.3.13 Paragraph 2.9.7 of NPS EN-5 recognises that:

‘While the government does not believe that the development of overhead lines is incompatible in principle with applicants’ statutory duty under Schedule 9 to the Electricity Act 1989, to have regard to visual and landscape amenity and to reasonably mitigate possible impacts thereon, in practice new overhead lines can give rise to adverse landscape and visual impacts.’

1.3.14 Paragraph 2.9.16 of NPS EN-5 recognise the importance of the guidelines provided in the Holford Rules:

‘intended as a common-sense approach to overhead line design, were reviewed and updated by the industry in the 1990s and they should be embodied in the applicants’ proposals for new overhead lines’.

1.3.15 Paragraph 2.9.20 of NPS EN-5 covers undergrounding:

‘Although it is the government’s position that overhead lines should be the strong starting presumption for electricity networks developments in general, this presumption is reversed when proposed developments will cross part of a nationally designated landscape (i.e. National Park, The Broads, or Area of Outstanding Natural Beauty)’.

1.3.16 Paragraph 2.12.7 of NPS EN-5 again refers to the CNP:

‘As highlighted in EN-1 government has concluded that there is a CNP for the provision of nationally significant low carbon infrastructure. This includes for electricity grid infrastructure, all power lines in scope of EN-5 including network reinforcement and upgrade works, and associated infrastructure such as substations. This is not limited to those associated specifically with a particular generation technology, as all new grid projects will contribute towards greater efficiency in constructing, operating, and connecting low carbon infrastructure to the National Electricity Transmission System’.

1.4 UK and Wales Policy Overview

1.4.1 This section sets out a brief overview of the policy context. Further detail on the need for the Project in policy terms is set out in Chapter 2 of this RAD.

UK Policy

1.4.2 The UK is committed to reaching net zero by 2050, meaning that total greenhouse gas emissions would be equal to the emissions removed from the atmosphere, with the aim of limiting global warming and resultant climate change. The UK Government has adopted a suite of policies in order to reach net zero, set out in two strategy publications:

- The Net Zero Strategy: Build Back Greener (Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy) (October 2021)[6] - The 2021 Net Zero Strategy set out a series of policies and commitments designed to enable the UK to reach net zero by 2050; and
- Powering Up Britain: Energy Security Plan (Department for Energy Security and Net Zero) (April 2023)[7] - The Energy Security Plan sets out how the Government will enhance the country's energy security, seize the economic opportunities of the transition, and deliver on its net zero commitments.

1.4.3 The Climate Change Committee, the Government's statutory adviser for climate change, undertakes an annual assessment of policies that contribute to the net zero by 2050 target, which is submitted to Parliament. The Committee's 2024 Progress Report[8] states that the new Government, '*will have to act fast to hit the country's commitments*'. The Report notes that low-carbon technologies are becoming cheaper, although uptake remains low, and there is '*an increasing need to focus on how the UK adapts to climate changes that have already happened*'.

1.4.4 The Government's Clean Power 2030 Action Plan[9] makes the economic, environmental and national security case towards 'a clean energy mission which protects the country from exposure to unstable international markets and gives

[6] https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf

[7] https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-energy-security-plan

[8] https://www.theccc.org.uk/publication/progress-in-reducing-emissions-2024-report-to-parliament/

[9] https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf

security and stability to both family and national finances.' The Government states its intention to achieve this through delivering clean power by 2030 and accelerating to net zero and that this will be measured, 'by being on track to achieving at least 95% of low carbon generation by 2030 in line with advice from the National Energy System Operator (NESO).'

Policy in Wales

1.4.5 As part of its plan to tackle this emergency, the Welsh Government has brought forward policies to encourage innovative ways of creating energy that are sustainable, secure, and cost effective. This includes Future Wales[10] and the 12th edition of Planning Policy Wales (PPW)[11].

Welsh Renewable Energy and Climate Change Policy Future Wales: The National Plan 2040 (February 2021)

1.4.6 Future Wales is the Welsh Government's National Development Framework and is the highest tier of the Development Plan in Wales. It states that '*as set out in legislation, applications for Developments of National Significance must be determined in accordance with Future Wales*'.

1.4.7 As the most recent expression of national planning policy, Future Wales is considered to have primacy in the planning policy hierarchy. Its purpose is to ensure the planning system at all levels is consistent with, and supports the delivery of, Welsh Government strategic aims and policies (including those in Planning Policy Wales, the Wales Infrastructure Investment Plan and Regional Economic Frameworks). It was prepared with regard to various Welsh Government policies and legislation, including:

- Well-being of Future Generations (Wales) Act 2015;
- Environment (Wales) Act 2016;
- Prosperity for All: A Low Carbon Wales (March 2019);
- Policy Statement: Local ownership of energy generation in Wales – benefitting Wales today and for future generations (February 2020); and
- Future Energy Grids for Wales (FEW) (June 2023).

[10] https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf

[11] https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf

1.4.8 Future Wales provides the spatial direction for development in Wales and the policy framework for SDPs and LDPs at the regional and local level. These plans are required to conform to Future Wales and planning decisions at every level must be taken in accordance with the Development Plan.

1.4.9 Future Wales states:

'*Wales is abundant in opportunities to generate renewable energy and the Welsh Government is committed to maximising this potential. Generating renewable energy is a key part of our commitment to decarbonisation and tackling the climate emergency*.'

'*Wales can become a world leader in renewable energy technologies. Our wind and tidal resources, our potential for solar generation, our support for both large and community scaled projects and our commitment to ensuring the planning system provides a strong lead for renewable energy development, mean we are well placed to support the renewable sector, attract new investment, and reduce carbon emissions*.'

1.4.10 Section 2 of Future Wales sets out how it has been informed by climate change issues, including projections showing an increased chance of milder, wetter winters and hotter, drier summers, rising sea levels and an increase in the frequency and severity of extreme weather events. It further states:

'It is vital that we reduce our emissions to protect our own well-being and to demonstrate our global responsibility. Future Wales together with Planning Policy Wales will ensure the planning system focuses on delivering a decarbonised and resilient Wales through the places we create, the energy we generate, the natural resources and materials we use and how we live and travel.'

Planning Policy Wales (Edition 12, February 2024)

1.4.11 The Welsh Government published PPW in February 2024. PPW provides the key principles for the planning system in Wales, in terms of what development plans and decisions must achieve and how development should deliver the best possible outcomes. According to Future Wales, this is a material consideration in the planning process.

1.4.12 The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental, and cultural well–being of Wales, as required by the

Planning (Wales) Act 2015, the Well–being of Future Generations (Wales) Act 2015 and other key legislation.

1.4.13 Paragraph 3.61 of PPW States that:

'adequate and efficient infrastructure, including services such as education and health facilities along with transport, water supply, sewers, sustainable waste management, electricity, and gas (the utilities) and telecommunications, is crucial for economic, social, and environmental sustainability. It underpins economic competitiveness and opportunities for households and businesses to achieve socially and environmentally desirable ways of living and working.'

1.4.14 Section 5.7 details the policy in relation to the electricity grid network, paragraphs 5.7.8 to 5.7.11 state that:

'*An effective electricity grid network is required to fulfil the Welsh Government's renewable and low carbon ambitions. An integrated approach should be adopted towards planning for energy developments and additional electricity grid network infrastructure. In certain circumstances, additional electricity grid network infrastructure will be needed to support the Pre-Assessed Areas in Future Wales, but also new energy generating developments more generally.*'

'*The Welsh Government's preferred position on new power lines is that, where possible, they should be laid underground. However, it is recognised that a balanced view must be taken against costs which could render otherwise acceptable projects unviable. Where undergrounding of lines is not possible or applicable, proactive engagement with energy companies and the public to mitigate the visual impact of any potential new transmission lines should take place.*'

'*Planning authorities should plan positively for grid infrastructure. Development plans should facilitate the grid infrastructure required to support the renewable and low carbon energy potential for the area, particularly areas identified for such development. Planning authorities should support appropriate grid developments, whether or not the developments to be connected are located within their authority.*'

'*Planning authorities and the energy industry, including National Grid and Distribution System Operators, should engage with each other to ensure development plans take grid infrastructure issues into account. This can also ensure investment plans for transmission and distribution align with the identified potential for renewable and low carbon energy as well as the future challenges of increasing electrification of transport and heat.*'

1.4.15 It is identified in PPW that a positive approach to grid infrastructure should be taken to support low carbon emissions. The proposals of Green GEN Cymru and Bute Energy would make a significant contribution to these ambitions by both unlocking and delivering the renewable energy potential in areas that are not currently serviced by sufficient grid infrastructure.

1.4.16 It is acknowledged that it is the preferred position of Welsh Government that new power lines should be placed underground where possible unless this could render otherwise acceptable projects unviable.

Local Planning Policy

Powys

1.4.17 Powys County Council's Local Development Plan (Adopted April 2018)[12] sets out the Council's policies for the development and use of land in Powys during the Plan Period 2011-2026.

1.4.18 The Plan focuses on the Council's visons, objectives, polices and proposals for the sustainable development/ use of land in Powys during this time period. Policy RE1 within the development plan focuses on renewable energy. This policy supports the delivery of national policy and encourages renewable, low and zero carbon energy projects. Paragraph 4.10.13 states:

> 'all renewable energy proposals and associated infrastructure, such as power lines or battery storage facilities, must respect the existence and amenities of neighbouring residential and sensitive properties including approved development'.

Shropshire

1.4.19 Shropshire Council's Site Allocations and Management of Development Adopted Plan (SAMDev plan)[13] sets out detailed polices on how to deliver sustainable development across Shropshire. It also contains policies for the management of new development across Shropshire, which complement the policies already

[12] https://en.powys.gov.uk/article/4898/Adopted-LDP-2011---2026.

[13] https://www.shropshire.gov.uk/planning-policy/local-planning/samdev-plan-2006-2026/

adopted in the Shropshire Core Strategy[14]. Policy MD8 within the development plan focuses on infrastructure provision. This policy splits infrastructure into existing infrastructure and new strategic infrastructure. There is an emphasis that community involvement should be considered an integral part of the development process for new infrastructure within Shropshire. For new infrastructure related to energy, transport, water management and telecommunications Policy MD8 suggests that consideration for potential impacts should be given to:

- Residential and other sensitive neighbouring land uses;
- Visual amenity;
- Landscape character and sensitivity, including impacts on sensitive skylines;
- Natural and heritage assets, including the Shropshire Hills AONB (Policies MD12 and MD13);
- The visitor and tourism economy including long distance footpaths, cycle tracks and bridleways (Policy MD11);
- Noise, air quality, dust, odour and vibration;
- Water quality and resources;
- Impacts from traffic and transport during the construction and operation of the infrastructure development; and
- Cumulative impacts.

1.5 Environmental Impact Assessment (EIA) Scoping

1.5.1 Regulation 8 of the EIA Regulations 2017 outlines the EIA scoping process, which determines which topics should be included in the Environmental Statement (ES), and the way in which they should be assessed.

1.5.2 Green GEN Cymru issued a Scoping Report to the PINS on 22 January 2024[15]. Scoping is an early step in the Environmental Impact Assessment (EIA) process, ensuring the assessment process focuses on the likely significant effects associated with a project. Scoping also provides an opportunity for stakeholders to comment on the proposed methodologies, identify sources of baseline information and raise any specific issues that they consider require assessment. The Scoping Opinion adopted by the SoS at the Department for Energy Security & Net Zero on 4

[14] https://www.shropshire.gov.uk/planning-policy/local-planning/core-strategy-2006-2026/

[15] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020035/EN020035-000015-GGVF%20-%20Scoping%20Report%20(main%20text%20and%20Appendices%20A-C).pdf

March 2024 was subsequently published on 20 May 2024[16]. Following the receipt of the Scoping Opinion, the original scope of survey and assessment has been amended to incorporate the advice included within the Scoping Opinion.

1.6 Structure of this Report

1.6.1 This RAD is structured as follows:

- Chapter 2 sets out the need for the Project;
- Chapter 3 provides a description of the Project that is the subject of the statutory consultation;
- Chapter 4 describes the overall methodological principles applied to the routeing stage (beyond the identification of the preferred corridor as presented in the RCD);
- Chapter 5 describes the outcome of the route identification process;
- Chapter 6 describes the preferred route alignment; and
- Chapter 7 sets out the proposals for the consultation on the preferred route alignment.

[16] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020035/EN020035-000014-GGVF%20-%20Scoping%20Opinion.pdf

2 Need for the Project

2.1.1 The UK and Welsh Governments have acknowledged the significant challenges posed by climate change. This is demonstrated by the recent updates to relevant policies and legislation.

UK Legislation and Policy

2.1.2 In 2008, the Climate Change Act entered into force in UK law[17]. Section 1 of the 2008 Act, which was amended in 2019 when the UK Government declared a climate emergency, requires the Secretary of State to ensure that the net UK carbon account for 2050 is at least 100% lower than the 1990 baseline. This is often referred to as the net zero target. On 20 April 2021, the UK Government announced its commitment to reduce carbon emissions by 78% by 2035 compared to 1990 levels (including, for the first time, those from shipping and aviation). The new target was enshrined in law in June 2021. The 2008 Act also requires the Secretary of State to set at five-year intervals beginning in 2008, legally binding carbon budgets, which place a restriction on the total amount of greenhouse gases the UK can emit over those five-year periods. The underlying objective of these carbon budgets is to set a trajectory towards the achievement of the net zero target by 2050. The 6th carbon budget, which relates to the period 2033-2037, was made in 2021. The UK Government's October 2021 Net Zero Strategy sets out its policies and proposals for decarbonising all sectors of the UK economy in order to meet its net zero target by 2050[18].

2.1.3 As set out in Chapter 1, the NPSs set out government policy on different types of national infrastructure development. For this Project, NPS EN-1 and NPS EN-5 provide the following guidance in relation to the need for the Project.

2.1.4 Paragraph 3.3.1 of NPS EN-1 sets-out that electricity meets a significant proportion of our overall energy needs, recognising that our reliance on it will increase as we strive to meet our net zero target, whilst ensuring that there is sufficient electricity to meet demand.

[17] https://www.legislation.gov.uk/ukpga/2008/27/contents

[18] https://www.gov.uk/government/publications/net-zero-strategy .

2.1.5 Paragraph 3.3.65 of NPS EN-1 underlines the urgent need for new electricity network infrastructure, '*to be brought forward at pace to meet our energy objectives*'.

2.1.6 Paragraph 3.3.66 of NPS EN-1 goes on to say that the security and reliability of the UK's current and future energy supply is, '*highly dependent on having an electricity network which will enable new renewable electricity generation, storage, and interconnection infrastructure that our country needs to meet the rapid increase in electricity demand required to transition to net zero while maintaining energy security*.'

2.1.7 Paragraph 3.3.67 of NPS EN-1 highlights the importance of new lines of 132kV (and over 2km) and above in order to, '*preserve and guarantee the robust and reliable operation of the whole electricity system*'.

Welsh Government Legislation and Policy

2.1.8 The Environment (Wales) Act 2016[19] also requires the Welsh Government to reduce greenhouse gas emissions in Wales to net zero for the year 2050, with a system of interim emissions targets and carbon budgets. The Welsh Government has set ambitious renewable energy targets to transition towards sustainability. By 2030, Wales aims to generate the equivalent of 70% of its annual electricity demand from renewable sources[20]. Building on this, the government announced in January 2023 a target to meet 100% of its electricity needs from renewables by 2035. These goals are part of Wales' broader strategy to enhance energy resilience, reduce carbon emissions, and align with its net-zero aspirations.

2.1.9 In April 2019, the Welsh Government declared a climate emergency and set an ambitious target of net zero emissions no later than 2050. In March 2021, new legislation came into force in Wales, amending the 2050 emissions target and the interim emissions targets. As well as amending the 2050 emissions target to net zero, the 2030 target was increased from 45% to 63% below the 1990 baseline, and the 2040 target was increased from 67% to 89% below the 1990 baseline. The Welsh Government and Plaid Cymru have jointly invited an independent group to

[19] https://www.legislation.gov.uk/anaw/2016/3/contents

[20] https://www.gov.wales/climate-change-targets-and-carbon-budgets#:~:text=Monitoring%20progress-,Net%20zero%20pathway,of%205%2Dyear%20carbon%20budgets.

explore how the country can speed up its transition to net zero, and how amending its target to 2035 from 2050 could be made possible.

2.1.10 As part of its plan to tackle this emergency, the Welsh Government has brought forward policies to encourage innovative ways of creating energy that are sustainable, secure, and cost effective. This includes Future Wales and PPW. As part of these new policies, the Welsh Government has confirmed that 'in determining planning applications for renewable and low carbon energy development, decision makers must give significant weight to the need to meet Wales's international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency' (Future Wales, Policy 17). Future Wales Policy 17 also confirms that: '*The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet our future energy needs*' and that '*New strategic grid infrastructure for the transmission and distribution of energy should be designed to minimise visual impact on nearby communities. The Welsh Government will work with stakeholders, including National Grid and Distribution Network Operators, to transition to a multi-vector grid network and reduce the barriers to the implementation of new grid infrastructure*'.

2.1.11 In October 2021, the Welsh Government published its second statutory decarbonisation plan (LCDP2) titled Net Zero Wales[21] which sets out policies and proposals across all Ministerial portfolios. These policies include an ambition to install 1GW of additional renewable energy capacity by 2025 and to increase the delivery of renewable energy developments on land through the planning system through the positive policy framework provided by Future Wales.

2.1.12 It has long been acknowledged by the Welsh Government, energy generators and network operators that a key challenge with respect to delivering Wales's net zero obligations is the fact that the strongest renewable resources are generally in areas that have the lowest existing electricity network capacity, meaning that key strategic opportunities for renewable energy generation are currently sterilised. Without intervention, this lack of grid infrastructure across Wales is likely to have a detrimental impact on achieving the UK Government and Welsh Government's net zero targets. Future Wales notes '*The Welsh Government acknowledges the significant challenge that grid infrastructure and capacity will have on the potential*

[21] https://www.gov.wales/net-zero-wales

for new on-shore and off-shore renewable energy development across Wales' adding that the Welsh Government '*are committed to working with energy networks and developers to identify opportunities and barriers as well as working collaboratively to find solutions*'. There is therefore a clearly identified national need for new renewable energy development and associated grid infrastructure in Wales.

2.1.13 The proposed Energy Developments, and associated connection infrastructure, provide a key opportunity to help to address the climate emergency in a timely manner by providing network connection capability for strategic renewable energy generation.

2.1.14 In addition to the Energy Developments that will be directly connected to the grid, our customers are proposing to develop new Energy Developments that are geographically remote from existing high voltage (HV) electricity infrastructure.

Local Policy

2.1.15 The recent updates and ambitious targets within policies and legislation evidence a clear recognition by the UK and Welsh Governments of the need to expedite the advancement of renewable energy as a focal point of their strategies to address the climate emergency.

2.1.16 This recognition is reaffirmed by local authorities in Powys and Shropshire, the two councils with jurisdiction of the land within which the Project sits. Reports from both councils explain that the impacts of climate change are already evident in these regions. For example, Powys County Council's Strategy for Climate Change report[22] states '*Ambitious action on climate change saves lives. Climate change is a significant global issue with local impacts for everyone. Powys has already experienced extreme weather events including flooding and storm damage. Although we are already experiencing the negative impacts of climate change, we can still decide what our future looks like. Our actions today impact on both current and future generations*.'

2.1.17 Powys County Council's Local Development Plan (Adopted April 2018) sets out the Council's policies for the development and use of land in Powys during the Plan Period 2011-2026.The Plan summarises the key issues and considerations facing

[22] https://en.powys.gov.uk/article/10307/What-is-the-Council-doing-on-Climate-Change

Powys and which the LDP seeks to address. This includes support for the utilisation of Powys' renewable energy resource and associated infrastructure, where cumulative, environmental, socio-economic effects are acceptable.

2.1.18 This is reflected in Objective 5 of the Plan, 'Energy and Water' which seeks to:

'ii Deliver the county's contribution to the national targets for renewable energy generation'.

2.1.19 Similarly, Shropshire Council's Climate Change for Communities report[23] states 'In Shropshire, long term climate change trends mean hotter, drier summers and milder wetter winters and an increase in extreme events across the seasons, including intense rainfall, extreme cold and heat waves. The extremity of change is expected to depend on future levels of emissions of climate change gases. The more that is done now to reduce emissions, the less extreme the expected impact in the future.'

2.1.20 Shropshire Council's Core Strategy Development Plan Document (Adopted March 2011)[24] sets out the Council's vision, strategic objectives and broad spatial strategy to guide future development and growth in Shropshire during the period to 2026. The strategy sets out the following priorities to deliver its vision:

'Shropshire will be recognised as a leader in responding to climate change;

Working with communities to prepare for and adapt to the issues that climate change may bring and ensure the rich varied environment is valued, protected and enhanced.'

2.1.21 The Council is at an advanced stage in the preparation of its replacement Local Plan, with the Pre-Submission Draft of the Shropshire Local Plan 2016 to 2038 (Regulation 19) published in December 2020[25]). The Plan provides a broad basis for dealing with a number of challenges, including an identified need, '*to respond to the climate change emergency*'. The transition away from fossil fuels would require new energy generation from sustainable sources such as wind, tidal and solar. Onshore wind development could play a key role in helping the Welsh Government

[23] https://www.shropshire.gov.uk/media/7187/climate-change-guide-for-communities.pdf

[24] https://www.shropshire.gov.uk/media/8534/core-strategy.pdf

[25] https://www.shropshire.gov.uk/media/21100/sd002-draft-shropshire-local-plan.pdf

reach its renewable targets. However, there is currently no existing infrastructure to facilitate the integration of these alternative energy sources. The infrastructure that is required to transition to a low-carbon economy would bring benefits such as creating new skills and jobs, both locally and nationally.

Summary

2.1.22 Green GEN Cymru was granted an IDNO license by Ofgem in July 2024. This license enables the operation of electricity distribution networks that will support the growing demand for renewable energy infrastructure. When routeing the Project, Green GEN Cymru ensured the development adheres to the IDNO licence obligation to be 'economic and efficient' which is discussed in more detail in the RCD and in Section 1.2 of this report. Green GEN Cymru's connection will mean that the energy generated by new energy parks can be used in homes and businesses, locally and nationally.

2.1.23 The proposed Llyn Lort Energy Park near Cefn Coch is one of the new Mid Wales Energy Parks. However, the current electricity network lacks the capacity to connect the proposed energy parks. This issue is raised by EDF Renewables in the Renewable Energy in Wales report[26] which states *'There can be no illusion: without necessary investment in new grid infrastructure, or plans to upgrade existing infrastructure in Wales in the short term, there will not be the development in renewable energy to meet the 2030 and 2050 targets, let alone a new 2035 target. Nor will development happen at the pace and scale required.'*

2.1.24 The Project therefore aims to support these priorities by connecting new energy to help address the climate emergency. The new connection needs to have sufficient capacity to transport energy from the proposed energy park and other onshore wind developments in Mid Wales.

[26] https://senedd.wales/media/sdudz5hj/cr-ld15125-e.pdf.

3 Project Description

3.1 Introduction

3.1.1 This chapter outlines the current proposals for the Project, which have been developed through ongoing engineering design, discussions with landowners, and environmental assessment. The Project is an overhead line which is approximately 50km in length connecting the proposed Grug y Mynydd collector substation near Cefn Coch in Powys to a new National Grid substation at Lower Frankton in Shropshire.

3.1.2 The current proposals have also incorporated feedback received during the non-statutory consultation that took place between 6 September and 18 October 2023. The design will continue to develop based on feedback received during the statutory consultation and further ongoing environmental and engineering design work, which would also be informed by stakeholder engagement. The final design will be presented in the ES and Application for development consent.

3.2 Overview of the Project

3.2.1 The Project comprises an approximately 50km double circuit 132kV connection from the new 132kV Grug y Mynydd Collector Substation (which would be close to the existing Tirgwynt Wind Farm and proposed wind farms being promoted by Bute Energy Ltd (Llyn Lort Energy Park) and Vattenfall (Mynydd Lluest y Graig Wind Farm) in Powys, Wales) to the existing 400kV network in Shropshire, England.

3.2.2 The current proposals for the Project, which are the subject of the 2025 statutory consultation, comprise:

- A new double circuit 132kV connection comprising an OHL with a small proportion of UGC from the new 132kV Grug y Mynydd Collector Substation (close to the existing Tirgwynt Wind Farm and proposed wind farms being promoted by Bute Energy Ltd (Llyn Lort Energy Park) and Vattenfall (Mynydd Lluest y Graig Wind Farm) in Powys, Wales) which will accommodate incoming OHL from additional proposed energy sites.
- A new UGC, which will be routed from the Grug y Mynydd Collector Substation, through the proposed Llyn Lort Energy Park to avoid conflicting with the proposed turbines and connect to a new CSEC near Cors y Carreg which is required to transition from a UGC to an OHL.

- A new OHL which will be supported on L7 steel lattice towers with six cross-arms (three on each side).
- A new Switching Station near Lower Frankton which allows the power to be isolated from the substation being developed by National Grid Electricity Transmission (NGET) to connect to the existing 400kV NETS in Shropshire, England.
- There will also be temporary works associated with the construction of the Project.

3.2.3 The Project would commence at the 132kV Grug y Mynydd Collector Substation, Powys, and would include the installation of electrical switchgear and associated equipment. The 132kV UGC connection would extend from the Collector Substation, through the proposed Llyn Lort Energy Park for approximately 4.8km before connecting to a new CSEC near Cors y Carreg. The Cors y Carreg CSEC is required to transition from a UGC to an OHL and would require the installation of electrical equipment and a gantry. The Project elements can be seen in the Consultation Plans (331201487-STN-22-XX-LAY-OH-003).

3.2.4 The proposed 132kV OHL would then travel in a north-easterly direction for 45km through the Vyrnwy Valley, supported on ‘L7c’ steel lattice towers with an average height of 28.5m. It is currently anticipated that the tallest tower would be 36m and the smallest tower would be 23m above ground level.

3.2.5 The 132kV OHL would then connect to a new Switching Station near Lower Frankton which allows the power to be isolated from the National Grid substation and would include the installation of electrical equipment and a gantry, near Lower Frankton in Shropshire. There are currently two routes (west and east) proposed for this connection as shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003). The chosen route will be confirmed within the ES which will consider design development as well as feedback from statutory consultation and stakeholders. This would allow for connection to the new 400kV substation near Lower Frankton, which is being proposed and consented separately by National Grid.

3.2.6 In addition, third-party utility diversions and/or modifications would be required to facilitate the construction of the Project which would cross existing 132kV and lower voltage OHLs, the Shrewsbury to Chester railway line and the Montgomery Canal. The typical construction methodology for crossing existing 132kV and lower

voltage OHL would involve scaffolding protection or undergrounding of the third-party utility.

3.2.7 The Project would require permanent infrastructure during the operation and maintenance phases of the Project which would include infrastructure, drainage and lighting associated with the Grug y Mynydd Collector Substation, UGC, Cors Y Carreg CSEC, OHL, and Lower Frankton Switching Station. Maintenance access roads would also be required.

3.2.8 There would also be land required for mitigation, compensation and enhancement of the environment including for Biodiversity Net Gain (BNG) in England and Net Benefits for Biodiversity (NBB) in Wales.

3.2.9 As well as the permanent infrastructure, land would be required for temporary construction activities, including access tracks and construction compounds which would provide locations for the storage of construction materials, equipment, machinery, and secure locations for site offices and staff welfare provision.

3.3 Draft Order Limits and Limits of Deviation (LoD)

3.3.1 The Order Limits are defined as the maximum extent of land within which the Project may be carried out, and includes land required on a permanent and temporary basis to build and operate the Project.

3.3.2 The Project's draft Order Limits also include Limits of Deviation, which represent the maximum deviation for permanent infrastructure. The LoD allow for the adjustment to the final positioning of the Project features to avoid localised constraints or unknown or unforeseeable issues that may arise.

3.3.3 The Project's draft Order Limits are shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003) included as part of the statutory consultation materials. The following assumptions have been made at this stage of the Project's development:

- Grug y Mynydd Collector Substation, Lower Frankton Switching Station, and Cors y Carreg CSEC – the proposed locations for these elements within the Project's draft Order Limits have been identified (in part) to provide sufficient space to micro-site and orientate the infrastructure to reduce environmental effects and allow for mitigation such as landscaping and habitat creation as

required. The vertical LoD for these elements of permanent infrastructure could be up to 10% higher than the maximum heights specified.

- UGC – the draft Order Limits are generally 60m wide. The lateral LoD is 20m from either side of the centre line. There is no defined vertical LoD as the extent would be determined during detailed design in response to more detailed information on ground conditions, however, the UGC would be a minimum depth of 1.2m below ground level.
- OHL – the Project's draft Order Limits are generally 100m wide to accommodate the permanent infrastructure, construction working areas and the required LoD. The lateral LoD is 40m; 20m either side of the centre line. This lateral LoD allows flexibility to move the OHL tower positions for unforeseen circumstances, such as poor ground conditions or archaeological finds, and to cater for maximum conductor (overhead line) swing. The vertical LoD would be 6m in height which would allow for 2 extensions (which are in 3m sections) on any of the towers for unforeseen circumstances and could be any extent in depth underground.

3.3.4 Green GEN Cymry is continuing to investigate the longitudinal LoD (i.e. the extent to which towers may be moved up and down along the length of the overhead line). Green GEN Cymry's final proposals for the longitudinal LoD will be set out in detail in the ES together with any constraints that the Green GEN Cymru identifies.

3.3.5 The LoD will be defined further within the Application for development consent and described within the ES.

3.4 Construction

3.4.1 This section briefly outlines how the Project would be constructed including the temporary work features, such as construction compounds and haul roads. A more detailed explanation is included in Chapter 2 'Project Description' of the Preliminary Environmental Information Report[27] and on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003).

Temporary Construction Compounds

[27] https://greengenvyrnwyfrankton.com/en/documents/

3.4.2 The following types of compounds are proposed to facilitate the construction of the Project:

- Main works compounds which would be the main point of deliveries, materials storage, fuel storage, office space, meeting facilities, welfare facilities and power generators for the Project's delivery team.
- Satellite compounds would be smaller than the main works compound and would serve as specific working areas to provide welfare facilities for staff and points for the delivery of materials to work areas.

Temporary Construction Access Points and Haul Roads

3.4.3 Construction haul roads would be provided to allow access for construction vehicles from access points to the working areas. This would reduce the need for construction vehicles to use the local road network. The haul roads are proposed to be constructed adjacent to the UGC route and to provide access to the OHL towers.

3.4.4 Access points would be used where construction vehicles are required to leave the local road network to access working areas via the construction haul roads. Existing access points would be used where available and practicable. In some locations, there is likely to be a need for new or widened accesses (bellmouths), along with localised modifications of public highways to safely accommodate construction vehicles.

Grug y Mynydd Collector Substation and Lower Frankton Switching Station

3.4.5 The Project would commence at the 132kV Grug y Mynydd Collector Substation, which would include the installation of electrical switchgear and associated equipment. The typical construction methods outlined below for the Grug y Mynydd Collector Substation would be the same for the Switching Station in the vicinity of Lower Frankton.

3.4.6 The typical construction sequence to install the Grug y Mynydd Collector Substation and Lower Frankton Switching Station would involve:

- Vegetation clearance and stripping of topsoil from the proposed permanent site area and any working areas (topsoil would be stored in bunds on site, for reuse).

- Set up of temporary access, construction compounds and temporary drainage (including temporary fencing, laying and compaction of granular material (and asphalt where required, proposed at the construction laydown areas), excavation of drainage attenuation features, installation of pipes, etc.).
- Earthworks for construction of permanent site access and platform (including the forming of temporary soil bunds for storing excavated topsoil). Where practicable the temporary and permanent access would be combined.
- Civil engineering works, to include permanent fencing, access, drainage and foundations (which may include piling of larger structures and/or equipment that is sensitive to ground settlement).
- Installation of structures (e.g. gantries).
- Building works, if the site is to include proposed gas-insulated switchgear (GIS), air-insulated switchgear (AIS) or a hybrid option. The design options are still under consideration.
- Overhead line or underground cabling works, as necessary.
- Mechanical and electrical equipment installation.
- Testing of equipment.
- Commissioning/energisation.
- Reinstatement of working areas outside the permanent substation boundary (including environmental mitigation (including landscape planting/habitat creation as required).

Underground Cables

3.4.7 The anticipated method for installing UGC comprises open-cut techniques which typically involve the following

- Appropriate fencing would be installed to prevent trespassing and livestock.
- Vegetation would be removed where necessary, topsoil would be stripped, and subsoil would be removed and stored in accordance with the Outline Construction Environmental Management Plan (OCEMP).
- A temporary haul road would be installed to provide access for construction vehicles.
- Open trenches would be excavated, and ducts would be installed surrounded with cement-bound sand (CBS). Cables would then be winched into position from each joint bay. Ancillary communication cables (which are used for network monitoring and fault detection when the route is operational) are typically placed adjacent to the main cables and within the CBS surround before backfilling.

3.4.8 The underground cables would typically be delivered to the construction compounds in batches using specialist low-loading articulated lorries. A smaller lorry would then deliver an individual drum from the compound to the working area along the cable construction route. The cable would be transported on cable drums and a crane would be used to offload these from the delivery vehicles. The cables would be pulled off the drums onto rollers in the trenches using winches. The cables would then be pulled through the ducts and would be jointed together at joint bays.

Cable Sealing End Compound

3.4.9 A Cable Sealing End Compound provides the interface between underground cable and overhead line sections. The Cors y Carreg CSEC would comprise high voltage equipment and gantry structures, to enable the transition between underground cables and overhead conductors.

3.4.10 The working areas and the area for the permanent infrastructure at the Cors y Carreg CSEC would be stripped of the upper layers of soil and stored in accordance with the OCEMP. The working areas and the area for the permanent infrastructure at the Cors y Carreg CSEC would be cleared of vegetation where required and fenced appropriately.

3.4.11 Sheet piling, rock anchor and piling rig may be required at the Cors y Carreg CSEC, and this would be confirmed through a programme of ground investigations which would inform the foundation designs.

Overhead Line

3.4.12 The working areas at each tower base would be cleared of vegetation where required and fenced appropriately. A temporary stone pad would be required adjacent to each tower location, for plants such as cranes and piling rigs. Materials would be brought to site on HGVs and would include concrete for tower foundations, steelwork for the OHL towers and the conductors wrapped around large drums. The tower's foundations would be constructed of concrete beneath each leg position.

Crossing Protection

3.4.13 Where the new overhead line crosses a road, railway line or navigable watercourse, scaffolding would be used to protect the crossing during construction. During site set-up, scaffolding would be placed on either side of the feature.

3.4.14 The working area around the scaffold would be sufficient to erect the scaffold and to install and accommodate ground anchors or kentledge blocks required to stabilise the structure and catenary wires supporting the nets. Some night work may be required to raise scaffold netting over major roads and the Shrewsbury to Chester railway line if specified by the highway and railway authorities.

Third Party (Statutory Undertakers) Works

3.4.15 To facilitate the construction of the Project, several existing third-party services would need to be diverted, removed, undergrounded or protected. This is primarily where there is an interface with the Project, such as with the proposed new OHL crossings, along primary access routes or at the access point locations. The typical construction methodology for crossing existing 132kV and lower voltage OHL would involve scaffolding protection or underground the third-party utility.

Reinstatement

3.4.16 Once the Project has been constructed, the working areas would be removed, and the sites reinstated. Temporary construction haul roads, bridges, and culverts will be removed after the project. However, if they are identified to be required for long-term maintenance or benefit the environment, and if the landowner and relevant authorities agree, they may be retained.

3.4.17 Temporary features such as site welfare, fencing and scaffolding would be removed. Any stripped subsoil and topsoil would be reinstated, and the sites would be returned to their former use.

3.4.18 Reinstatement would also include landscape planting. This is likely to include reseeding grassland areas, and replanting hedgerows. It would also include additional landscape planting at the Grug y Mynydd Collector Substation, Cors y Carreg CSEC and Lower Frankton Switching Station to help screen the infrastructure from sensitive receptors, which may also be included as part of the BNG / NBB proposals once completed.

4 Green GEN Cymru's Approach to Routeing and Options Appraisal

4.1 Introduction

4.1.1 Green GEN Cymru's appraisal process identifies and compares the feasible options to provide the connections from proposed energy generation in Mid Wales to the NETS. These options have been developed and investigated to allow a comparative assessment to be undertaken. Further details on the options appraisal methodology can be found in Green GEN Cymru Approach to Routeing Grid Infrastructure Across England and Wales[28], the Grid Connection Strategy Phase 3[29], and the RCD[30].

4.1.2 The routeing process comprises the findings of each step informing the next step as the routeing design is progressively refined based on an increasingly detailed assessment. This is an iterative approach which enables the validity of previously applied assumptions to be confirmed and ensures confidence in the findings of each step before each subsequent step begins.

4.1.3 The routeing process for the Project is divided into the consideration of corridors (Steps A-D) and the consideration of route options (steps E-I) as shown below.

[28] A4_Approach+to+Routeing+Grid+Infrastructure+Across+England+and+Wales.pdf

[29] https://greengenvyrnwyfrankton.com/en/documents

[30] https://d141qvydpnmd03.cloudfront.net/RCD-with-appendicies.pdf.

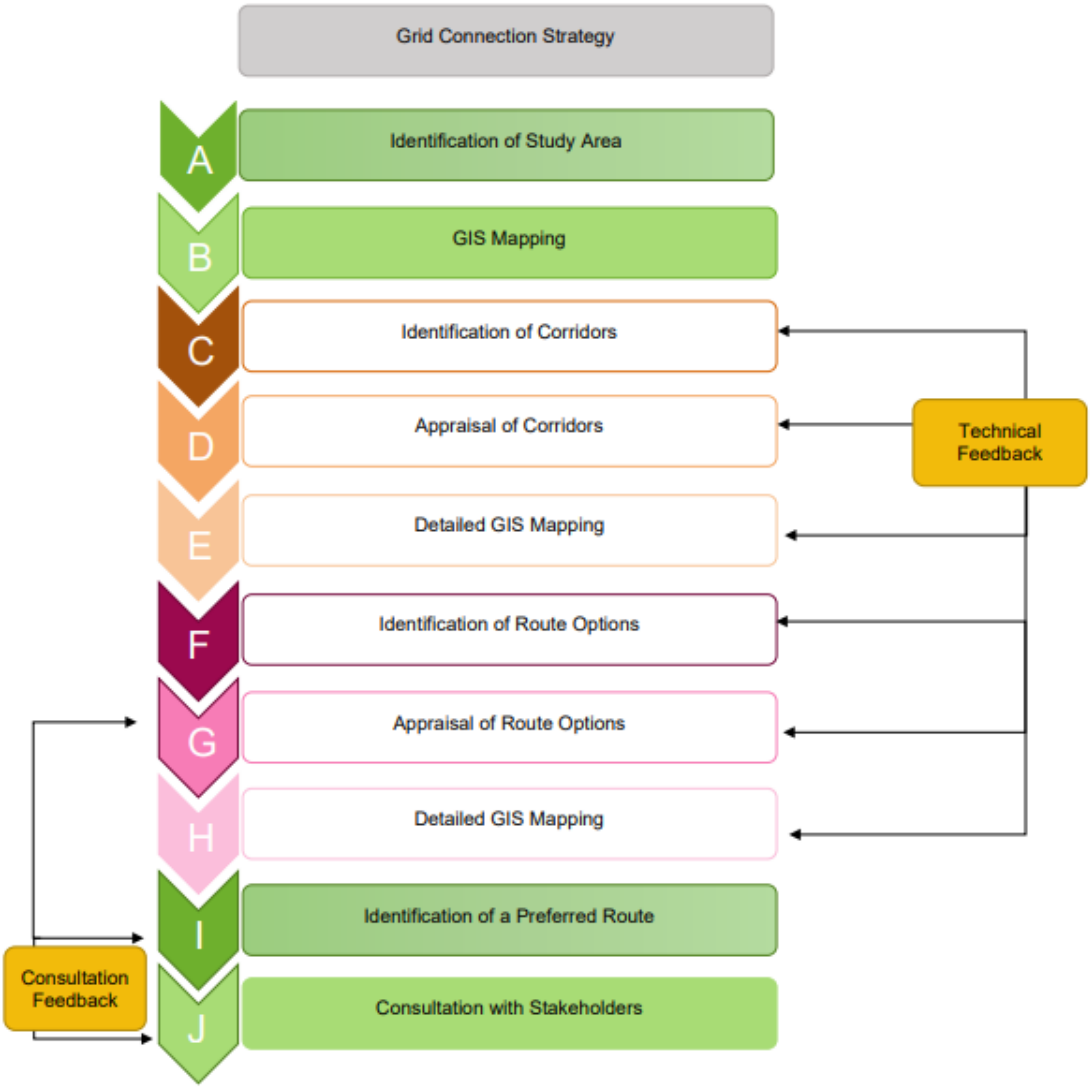


Figure 4.1 – Routeing Methodology

4.2 Strategic Option Development

4.2.1 Following the need for the Project being identified strategic options were identified to determine how best to achieve a connection between the proposed energy generation in Mid Wales and the NETS.

4.2.2 The Green GEN Cymru Phase Two Grid Connection Strategy assessed and considered ten potential connection options, within three geographical regions. Following the grant of the IDNO licence the Grid Connection Strategy has been revisited and the Green GEN Cymru Phase Three Grid Connection Strategy published as part of the materials to support the statutory consultation.

4.2.3 Following the appraisal of options the Lower Frankton option is still considered, on balance, the best-performing option, whilst having regard for environmental considerations and the need to deliver an economic and efficient solution to connect energy generation in Mid Wales to the NETS.

4.3 Corridor Identification and Selection

4.3.1 Following the selection of the strategic option, the routeing and siting process commenced and is documented in the RCD.

4.3.2 The selection of the preferred corridor consisted of several steps:

- **Step A:** Identification of study area.
- **Step B:** GIS Mapping and Routeing Considerations.
- **Step C:** Identification of Corridors.
- **Step D:** Appraisal of Corridors.

4.3.3 A study area was first defined to deliver the Strategic Proposal between the proposed energy generation in Mid Wales and Lower Frankton. Initially, the study area was drawn to ensure it could accommodate a number of potential OHL options.

4.3.4 The study area was then refined to reflect the topography and to avoid geographically extensive 'areas of highest environmental value', such as National Parks and Special Protection Areas, whilst maintaining a reasonably direct route.

4.3.5 Once the study area was defined, routeing considerations were mapped reflecting the Holford Rules, considering several constraints relating to areas of high amenity value. The following environmental considerations were used to inform the identification of corridor options:

- National Parks and Areas of Outstanding Natural Beauty (now National Landscapes).
- Special Protection Areas (SPA).
- Special Areas of Conservation (SAC).
- Ramsar Sites.
- Sites of Special Scientific Interest (SSSI).
- National Nature Reserves (NNR).
- Scheduled Monuments.
- Conservation Areas.

- Historic Parks and Gardens.
- Wind farms which were operational, under construction, consented or with a valid planning application were mapped, as these should be avoided by the OHL where possible.

4.3.6 Residential properties were also mapped with 150m 'trigger for consideration' zones (zones within which the potential for visual effects needs particularly detailed consideration), as were areas of ancient woodland.

4.3.7 The following routeing considerations were also mapped as part of the corridor option mapping, as these would present challenges for the OHL route:

- Steep slopes: gradients over 10 degrees were mapped for information, and gradients over 22 degrees avoided where possible.
- 400kV, 275kV and 132kV OHLs: these were mapped for information only at this stage, as any new OHL will be required to maintain a safety clearance from existing OHLs.
- Areas of high ground: elevations of over 200m were mapped for information, and elevations over 450m avoided where possible.

4.3.8 The Holford Rules three, four, and five formed the basis for the landscape-led identification of corridors in the field. These Holford Rules state that OHL infrastructure is more widely visible from surrounding areas when located on higher ground, for example on ridges and skylines. Direct corridors with fewer 'bulky' angle structures are recommended, as is the avoidance of 'wirescape' (e.g. the cumulative effects of multiple OHLs). Therefore, consideration was given to the potential 'fit' of the proposed OHL within the landscape. The key objectives were as follows:

- Follow the grain of the landscape, following moderately open valleys and avoiding complex terrain.
- Minimise the exposure of towers on ridges and skylines.
- Avoid impacts on woodland where possible.
- Use woodland and topography as a backdrop to the line, or as a foreground screen.
- Minimise the number of crossings of linear features (e.g. roads and rivers), and when appropriate cross at a perpendicular angle.
- Avoid creating wirescapes with existing infrastructure (noting that in some cases it may be preferable to colocate routes than to spread effects across a wider area).

- Avoid key views from recreational locations, such as popular walking routes, summits and promoted viewpoints, including those outside the route corridors where appropriate.
- Avoid residential areas as far as practicable.
- Other things being equal, prefer the most direct alignment.

4.3.9 The topography of the study area informed the identification of corridors as the OHL is required to pass from the northern foothills of the Cambrian Mountains to the broad and low-lying floodplains east of the Oswestry Uplands. Three potential corridors along this stretch were identified, two of these corridor options link the Meifod Valley in the south to the floodplains east of Oswestry while the third option travels from the Meifod Valley to the Severn Valley (which lies to the south-east), before heading to the floodplains east of Oswestry.

4.3.10 The three corridor options were then appraised relative to each other across a range of criteria in order to identify a preferred corridor.

4.3.11 The appraisal of corridor options was undertaken in the following stages:

- Identification of appraisal criteria, together with their reasoning for inclusion.
- Application of appraisal criteria to each corridor option, following the appraisal methodology.
- Comparative appraisal of corridor options to identify a preferred corridor.

4.3.12 The appraisal process involved making a professional judgement concerning the potential interaction between the OHL and the outlined environmental considerations, to avoid/minimise likely significant effects.

4.3.13 Based on the balance of all criteria, corridor option one was selected as the preferred corridor. The primary considerations in its favour were:

- It is the shortest corridor;
- It is preferred in relation to landscape and visual amenity and cultural heritage; and
- It contains the smallest area of Best and Most Versatile agricultural land common land, open green space and committed development.

4.4 Route Option Identification and Selection

4.4.1 The route option identification and selection process consisted of several steps:

- **Step E and F**: GIS Mapping and Identification of Route Options
- **Step G:** Appraisal of Route Options
- **Step I:** Identification of a Preferred Route

4.4.2 Following on from the identification of the preferred corridor, potential route options were identified to link the proposed CSEC with the proposed substation siting area in Shropshire. As with the corridor options, the purpose of identifying route options is to compare the alternative route options to identify a preferred route.

4.4.3 The landscape-led approach aimed to define a proportionate number of route options for comparative appraisal against environmental and technical constraints. The route options were defined as having a width of 200m to allow for detailed design of the OHL in subsequent stages.

4.4.4 The constraints outlined at the corridor selection stage formed the basis for defining route options. The Holford Rules were considered, avoiding areas of highest amenity as far as possible.

4.4.5 Constraints of regional/local importance and areas of high amenity value on a smaller scale were also considered when identifying the route options which included:

- Local Nature Reserves (LNR) (Natural Resources Wales (NRW) and Natural England)), Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation in Powys (SINC), The Royal Society for the Protection of Birds (RSPB) Reserves, Ramsar Sites, Special Landscape Areas (SLA), Powys Landscape Character Areas (LCA), Shropshire Landscape Character Types (LCT) etc.
- Ancient Woodland (NRW and Natural England) and Other Woodland.
- Geological Conservation Review Sites (NRW and Natural England) and Peaty Soils (BGS and NRW).
- Registered Historic Landscapes (only in Wales) and Historic Environment Record.
- Committed developments, residential properties, Common Land (OS and Defra), National Cycle Network, long-distance routes, public rights of way and existing OHLs.

4.4.6 The route from the proposed CSEC to the Shropshire substation was split into five sections. Each of the five sections had three route options, though these route options overlapped for part of the route in some areas. The five sections were

numbered 1-5 from south to north. The route options in each section were identified as ‘north (N)’, ‘central (C)’, and ‘south (S)’.

4.4.7 As with the corridor options, an environmental appraisal of route options was undertaken against a series of topic-based criteria. Details of the route options that were considered can be found in Figure 4.3: Corridor Options (Individual) of the RCD.

4.4.8 A technical review of the route options was also undertaken to identify any potential technical constraints to the construction and operation of an OHL within each route option.

4.4.9 The outcome of this stage was the preferred route that was presented at the non-statutory consultation in 2023. The outcome of the next stages in the process is set out in the following chapters of this RAD.

5 Changes to the Preferred Route

5.1 Introduction

5.1.1 This chapter sets out how the design of the Project has evolved since the non statutory consultation in 2023 in response to feedback, further surveys and ongoing assessments. The RCD set out the siting areas and preferred route that were the subject of the non statutory consultation in 2023.

5.1.2 In summary the RCD identified areas for the proposed collector substation and cable sealing end compound in Powys and a preferred route corridor as shown on Figure 1.1.

- The proposed collector substation location sat at the head of an upland valley, within a shallow bowl in the landscape. The area provided opportunities for routeing potential connections.
- The proposed cable sealing end compound was located at the north eastern end of Llyn Lort Energy Park. It was close to a block of woodland which would provide potential screening, and sat within a shallow bowl which would also provides some screening for the site.
- OHL Section 1: Cefn Coch to Llangyniew - route option 1C was preferred as it crossed less steep terrain in the northern part of the route option than the alternatives.
- OHL Section 2: Llangyniew to Meifod - route option 2N was preferred as it was a shorter option and had less changes in direction. Additionally 2N avoided areas of flood plain associated with the Afon Vyrnwy.
- OHL Section 3: Meifod to Llansantffraid-ym-Mechain - route options 3C was preferred for the landscape and visual amenity criteria, avoiding some of the more small-scale and intricate topography located near Plas yn Dinas and Collfryn. It is also located further from and avoids crossing the A495 but crosses more ‘trigger for consideration zones’ for residential properties. There is potential to minimise the intervisibility issues at Plas yn Dinas by careful tower siting.
- OHL Section 4: Llansantffraid-ym-Mechain to Llanymynech - route option 4C was preferred in relation to the landscape and visual amenity criteria, avoiding areas of denser settlement and providing better opportunities to minimise effects on residential receptors. Option 4C crosses less exposed valley areas and avoids passing in close proximity to visitor attractions at Llanymynech Hill

Camp or Llanymynech Heritage Area. There is also potential to utilise the eastern-most end of option 4N to cross the B4398.

- OHL Section 5: Llanymynech to Lower Frankton - route option 5N was preferred due to fewer changes in direction.

5.2 Project Evolution

5.2.1 Changes to the siting and the 2023 preferred corridor have been considered due to the feedback from the non-statutory consultation in 2023, subsequent development of the Project design, and further technical assessment. A summary of the key changes is provided below.

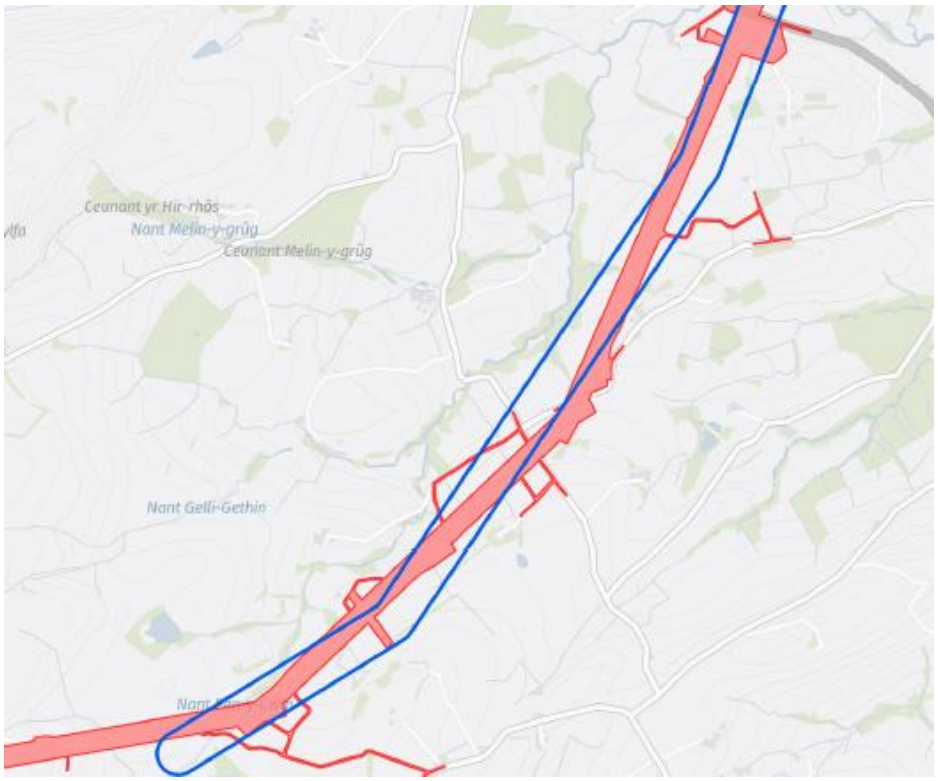
5.2.2 Figure 3.1 from the Preliminary Environmental Information Report shows the preferred route (shown as a blue outline) and the draft alignment (shown in red) and illustrates where the draft alignment has moved outside the preferred route (as identified in the RCD).

Section 1 – Cefn Coch to Llangyniew

5.2.3 Feedback was received on the location of the proposed Cable Sealing End Compound (CSEC) to move to an alternative flat area which would potentially be more efficient for construction and potentially less waterlogged. This would however have potentially increased the length of underground cable by up to 1.5km with a consequent increase in cost. From an environmental perspective the CSEC would potentially interact with a public right of way (PRoW) which would have to be considered. This option was not taken forward as it did not offer significant advantages over the proposed area for the CSEC.

5.2.4 In Section 1 the draft alignment has moved slightly outside the preferred route in to allow for micrositing of the pylons.

Figure 3.1 Preferred Route Changes Section 1 (Extract from PEIR Figure 3.1)



Section 2 Llangyniew to Meifod

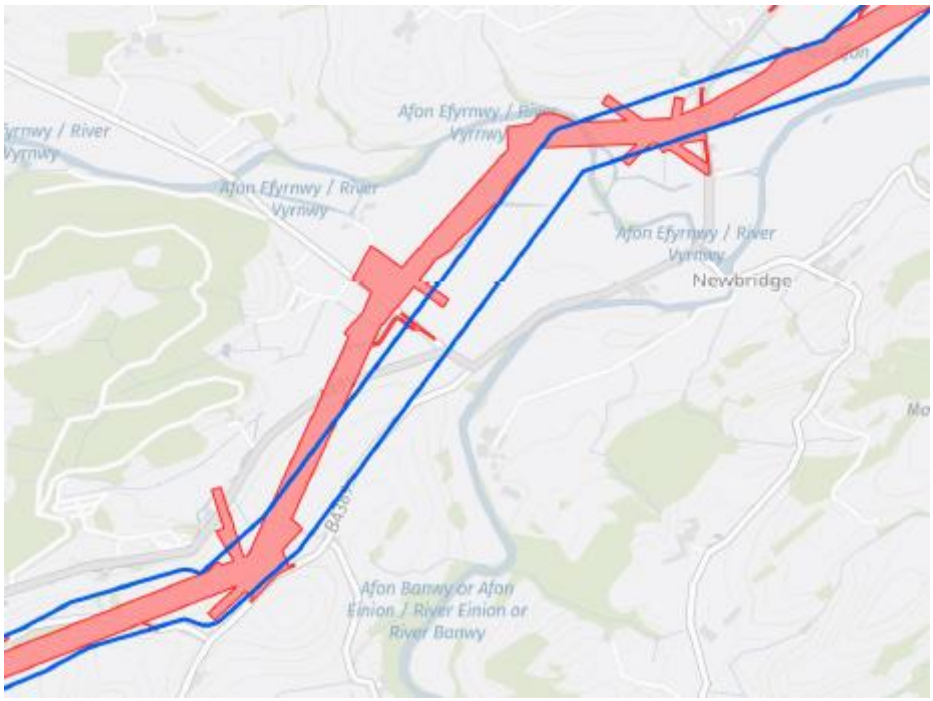
5.2.5 Consultation feedback requested re-routeing of the preferred route to avoid the area used for the National Eisteddfod.

5.2.6 Alternatives to the west and east were considered. From an environmental perspective there was no preference in terms of landscape. Moving the route corridor to the west would still impact the site used for the National Eisteddfod. Moving the route corridor to the east would have brought a route corridor closer to Mathrafal Castle, a scheduled monument, but taken it further from the settlement and a SSSI. Moving to the east, from a technical perspective, would have increased the number of river crossings.

5.2.7 On balance a route to the west was preferred. Whilst not wholly avoiding the site for the National Eisteddfod this change has accommodated the feedback on the detailed use of the site and has minimised the potential impact on Mathrafal Castle.

5.2.8 Green GEN Cymru is engaging with NRW with regard to the proposals for the new National Park and the proposed boundaries in this location and has responded to the recent consultation.

Figure 3.2 Preferred Route Changes Section 2 (Extract from PEIR Figure 3.1)



Section 3 – Meifod to Llansantffraid-ym-Mechain

5.2.9 The preferred route at Waen Fach diverted away from the A495 to the south of the River Vyrnwy. Consultation feedback requested to re-routeing to avoid the chicken farm adjacent to the River Vyrnwy.

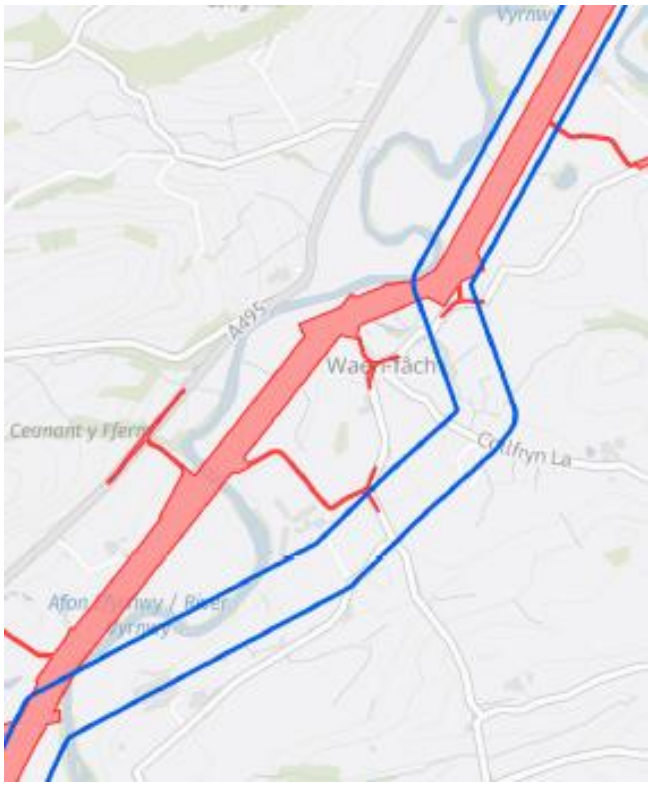
5.2.10 Alternatives to the north and south were considered. Re-routeing to the north would minimise the potential impacts on the chicken farm. From a technical perspective, an option to the north would allow for a straighter alignment with a potentially less complex river crossing.

5.2.11 From the environmental perspective, there was no preference in landscape and visual terms as residential properties would be potentially affected by both options. A northern route would provide slightly more screening and backclothing to the majority of views and would be straighter so less visually obtrusive.

5.2.12 From a heritage perspective, a northern option would be less visible from Bryngwyn Wood where there is a Scheduled Hillfort with a registered park and garden behind. Routeing to the north would also be further from Listed Castle Cottage reducing the likely impact on this designated asset.

5.2.13 In balancing the environmental constraints and technical considerations, the overall preference at Waen Fach was to move to the north of the preferred route for detailed routeing.

Figure 3.3 Preferred Route Changes Section 3 (Extract from PEIR Figure 3.1)



Section 4 - Llansantffraid-ym-Mechain to Llanymynach

5.2.14 The preferred route between Llansantffraid-ym-Mechain and Llanymynech provided opportunities to minimise effects on denser areas of residential properties and settlements. It crosses a less exposed section of the valley near to Carreghofa Locks where existing woodland would provide some screening to minimise visual effects and avoided passing in close proximity to visitor attractions at Llanymynech Hill Camp or Llanymynech Heritage Area.

5.2.15 Consultation feedback requested re-routeing from Pentref to Brenfield Farm, crossing the A483 to avoid impacting Llandysilio.

5.2.16 From an environmental perspective, in terms of heritage, moving the preferred route to the north would reduce the potential harm to Church of St. Tysilio and associated Sundial and School-house (Listed Buildings). It would also take the

route further from properties in Llandysilio. It would however be closer to properties, such as Ty Coch, at the crossing point of the A483, and closer to the buildings in the Llanymynech Conservation Area. However, there is sufficient separation to help preserve setting. These conclusions were reaffirmed by the landscape assessment. From a technical perspective there was no preference for either retaining the preferred route or moving to the north.

5.2.17 In balancing the environmental constraints and the technical considerations, the overall preference was to move the preferred route further north of the A483 away from Llandysilio. Detailed routeing was therefore undertaken in this location.

Figure 3.4 Preferred Route Changes Section 4 (Extract from PEIR Figure 3.1)

OHL Section 5 – Llanymynach to Lower Frankton

5.2.18 The preferred route between Pant and Crickheath provided opportunities to minimise effects on residential receptors (particularly in Pant and Llanymynech) and avoided areas of settlements to the south of the corridor e.g. West Felton. The preferred route used the screening and backclothing afforded by existing woodland and valley sides, particularly near Aston Hall and Pant, avoided areas of elevation and potential skylining near Rednal Moss, avoided running parallel with the canal for long stretches, and minimised visual impact in views from the railway. However, the preference for option 5N was 'slight' in most cases, with option 5C also

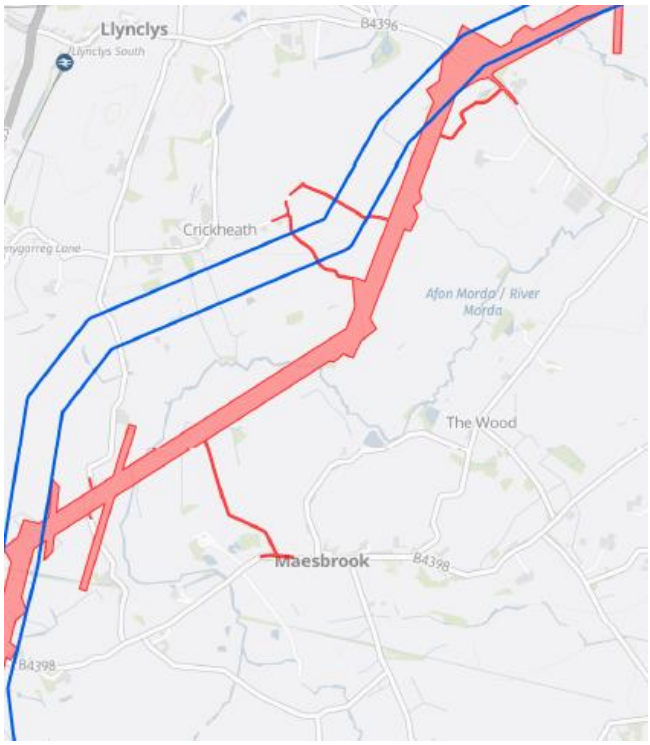
recognised as being a slight preference for residential visual amenity (see Section 3.6 Route Options Appraisal Findings of the RCD).

5.2.19 Consultation feedback requested rerouteing to increase the distance between the preferred route and Crickheath.

5.2.20 From the environmental appraisal, in terms of landscape, utilising option 5C would reduce the magnitude of the likely visual effects on residential properties at Crickheath and users of the Montgomery Canal, whilst maintaining some distance from properties to the south near Llwyntidmon Hall and Maesbrook. There may be more visibility of this route corridor from areas of higher ground to the east within Pant and Llanymynech, since the screening provided by woodland on the western edge of Pant would be reduced, but it would be viewed at a greater distance than from Crickheath. There was no preference from an engineering perspective between options 5C and 5N.

5.2.21 As landscape is a key consideration for routeing overhead lines and the preference was marginal, considering the environmental constraints and consultation feedback, the overall preference was to move the preferred route to option 5C. Detailed routeing has been undertaken in this corridor.

Figure 3.5 Preferred Route Changes Section 5 (Extract from PEIR Figure 3.1)



6 Preferred Route Alignment

6.1 Introduction

6.1.1 Routeing is a staged approach with additional information informing later stages. This section describes the refinement of the siting areas for the Grug y Mynydd Collector Substation and Cors y Carreg CSEC, the UGC routeing, and the 132kV OHL sections (L7(c) tower) alignment of the route. The individual elements of the Project (including tower locations) are shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003).

6.2 Methodology

Environmental considerations

6.2.1 As set out in Chapter 4 the approach to routeing is staged with additional detail being used at later stages and as it becomes available. At the alignment stage for example survey information and more detailed environmental records are included when identifying potential route alignments.

Technical considerations

6.2.2 Potential tower locations have been identified based on the following typical technical routeing considerations:

- Maximising straight runs, avoiding constraints and the clearance of vegetation as much as possible;
- Locating towers close to field edges where possible with a target tower offset from the field boundary at approximately 15m;
- Maximising span lengths between towers, subject to terrain, routeing, tower strength and conductor swing constraints;
- Crossing existing 132 kV overhead lines with overhead lines subject to engagement with the statutory undertaker; and
- Optimising tower positions on flat ground where possible.

6.3 Section 1: Cefn Coch to Llangyniew

Non statutory consultation feedback

6.3.1 The following considerations were raised in feedback to the 2023 non statutory consultation:

- impact on the valley landscape and its importance for wildlife, including bats and birds;
- impact on ancient woodlands;
- the setting of properties and holiday businesses throughout this area; and
- NRW's proposals to designate a new National Park in Wales based on the existing Clwydian Range and Dee Valley National Landscape.

Overview

6.3.2 This section begins in a region of open upland and rolling farmland, before changing to the lower river valley landscape of the Banwy Valley. The Afon Banwy and the smaller Afon Einion flow within the valley and converge at Neuadd Bridge. There are other features within the valley landscape, including villages, holiday sites, infrastructure, and more trees compared to the upland areas. The draft alignment has been developed in consideration of all these features.

Grug-y-Mynydd Collector Substation

6.3.3 The Project would commence at the 132kV Grug y Mynydd Collector Substation, in Powys. The maximum size for the Collector Substation at Grug y Mynydd would be 250m x 150m x 13m.

6.3.4 In response to further surveys and more detailed design work since the non statutory consultation Green GEN Cymru has identified a smaller area for the collector substation mostly within the broader siting area. The area identified is within a landscape where there are already wind turbines and it is potentially more accessible than other parts of the broad search area. The area is also sufficient to allow for construction of the substation and provide opportunities for landscape and biodiversity mitigation.

6.3.5 The proposed location of the Grug y Mynydd Collector Substation is shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003). The final location of the Collector Substation will be informed by further design refinement which will take place before the submission of the DCO application. Green GEN Cymru are

therefore seeking any views on the final location of the Grug y Mynydd Collector Substation within the area shown on the Consultation Plans as part of the 2025 statutory consultation.

6.3.6 The siting of the Collector Substation has been designed as far as practicable to avoid impacts on identified environmental receptors/features and to provide value engineering. Predominantly seeking to reduce visual intrusion by using existing areas of planting and contours to help screen views of the new infrastructure.

6.3.7 Alternatives within the broad search areas were considered using available desk based environmental and technical information (including for example topography, landscape character and existing land use).

6.3.8 The location of the Collector Substation is in an area of moderately enclosed upland grazing located to the east of the centre of the natural landform bowl of Mynydd Bryngwyn, and at the head of the Afon Rhiw valley. It lies to the immediate north-east of the uninhabited Bryngwyn farmstead. The area identified for the substation is alongside tributaries of the Afon Rhiw. Vegetative cover consists of grassland, some trees and occasional patches of sedge and rush.

6.3.9 The area is relatively flat, potentially reducing the amount ofexcavation that may be required. The location will also minimise interaction with the proposed Llyn Lort Energy Park.

Underground Cable Route

6.3.10 From the Collector Substation the connection will be made by UGC for approximately 4.8km, running north easternly through the proposed Llyn Lort Energy Park.

6.3.11 The underground cable section is routed along a proposed access track through the energy park to minimise cumulative impacts in this area. Access routes for construction will be shared with the Llyn Lort Energy Park.

Cable Sealing End Compound

6.3.12 A CSEC is required where the connection transitions from an UGC to OHL.

6.3.13 The Cors y Carreg CSEC would have a maximum footprint of 80m x 50m. The maximum height for the CSEC is 13m due to the exterior lighting. The remaining

components are 7m in height and the whole compound is to be enclosed by a 4m high fence.

6.3.14 The siting of the CSEC has taken into account, as far as practicable, identified environmental receptors to reduce / avoid impacts and to provide value engineering. Predominantly seeking to reduce visual intrusion by using existing areas of planting and contours to help screen views of the new infrastructure.

6.3.15 The CSEC site is situated on a small platform area on sloping valley sides, at the head of a small valley, with a small watercourse to the centre. It is anticipated that the visual effects on the closest residential properties, approximately 300m away, will be minimal , due to the distance, intervening landform and vegetation. There are no protected sites in the immediate vicinity of the CSEC site and

6.3.16 Desk-based assessments have not identified any evidence of peat.In addition, the CSEC site has sufficient space for construction compounds.

Overhead line draft alignment

6.3.17 The overhead line commences at tower GVF001 adjacent to the CSEC. Towers GVF001 - GVF006 follow a straight alignment. Tower GVF006 has beenplaced as north as possible while avoiding vegetation surrounding waterbodies immediately to the north and away from the edge of the field. to allow for a stringing working area.

6.3.18 The OHL then goes through areas consisting of open upland and rolling farmland and woodlands transitioning parallel to the Banwy Valley, where the Afon Banwy and Afon Einion meet at Neuadd Bridge. Towers GVF007 to GVF013 then follow a straight alignment to GVF013 where there is a stringing working area.

6.3.19 Towers GVF014 - GVF021 have been placed to avoid interacting with ancient woodland and to minimise vegetation clearance by placing the towers close to the boundary of the field edges and on flatter land where possible. The draft alignment allows the overhead line to crosses perpendicular over the A458 between towers GVF020 and GVF021, where a site for a temporary construction compound has been identified.

6.3.20 The proximity to the Afon Einion has been considered to ensure a buffer zone is maintained. Caravan parks in this section, including those close to Afon Einion,

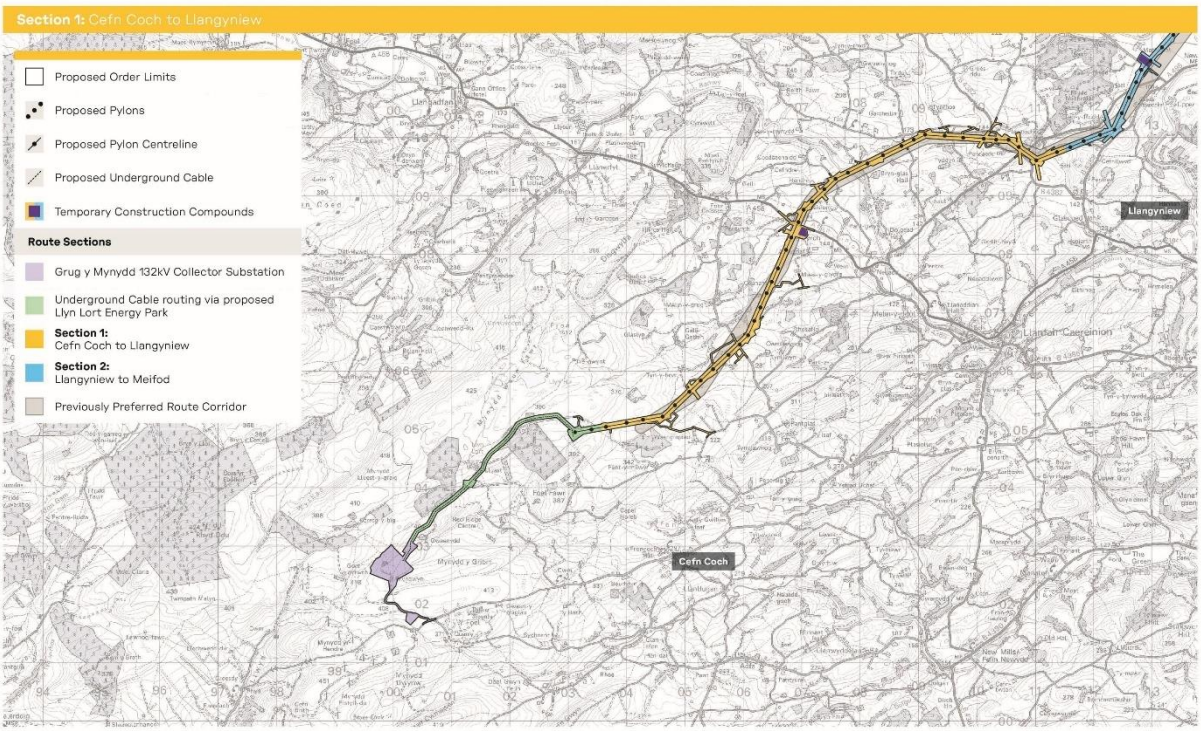
have been carefully considered in the routeing process to balance potential impacts on the ancient woodland.

6.3.21 Along the valley there are scattered residential properties, Dolgead Hall and Neuadd Bridge Caravan Parks, and woodland density increases. Bewteen towers GVF025-GVF031 the overhead line would cross through ancient woodland where vegetation clearance would be required, however the alignment has been kept straight to minimise this. The ancient woodland is a linear feature along the Afon Banwyin this area and is therefore unavoidable.

6.3.22 The draft alignment then runs broadly parallel and to the north of the A495 at some distance The overhead line crosses the A495 between towerstwers GVF037-GVF038 with the towers positioned to avoid disruption to the road and minimise visual impact.

6.3.23 Approaching Llangyniew, the OHL is positioned to the north west of the village to reduce visual impact on residential properties. Through this section the draft alignment crosses minor local roads and farm tracks and has been routed to ensure appropriate clearances and maintain safe distances from existing infrastructure.

Figure 6.1 Section 1: Cefn Coch to Llangyniew



6.4 Section 2: Llangyniew to Meifod

Non statutory consultation feedback

6.4.1 Feedback on this section to the non-statutory consultation commented on:

- Mathrafal noting its historical importance and Mathrafal Farm as a site for the National Eisteddfod. Both are considered important to the area;
- the Meifod Valley setting, where the valley is flat and where the Afon Vyrnwy and Afon Banwy come together. This was considered a great visual amenity for the area;
- Meifod village and the listed buildings in and around the area, including the church were also raised as important; This area was also noted for recreation including Glyndwr's Way and the Cobra Rugby Club; and
- Ancient woodland, and wildlife including bats;
- The movement of the river and the potential for flooding;
- National Grid had previously proposed undergrounding in this area; and
- NRW's proposals to designate a new National Park in Wales based on the existing Clwydian Range and Dee Valley National Landscape.

Overview

6.4.2 This area changes from the rolling areas of woodland within the wider Banwy Valley towards the narrower but more visually open, and more steeply sided Vyrnwy Valley, with the Afon Vyrnwy meandering along the valley floor. Alongside the villages of Llangyniew and Meifod, there are holiday sites within the area. Mathrafal Castle is a scheduled monument, and there are ecologically important areas dotted throughout the landscape. The draft alignment has been developed in consideration of all these features.

6.4.3 The draft alignment is outside the preferred route in this section to be further away from Mathrafal Castle and routeing has considered positioning the towers to reduce visual effects.

6.4.4 The draft alignment keeps to a series of straight lines, as much as possible, to keep the number of pylons to as few as possible. Routing has considered individual dwellings and buildings, the valley landscape, and the path of the river.

6.4.5 As the draft alignment passes near Meifod, it has been routed south of the river, carefully considering the rugby club and the flood defences in this area. In views

from Meifod village the towers should be backclothed by the valley walls, helping to reduce potential visual effects.

6.4.6 While the National Grid proposals of 2013 share some similarities with the Vyrnwy Frankton connection, the Vyrnwy Frankton connection is a 132kV overhead line, rather than a 400kV that was proposed by National Grid. As Green GEN Cymru are proposing pylons with a standard height of 27m rather than 50m pylons these will have different environmental effects and the routeing process has identified a draft alignment that is appropriate to the smaller scale pylons and undergrounding is not therefore proposed.

6.4.7 NRW's proposals to designate a new National Park in Wales based on the existing Clwydian Range and Dee Valley National Landscape are still being consulted on. Although the Project is within the boundaries of the area of search, the proposed National Park has yet to be confirmed. The policy for routeing new infrastructure in designated landscapes is set out in NPS EN-1. As the proposal for the North East Wales National Park is still in progress Green GEN Cymru will continue to monitor the progress of the proposals and engage with NRW on this matter.

Overhead line draft alignment

6.4.8 As the OHL exits the Banwy Valley it continues eastward past Llangyniew. Towers GVF038-GVF042 have been located to reduce visual effects to residential properties by being close to the edge of field boundaries.

6.4.9 The draft alignment crosses the A495 again between towers GVF045 - GVF046, following the contours, with towers located to maintain necessary clearances. This area is characterised by rolling farmland, requiring minor adjustments to tower placement to accommodate elevation changes. A site for a temporary construction compound has been identified adjacent to tower GVF04, where the overhead line crosses a minor road (between GVF047 and GVF048).

6.4.10 From here, the landscape transitions into the narrower, steeper Vyrnwy Valley, following the Afon Vyrnwy.

6.4.11 In response to feedback, the draft alignment has moved to the west outside the preferred routeto reduce visual effects on Mathrafal Castle (scheduled monument). Towers GVF046 – GVF051 have been off-set from the existing treeline to the south to reduce vegetation clearance.

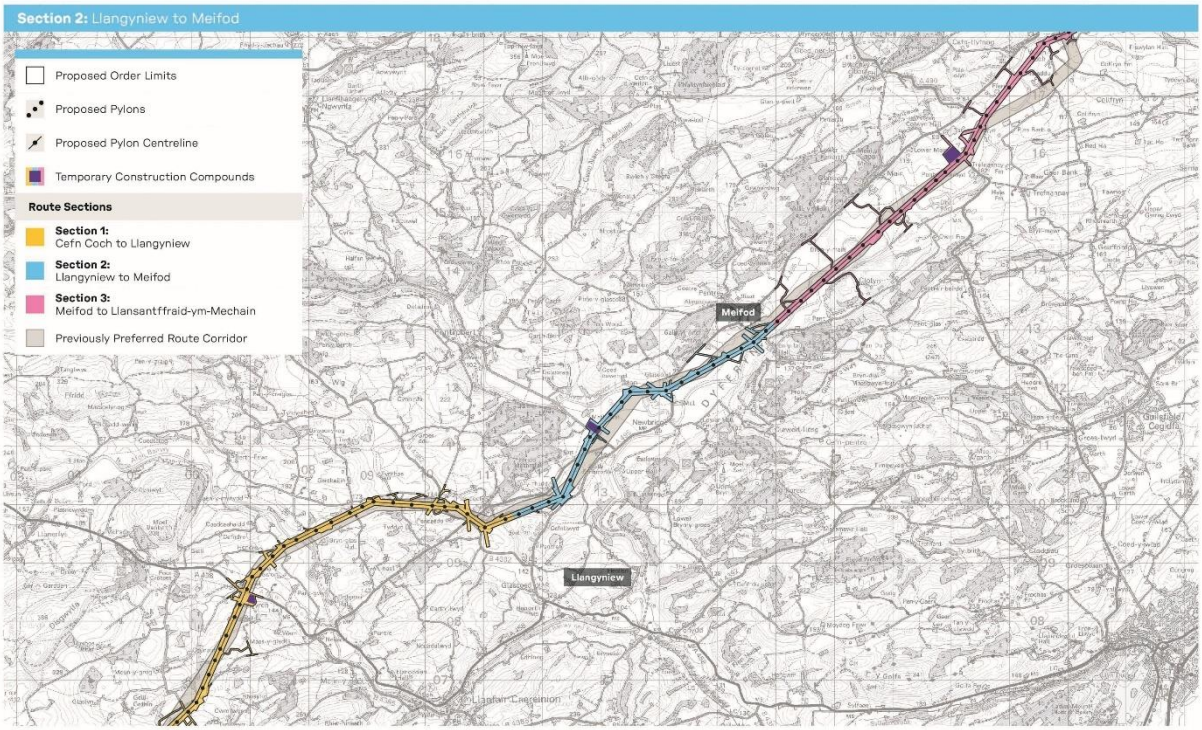
6.4.12 The draft alignment then crosses the Afon Vyrnwy broadly perpendicular between towers GVF051 – GVF052 and the A4965 between GVF053 – GVF054.

6.4.13 Between towers GVF053 – GVF059 the overhead line follows the alignment of the Afon Vyrnwy with tower GVF060 being sited close to the river to increase separation from the Cobra Rugby Club.

6.4.14 The draft alignment is routed to the south of the Afon Vyrnwy so that it will be backclothed by the valley sides when viewed from Meifod Village. The alignment also ensures a buffer from the Afon Vyrnwy for necessary clearances to safely construct and operate an OHL.

6.4.15 The overhead line will cross the B4382, between towers GVF059 and GVF060 with the towers setback from the road and sited to ensure sufficient distance from the river.

Figure 6.2 Section 2: Llangyniew to Meifod



6.5 Section 3: Meifod to Llansantffraid-ym-Mechain

Non statutory consultation feedback

6.5.1 In this section feedback to the non-statutory consultation raised;

- The setting of Llansantffraid, and the potential effects on views and individual properties;
- The caravan parks near to Llansantffraid and their importance to the local economy;
- Areas of recreation, such as footpaths along the river valley, which were well used; and
- Avoiding disruption to farm operations and farm buildings along the preferred route.

Overview

6.5.2 This section of the route includes historic sites, woodland and areas valued for biodiversity. Meifod and Llansantffraid are the most prominent communities with individual dwellings dotted throughout the area. The valley bottom is marked by the meandering path of the Afon Vyrnwy, and valley sides with some with steeper slopes and areas of woodland. To the north east of Meifod, the valley is quite wide and flat as it parallels the A495, before becoming more narrow and undulating near Waen Fach. The area near to Llansantffraid contains more settlements.

6.5.3 The draft alignment has moved out of the preferred route here to take a straighter alignment, moving it away from the farm operations raised in feedback and slightly closer to the A495. The straighter route helps to reduce the number of pylons needed so it should be less visually intrusive. This alignment provides opportunities for using trees for screening or as background for pylons from properties in the area. It also provides opportunities to manage potential visual effects on the heritage sites close by, including the hillfort at Bryngwyn Wood.

Overhead line draft alignment

6.5.4 The draft alignment heads north-east from Meifod through agricultural land. To minimise disruption to ongoing farming operations towers GVF059 – GVF077 follow a straight alignment wherever possible, minimising the need for angle towers, which require heavier structural loads due to directional changes and have a larger footprint.

6.5.5 Where the towers between GVF059 – GVF077 cross PRoW, the towers have been placed to the edge of the field boundary. This may require temporary diversions during construction, however there will be no permanent closure of the PRoW. A potential site for a temporary construction compound has been identified at tower GVF076, adjacent to the A490.

6.5.6 Towers GVF079 – GVF086 has been aligned south of the A495 and north of the preferred corridor due to consultation feedback requested to re-routeing to avoid the chicken farm in Plas Bach adjacent to the River Vyrnwy. Furthermore, the alignment for towers GVF079 – GVF086 provides a straighter run than the preferred corridor therefore minimising the need for angle towers.

6.5.7 From tower GVF079 the draft alignment has move west out of the preferred route (towers GVF079 – GVF087) in response to feedback. The draft alignment has minimised effects on agricultural operations, while allowing for straighter alignment and less interaction with the river.

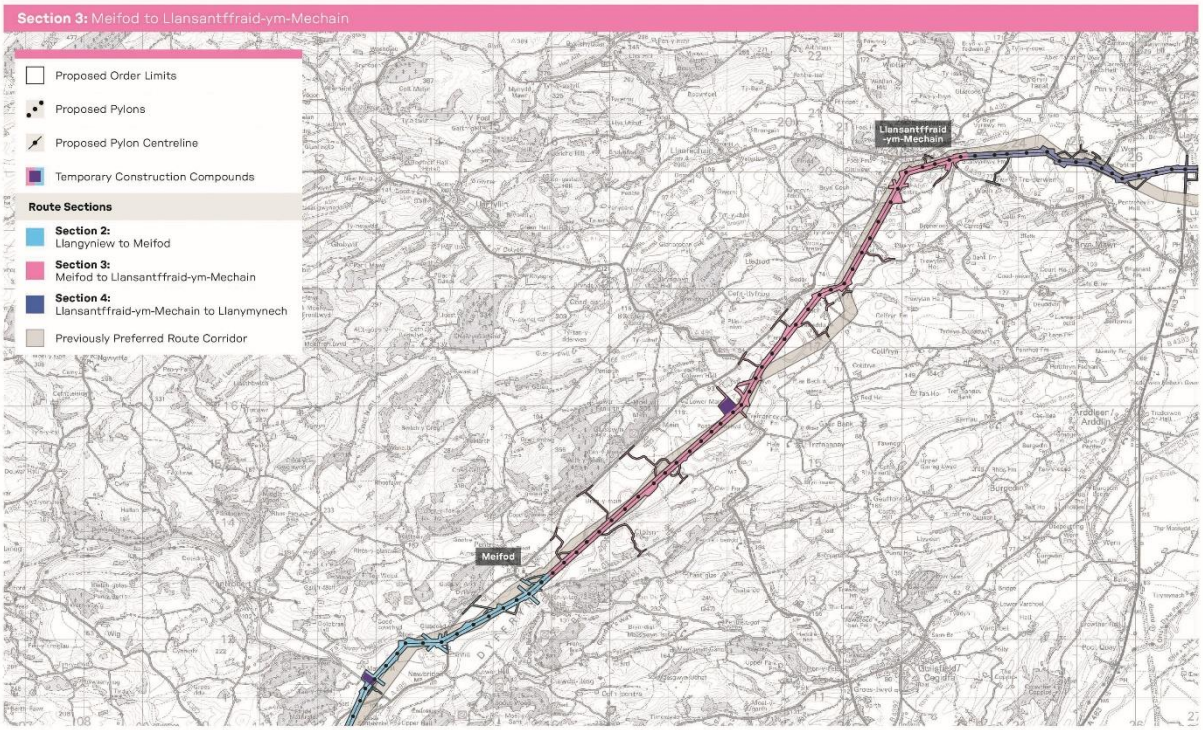
6.5.8 The draft alignment crosses minor tributaries of the Afon Vyrnwy. Towers GVF079 – GVF083 have been placed along the edge of the river with appropriate spacing to avoid interference with the river and to ensure vegetation clearance along the river is not required. Between towers GVF087 – GVF094 the draft alignment continues straight, to the east of the A495.

6.5.9 Approaching Llansantffraid-ym-Mechain, towers have been sited to reduce visual effects on properties, while managing potential effects on the river and farm operations. Using straight alignments in the approach to and past the village has reduced the number of potential towers.

6.5.10 As the draft alignment reaches Llansantffraid-ym-Mechain, towers GVF094 – GVF094 are locatedto the south to the village and the A495 reducing visual effectson residential properties. The draft alignment is routed close to the commercial area to the south of the A495. Screening opportunities using woodland cover have been incorporated where possible to reduce visual impacts from residential areas and heritage sites such as Bryngwyn Wood hillfort.

6.5.11 As the draft alignment continues east, the routeing has considered the setting of individual properties and the caravan parks and has used trees to offer screening, where possible.

Figure 6.3 Section 3: Meifod to Llansantffraid-ym-Mechain



6.6 Section 4: Llansantffraid-ym-Mechain to Llanymynech

Non statutory consultation feedback

6.6.1 Feedback to the non-statutory consultation on this section included;

- The Montgomery Canal noting its value to recreation and it's environmental importance. Consideration should be given to the setting of the canal and the potential visual effects from an overhead line;
- Llandysilio, the grade two listed church in the village and the potential effects on the setting of the village;
- Potential effects on Llanymynech, Pant and Four Crosses and dispersed dwellings, and the potential visual effects; and

- The caravan parks east of Llansantffraid and footpaths in this area. It was noted that tourism is a key part of the local economy.

Overview

6.6.2 This area includes the villages of Llanymynech, Llandysilio and Four Crosses, some residential settlements, cultural heritage sites, and small blocks of ancient woodland. The river meanders across the valley floor and sites of interest for biodiversity occur along its banks. The Montgomery Canal is a recognised recreation and heritage feature, with the Offa's Dyke Path also crossing through. There are established caravan parks along the Vyrnwy Valley.

Overhead line draft alignment

6.6.3 From Llansantffraid-ym-Mechain, the draft alignment follows the Wales-England border, passing through a landscape with open farmland and small wooded areas.

6.6.4 Between towers GVF098 – GVF 103 the draft alignment is straight. Towers GVF103 - GVF106 have been placed as far south of the nearby farming areas as possible to avoid oversailing and vegetation clearance of mature woodlands.

6.6.5 The draft alignment crosses the B4398 (between towers GVF107 and GVF108) and then crosses Offa's Dyke Path. Towers GVF106 - GVF108 been located so as to minimise visual impact by being setback from the National Trail.Towers GVF110 - GVF117 havemoved out of the preferred route in this area in response to consultation feedback to reduce potential visual impact on the setting of Llandysilio, the Church of St. Tysilio, and Four Crosses. While this change brings the alignment closer to the Llanymynech Village and Heritage Area including the canal as well as the Llanymynech Hill Camp, there is sufficient distance between the alignment to the south and heritage area to the north, to maintain the setting.

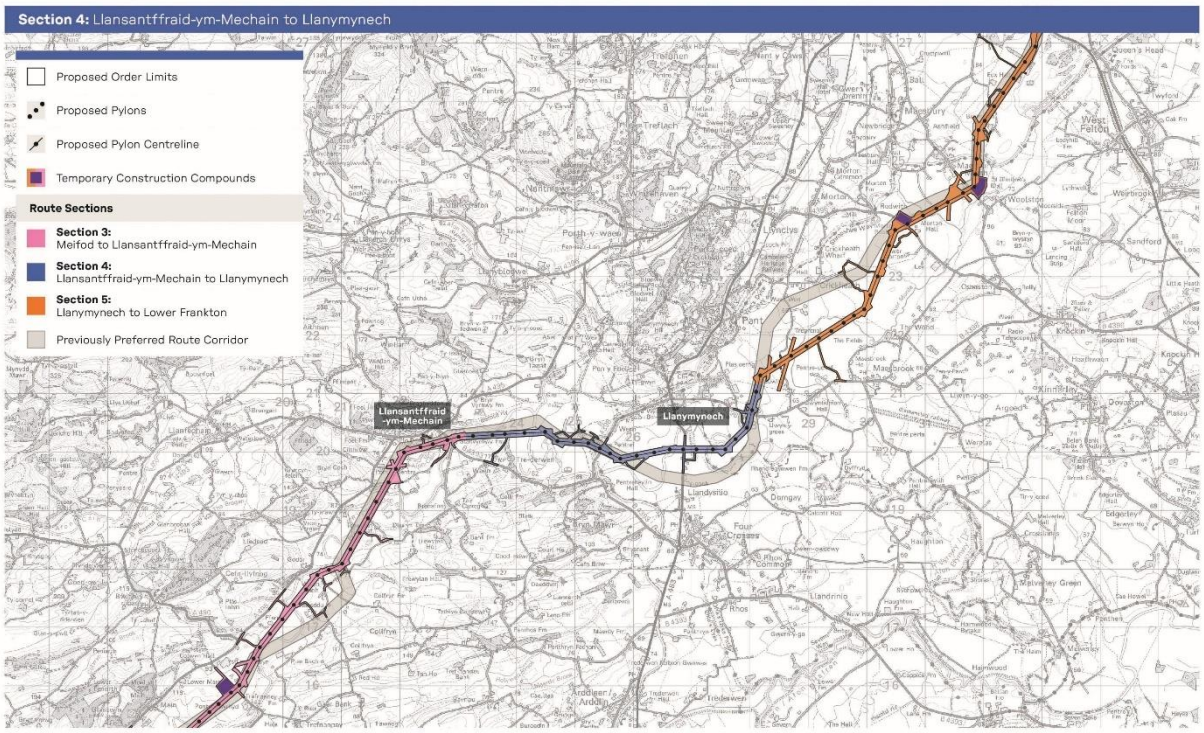
6.6.6 Tower GVF112 is positioned to avoid angle turns and enable a straight run to tower GVF116. The alignment crosses the A483 between t towers GVF113 and GVF114.

6.6.7 Between towers GVF114 - GVF115 the draft alignment crosses into Shropshire.

6.6.8 The draft alignment crosses a less exposed section of the valley near Carreghofa Locks and the Montgomery Canal, where existing woodland provides some screening to minimise visual effects.

6.6.9 The draft alignment in this section uses short sections of straight lines, helping to keep the number of pylons as low as possible, which reduces visual effects, while also seeking to avoid individual dwellings. Towers have been sited to offer screening from existing woodland and using trees.

Figure 6.4 Section 4: Llansantffraid-ym-Mechain to Llanymynech



6.7 Section 5: Llanymynech to Lower Frankton

Non statutory consultation feedback

6.7.1 Feedback to the non statutory consultation on this section included;

- The setting of the villages, including Pant, Crickheath, Maesbrook, and Maesbury Marsh, and reducing potential visual impacts. Options to route away from villages into open farmland should be considered;
- Potential effects on individual properties;

- The Montgomery Canal, noting that restoration works had made this a valued area for communities and visitors. Wildlife throughout the area was also raised, including owls, kingfishers, otters and bats;
- Agricultural business and operations, including the location of buildings and farm entrances; and
- The location of the National Grid Substation.

Overview

6.7.2 In this section the landscape opens up to a wider and generally low-lying area, with trees, villages and individual dwellings dotted throughout. There are heritage features throughout including scheduled monuments, conservation areas, and listed buildings, and areas of historic parkland. The Midlands Mere and Mosses is recognised as an important wetland, with small areas of peatland also in the area. The alignment has been developed in consideration of all these features

6.7.3 The draft alignment in this section uses short sections of straight lines, helping to keep the number of pylons as low as possible, which reduces visual effects, while also seeking to avoid individual dwellings. The draft alignment uses existing trees to offer screening, where possible, while also considering agricultural operations.

Overhead line draft alignment

6.7.4 From Llanymynech to Lower Frankton the draft alignment passes through low-lying pastureland with scattered residential properties. The towers have been positioned, where possible, to minimise visibility from the surrounding environment where possible.

6.7.5 Towers GVF122 – GVF133 are outside the preferred route to increase the distance from the overhead line to Pant and Crickheath. While this may create some visibility of the connection from the higher ground of Llanymynech, it will reduce potential visual effects on Pant and Crickheath and the Montgomery Canal. The alignment of these towers also maintain some distance from properties to the south near Llwyntidmon Hall and Maesbrook.

6.7.6 Towers GVF121 - GVF123 cross an existing 132kV OHL between Ley and Morton Bridge near the B4396, with the tower heights being adjusted to accommodate oversailing. The towers in this area have also been in middle of fields or the boundaries to minimise vegetation clearance.

6.7.7 Between towers GVF121 and GVF129, and GVF129 and GVF134 the draft alignment is straight, with a potential site for a temporary construction compound at GVF135.

6.7.8 As the draft alignment moves east, the Montgomery Canal is crossed between towers GVF142 - GVF143 with tower heights accommodating navigational clearances.

6.7.9 Careful consideration of the siting towers GVF144 – GVF150 has allowed routeing between Bromwich Park (a wedding venue) and vegetation to south to maximise screening from existing trees thereby reducing visual impact.

6.7.10 The alignment crosses the A5 between towers GVF151 - GVF152 allowing sufficient space for scaffolding across the A-road. Oswestry Golf Club is to the east of tower GVF151 with the visual impact being reduced due to the screening from existing trees.

6.7.11 Towers GVF153 - GVF154 are situated adjacent to the Shropshire Sculpture Park. To reduce visual impact from the Sculpture Park, GVF153 has been placed to take advantage of screening byexisting vegetation and tower GVF154 has been placed close to the edge of the field boundary.

6.7.12 A potential site for a temporary construction compound has been identified adjacent ot tower GVF156. The draft alignment crosses Network Rail's Shrewsbury to Chester railway line perpendicular bewteen towers GVF158 – GVF159. The alignment is then straight to tower GVF165 and then on to GVF168.

6.7.13 From GVF164 – GVF 168 the draft alignment continues north passing between Berghill Lane and Thomas's Rough before splitting into two alternatives, near Feggey Coppice.

6.7.14 From tower GVF168 the final approximately 1.5km of the OHL route would connect to the new Switching Station near Lower Frankton which will allow the power to be isolated from the substation being developed by National Grid Electricity Transmission to connect to the existing 400kV National Electricity Transmission System (NETS) in Shropshire, England

6.7.15 The 400kV National Grid Transmission (NGET) substation will be consented separately by National Grid and the Lower Frankton Switching Station will adjoin its boundary.

6.7.16 As the detailed location of the Lower Frankton Switching Station within the draft order limits has not been determined at this stage there are currently two indicative draft alignments (west and east) for the connection to the switching station from tower GVF 168. These can be seen on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003). The western option comprises towers GVF 169 (W) – GVF 172 (W) and the eastern option GVF 169 (E) - GVF 172 (E)

6.7.17 Both options are within the National and Local Landscape Character Areas, 'Shropshire, Cheshire and Staffordshire Plain' and 'Principal Timbered Farmlands'.

6.7.18 Both the west and east options cross a predominantly open, agricultural landscape on the Shropshire Plain, drained by the River Perry. The area is bounded by the Llangollen Canal to the north, the Montgomery Canal and Lower Frankton settlement to the east, transport routes including the B5009, A5, and a Network Rail railway to the south, and Halston Hall to the west. The terrain rises gradually from 80m Above Ordnance Datum (AOD) in the south to approximately 88m AOD in the north.

6.7.19 The landscape is characterised by large pastoral fields with dense streamside trees, hedgerow trees, and small to medium-sized woodlands, including Thomas's Rough, Evenall Gorse, Spring Coppice, and Feggey Coppice. The settlement consists of scattered farmsteads and cottages. There are no Public Rights of Way (PRoW) intersecting either option and both options cross 1 public highway.

6.7.20 The chosen route will be confirmed within the ES which will consider design development as well as feedback from statutory consultation and stakeholders.

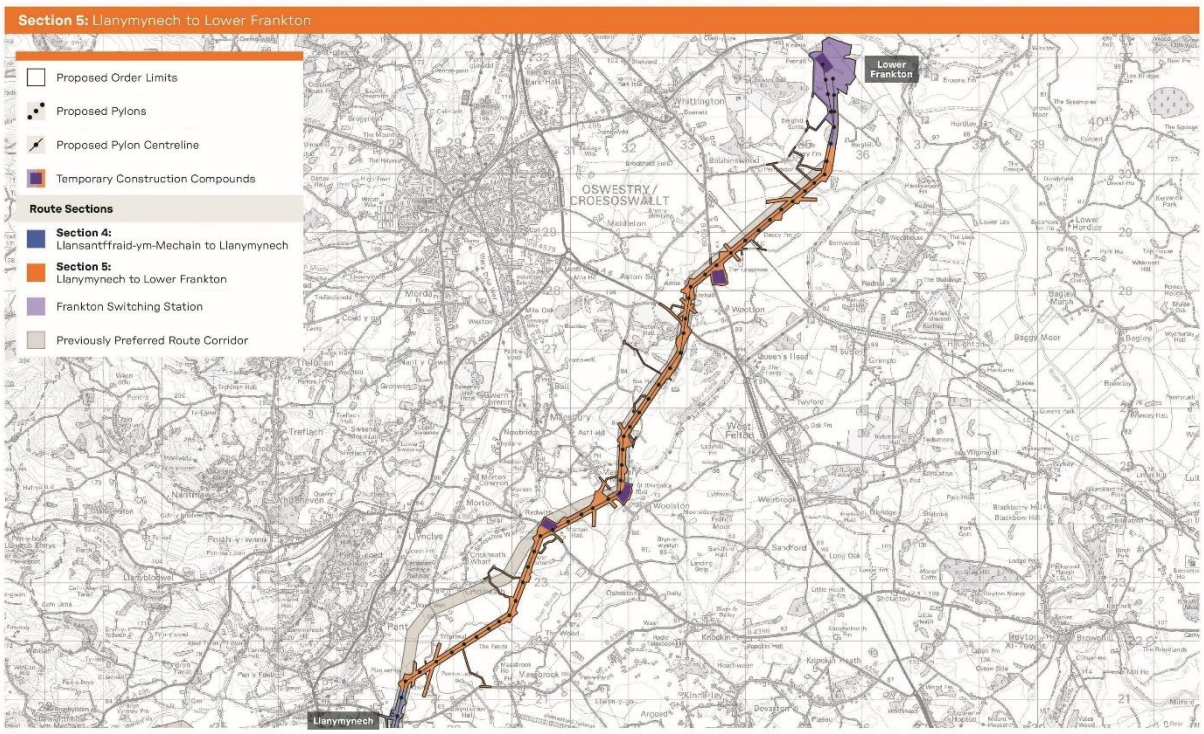
Lower Frankton Switching Station

6.7.21 National Grid has worked with Green GEN Cymru to identify an area where a new 400 kV substation could be located that would facilitate the grid connection. Within the area identified, we anticipate National Grid developing plans for the proposed 400 kV substation, and separately, Green GEN Cymru will develop the 132 kV switching station.

6.7.22 The siting of the Switching Station will as far as practicable avoid impacts on identified environmental receptors/features and provide value engineering. Predominantly seeking to reduce visual intrusion by using existing areas of planting to help screen views of the new infrastructure. The maximum size for the Lower Frankton Switching Station would be 250m x 150m x 13m.

6.7.23 The proposed location of the Lower Frankton Switching Station is shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003). The final location of the Switching Station will be informed by further design refinement which will take place before the submission of the DCO application. Green GEN Cymru are therefore seeking any views on the final location of the Lower Frankton Switching Station within the area shown on the Consultation Plans as part of the 2025 statutory consultation.

Figure 6.5 Section 5: Llanymynech to Lower Frankton



7 Next Steps

7.1.1 Our proposals are still open to influence and we are seeking feedback.

7.1.2 We're asking for comments on all of our proposals including:

- A new 132 kV collector substation near Cefn Coch, Powys, known as the Grug y Mynydd Collector Substation;
- Approximately 4.8km of underground cable from Grug y Mynydd Collector Substation through the proposed Llyn Lort Energy Park to a cable sealing end compound at Cors y Carreg;
- The Cors y Carreg cable sealing end compound, which would enable the transition between underground cables and overhead conductors;
- Approximately 45km of new overhead line supported on L7(c) steel lattice pylons (average height of 28.5m) from Cors y Carreg cable sealing end compound to a new switching station near Lower Frankton;
- A switching station near Lower Frankton, Shropshire which allows the power to be isolated from a proposed new substation being developed by NGET to connect to the existing 400kV National Electricity Transmission System;
- Land which will be required for environmental mitigation, compensation, and enhancement measures;
- Land would also be required temporarily for construction activities including, for example, working areas for construction equipment and machinery, site offices, welfare, storage and construction access; and
- Third party utilities diversions and/or modifications which would also be required as part of the construction of the Project.

7.1.3 As noted above, the final location of the Grug y Mynydd Collector Substation and Lower Frankton Switching Station will be informed by further design refinement which will take place before the submission of the DCO application. Green GEN Cymru are therefore seeking any views on the final location of these elements within the areas shown on the Consultation Plans (331201487-STN-22-XX-LAY-OH-003).

7.1.4 The consultation is open from 19 February to 16 April 2025.

7.1.5 Responses to the consultation can be submitted in the following ways;

- Complete a feedback form available on the project website www.greengenvyrnwyfrankton.com

- Sending an email to:info@greengenvyrnwyfrankton.com
- Write to us at FREEPOST Green GEN Cymru V2F (no further stamp or address needed.

7.1.6 All responses must be received by Green GEN Cymru by 11:59pm on 16 April 2025 to ensure they are considered.

7.1.7 When deciding on the final form of the proposed application for a DCO for the Project, Green GEN Cymru will take into account any response to this publicity or the consultation that is received before the specified deadline.

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