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Powys Replacement Local Development Plan (2022 - 2037)

Infrastructure Provision and Settlements Profiles

Infrastructure Plan Background Paper

2024

Mae'r ddogfen hon hefyd ar gael yn Gymraeg / This document is also available in Welsh

Prepared by Powys County Council in partnership with Berrys.

BERRYS



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1. Introduction

Infrastructure Plans are prepared to outline the planned delivery of infrastructure, community facilities, and services that will support planned growth. This Infrastructure Plan supports the development of the Replacement Powys Local Development Plan (LDP) (2022 - 2037).

The Powys Local Planning Authority (LPA) has worked closely with key partners and providers involved in the provision of infrastructure and services within the county. This plan draws on an evidence base brought together by the LPA during the preparation of the Replacement LDP, alongside investment strategies and infrastructure programmes from other organisations involved with the provision of services across the LDP area. The LDP area includes all of Powys outside the Bannau Brycheiniog National Park (BBNP).

Infrastructure includes services such as education, healthcare, utilities, and transport.

The purpose of this Infrastructure Plan background paper is to ensure that the planned delivery of development in the Replacement LDP, takes into account the capacity available across existing services and infrastructure plans to accommodate any projected increases in demand, and any identified constraints to services and infrastructure.

In addition to identifying the capacity of the existing network and planned improvements to capacity, this document also identifies the lead organisations and agencies responsible for the delivery and funding of new infrastructure, as well as the expected timing of improvements.

This Infrastructure Plan should be viewed as a living document, that will be updated as the preparation of the Replacement LDP progresses and sits alongside the Replacement LDP and supporting documents. The information contained within this document is accurate at the time of publication, where necessary, information and projections included within this report should be reviewed at the point of implementation. Additional needs may be identified in the future, including when detailed technical assessments are undertaken by developers when preparing planning applications.

2. Water Supply

2.1 Lead Organisations / Agencies Responsible for Delivery

These are:

- Hafren Dyfrdwy
- Dŵr Cymru Welsh Water (DCWW)

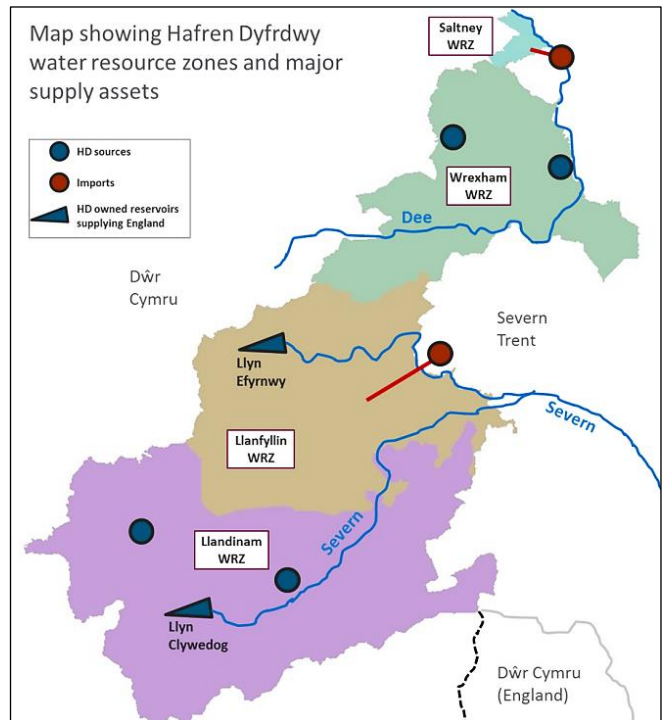
The respective areas covered by these organisations are shown in Figure 2.1 below. Hafren Dyfrdwy (Severn Dee) is part of Severn Trent and, accordingly, covers the northern part of the Powys LDP area, which lies in the Severn catchment. DCWW covers the remainder of the LDP area, as well as the majority of wider Wales.

Figure 2.1: Water Resource Planning Zones



Dŵr Cymru Welsh Water (DCWW) Water Resource Planning Zones

(Source: Welsh Water, Draft WRMP24, 2022, Pg.4)



Hafren Dyfrdwy Water Resource Planning Zones

(Source: Hafren Dyfrdwy, Draft WRMP24, Pg.50)

2.2 Capacity of the Existing Network

Hafren Dyfrdwy has prepared a draft Water Resource Management Plan 2024¹. This follows the most up-to-date guidance from NRW and the Welsh Government. Hafren Dyfrdwy confirms within this plan that, even under the most extreme scenarios, it expects to maintain a supply surplus over the next 60 years. The projections utilised allow for the most severe climate change projections and drought scenarios whilst also factoring in future demand requirements from both a changing population and growing industry. Following consultation, Hafren Dyfrdwy has confirmed that it foresees no requirement to develop new sources of water supply; it will instead focus on reducing leakage within the existing system by 50% (from 2019/20 levels) by 2050 and on protecting its existing supply sources. The water provider has also set a target of reducing the demand for water at the consumer level by educating consumers on water usage and how to reduce it. The provider has set out a plan of investment between 2025 and 2030, which will allow it to progress towards these targets.

DCWW produces a future supply and demand balance for each of its Water Resource Zones (WRZ). Where the balance of supply and demand flags a potential shortfall, DCWW will identify options to reduce demand or increase supply in order to resolve this. Where the supply and demand balance finds that an area is in surplus, DCWW can examine options that could be taken to meet wider objectives, such as maintaining good drinking water quality, meeting Government policy direction or meeting wider customer preferences. The investment required is then fed through into its company Asset Management Plan (AMP) to seek the necessary funding.

At a national level, DCWW has, over the past 25 years, reduced water usage within a “normal” year from 1000 million litres per day (Ml/d) to about 800 Ml/d today. This reduction has come about due to a reduction in water leakage across the system, a reduction in demand from heavy industry and measures taken by consumers to reduce water consumption in the home.

DCWW has also prepared a draft Water Resource Management Plan 2024, which follows the most up-to-date guidance from NRW and the Welsh Government. Within this draft Water Resource Management Plan² (WRMP24), DCWW has found that four of its zones are not resilient to its preferred 1 in 200 year level of drought resilience under a medium emission climate change scenario within the 25-year period to 2050. These zones are identified within

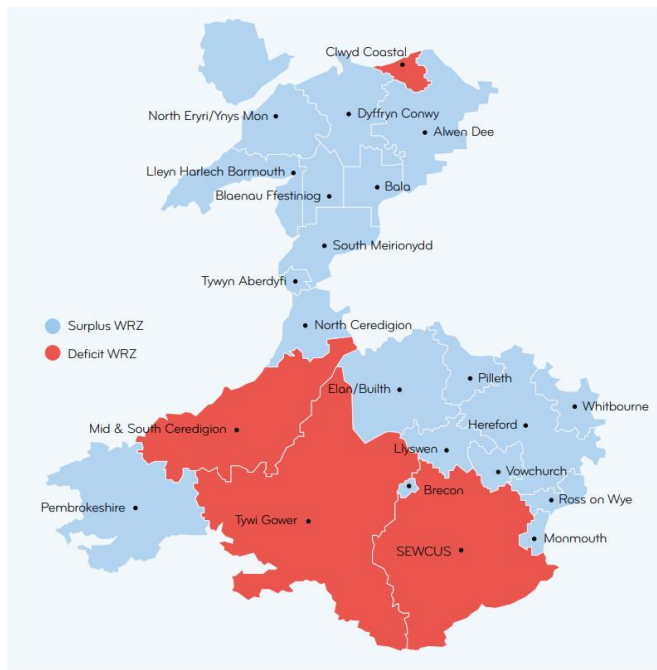
¹ [HDdWRMP24-Main-Narrative.pdf \(hdcymru.co.uk\)](#)

² [Draft WRMP24 Main Technical report \(2\).pdf](#)

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Figure 2.2 below. One of these WRZs, The Tywi Gower Zone, serves Powys and the settlements of Ystradgynlais, Abercrave, and Coelbren. The draft WRMP24 finds that the Crai and Ystradfellte reservoirs which serve the Tywi Gower Zone will need water resource reinforcement to maintain an acceptable level of water supply in the most extreme droughts. Reinforcement schemes are planned for delivery early in the AMP8 period (2025-2030), with improvements in the meantime consisting of operational actions to manage the risk and lower the level of resilience.

Figure 2.2: DCWW Surpluses and Deficits



(Source: Welsh Water, Draft WRMP24², 2022, Pg.7)

The draft WRMP24 confirms that the remainder of the WRZs within Powys can provide sufficient water for current and future demand. By 2031, DCWW is projected to meet its increased drought resilience targets for all of their WRZs. This includes the Tywi Gower Zone WRZ.

2.3 Issues with Capacity and Constraints

This section identifies any potential issues with the current or forecasted capacities of the various WRZs and the companies' responses to these. It is the responsibility of utility companies to maintain, improve and extend water mains and their associated infrastructure.

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Areas supplied by the Elan Valley Reservoirs and an abstraction point from the River Wye at Builth Wells are heavily influenced by the additional demand for water that is placed on Builth Wells Water Treatment Works during the Royal Welsh Show week.

DCWW has concluded that, within the 8107 Pilleth WRZ, which is supplied from a single group of four individual boreholes located in the gravel aquifer adjacent to the upper River Lugg at Pilleth, industrial usage in Presteigne constitutes a disproportionately large component of demand.

Notwithstanding the constraints identified above, DCWW has concluded that the Pilleth WRZ is expected to retain a surplus across the 30-year planning period 2020-2050, even within the 1 in 200 year drought resilience model. DCWW will continue its strategy of reducing water leakage while reducing consumer demand. Despite the additional demand placed on the system from industrial usage in Presteigne and during the Royal Welsh Show week, no reinforcement to the system is stated as being required.

As identified within section 2.2 of this Infrastructure Plan, the draft WRMP24 produced by DCWW has identified that the Tywi Gower Zone is not resilient to its preferred 1 in 200 year drought resilience model.

The areas managed by Hafren Dyfrdwy which lie within the Llanfyllin WRZ are supplied with water from Severn Trent, Hafren Dyfrdwy's parent company. Hafren Dyfrdwy's Water Resource Management Plan 2019 concluded that Llanfyllin WRZ is expected to retain a surplus across the 25-year planning period.

Hafren Dyfrdwy has identified a strategy of reducing water leakage whilst also reducing consumer demand. If the demand surplus created by works undertaken up to 2029 creates a smaller surplus than forecast, Hafren Dyfrdwy will adapt its strategy to react to this within its Water Resource Management Plan 2029 (WRMP29).

2.4 Improvements to the Network and Increases in Capacity

Both Hafren Dyfrdwy and DCWW have identified a strategy of reducing water leakage whilst also reducing consumer demand.

Hafren Dyfrdwy has confirmed that it foresees no requirement to develop new sources of water supply as, even under the most extreme scenarios, its projections predict a supply surplus over the next 60 years. The projections it uses allow for the most severe climate change projections and drought scenarios to be considered alongside factoring in future demand requirements from both a changing population and growing industry.

DCWW has confirmed, within the draft WRMP24, that the Tywi Gower Zone is not resilient to its preferred 1 in 200 year level of drought resilience under a medium emission climate change scenario within the 25-year period to 2050. The draft WRMP24 finds that the Crai and Ystradfellte reservoirs, which serve the Tywi Gower Zone, will need water resource reinforcement to maintain supplies in the most extreme droughts. This affects the Powys settlements of Ystradgynlais, Abercrave, and Coelbren plus surrounding hamlets and farmsteads in the Tawe Valley. DCWW has found that demand management would not produce sufficient surplus to overcome the resource deficit in these areas.

The preferred method for the creation of a surplus in the Tywi Gower WRZ is to reduce leakage and per capita consumption while reinforcing the areas supplied by both Crai and Ystradfellte through increased connectivity to the Felindre system. Network investment has been found for a best-value option which provides long-term resilience across the zone. Reinforcement schemes are planned for delivery early in the AMP8 period, with improvements in the meantime consisting of operational actions to manage the risk and lower level of resilience.

The draft WRMP24 confirms that the remainder of the WRZs within Powys can provide sufficient water for current and future demand, and that by 2031 they are projected to meet increased drought resilience targets for all of the DCWW WRZs, including the Tywi Gower Zone WRZ.

3. Gas

3.1 Lead Organisations / Agencies Responsible for Delivery

Wales and West Utilities is the organisation responsible for the gas distribution network across the whole of the LDP area, as shown in Figure 3.1 below.

Figure 3.1: Wales and West Utilities Operational Area



(Source: Wales and West Utilities, 2022 Long Term Development Statement³, 2022)

3.2 Contextual Information

Wales and West Utilities have set out their projected usage for the pipeline system it manages, as well as likely developments to that system, within its Long-Term Development Statement (2022)³. Further to this, the development statement reviews the impact of greater integration of the electricity and gas networks along with system reinforcement projects and associated investment. Within the statement, Wales and West Utilities have emphasised its commitment to delivering net zero by 2050. The statement also sets out the company's aim to ensure that its network can transport green gases like hydrogen and biomethane in order to decarbonise heat, power, and transport.

³ [2022-long-term-development-statement.pdf \(wwutilities.co.uk\)](https://www.walesandwestutilities.co.uk/2022-long-term-development-statement.pdf)

3.3 Infrastructure Need and Existing Provision

As the network provider, Wales and West Utilities operate the gas distribution system in Powys. As such, it is responsible for the operation and development of this network to meet local and planned demand. It is the responsibility of the utility company to maintain an efficient and economical system for the distribution of gas throughout the authority. Further to this, the provider has an obligation under the Operating under the Gas Act 1986 (as amended 1995) to comply with any reasonable request to connect premises, provided that it is economic to do so.

3.4 Capacity of, and Improvements to, the Existing Network

Wales and West Utilities has confirmed that it retains the capacity to maintain network pressures at all times. Preparations are being made by the utility company for general growth across the system; however, specific reinforcement of the network to support larger loads is undertaken as projects arise and the load is required.

In order to support new development, there may be requirements to upsize local mains, pressure control equipment and high-pressure feeder mains. Developers are expected to liaise with Wales and West Utilities to ensure that off-site and on-site works to facilitate a new gas supply are carried out and, if needed, to ensure that any necessary upstream reinforcement works are carried out. The responsibility for providing a reliable supply of gas to new development remains with Wales and West Utilities. Wales and West Utilities states, in its Long-Term Development Statement (2022), that it will typically require two to four years' notice of any project requiring the construction of high-pressure pipelines or plant, although in certain circumstances, project lead-times may exceed this period.

3.5 Agency Responsible for Delivery and Funding

Wales and West Utilities is responsible for managing the funding of all extensions to the network. Funds will be generated through existing Wales and West Utilities funding or by charging customers using the Economic Test Model already being used by the company. Costs will be specific to each individual scheme and will be influenced by the timing of the development, the scale of the development and any associated works that have been carried out in the time preceding the scheme.

3.6 Timing of Improvements

Wales and West Utilities have adopted a Reinforcement Investment Plan (2019)⁴ which covers the period 2021-2026 and have published a Long-Term Development Statement (2022)⁵ which sets out the projected usage of its pipeline system, along with likely developments to that system. Before 2026, Wales and West Utilities will prepare and adopt a new Investment Plan.

To support new ad hoc development there may be requirements to carry out upstream reinforcements to the network. The responsibility is with developers and customers wishing to add new connections onto the network to ensure that off site and on site works to facilitate a new gas supply are carried out.

3.7 Net Zero Wales and Decarbonisation

Since declaring a climate emergency in 2019, the Welsh Government has legislated to reduce greenhouse gas emissions (also referred to as carbon emissions) to net zero by 2050. Wales and West Utilities have assured their support to the Welsh Government's Pledge Campaign (Welsh Government, Working Together to Reach Net Zero, 2022, Pg.60⁶). Further to this, the Welsh Government has committed to ensuring that the Welsh public sector will reach a collective net Zero by 2030. Within its business plan for 2021-2026⁴, Wales and West Utilities has stated its aim to deliver a net zero ready network by 2035.

In addition to the drive to become carbon neutral in public buildings, the Welsh Government has set standards for new housing developments. These are contained in Welsh Development Quality Requirements 2021 - Creating Beautiful Homes and Places⁷ (WDQR 2021). WDQR 2021 requires new social homes to achieve an Energy Performance Certificate (EPC) A rating in order to maximise energy efficiency and to move away from the use of fossil fuels for heating and hot water. This strategy will result in a reduction in the use of gas-fired heating systems over time in favour of electric heat pumps or other low-carbon forms of heating.

Wales and West Utilities have made plans for a shift in energy use and supply in response to the Welsh Government's net zero goal. Wales and West Utilities have already connected

⁴ [3-wwu-business-plan-december-2019.pdf \(wwutilities.co.uk\)](#)

⁵ [2022-long-term-development-statement.pdf \(wwutilities.co.uk\)](#)

⁶ [WG44621 Working together to reach Net Zero: All Wales Plan 2021-25 \(gov.wales\)](#)

⁷ [Welsh Development Quality Requirements 2021 \(gov.wales\)](#)

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biomethane sites to its network as part of its decarbonisation strategy. The Annual Environmental Report 2021 - 2022⁸, produced by Wales and West Utilities, confirms that 20 of the biomethane sites have connections to the utility companies' network, providing enough green gas to heat over 156,000 homes. The company also provides free consultations to companies proposing to connect a new biomethane gas supply to its network.

Wales and West Utilities is a participant of Gas Goes Green⁹, a strategy which combines the efforts of all five of Britain's gas network companies to become the world's first zero carbon gas grid. The Gas Goes Green strategy proposes a strategy for utility providers, including Wales and West Utilities, to deliver hydrogen and biomethane to homes, offices and industry, so that customers can use their heating, hot water and cooking facilities exactly as they are used to, using existing central heating systems. This programme is considering the impacts of the shift away from natural gas on the grounds of safety, consequences for customers and regulatory requirements.

⁸ [annual-environmental-report-2021-22.pdf \(wwutilities.co.uk\)](#)

⁹ [ENA_GGG_6.1D_Proposition on a page_FINAL APPROVED.pdf \(energynetworks.org\)](#)

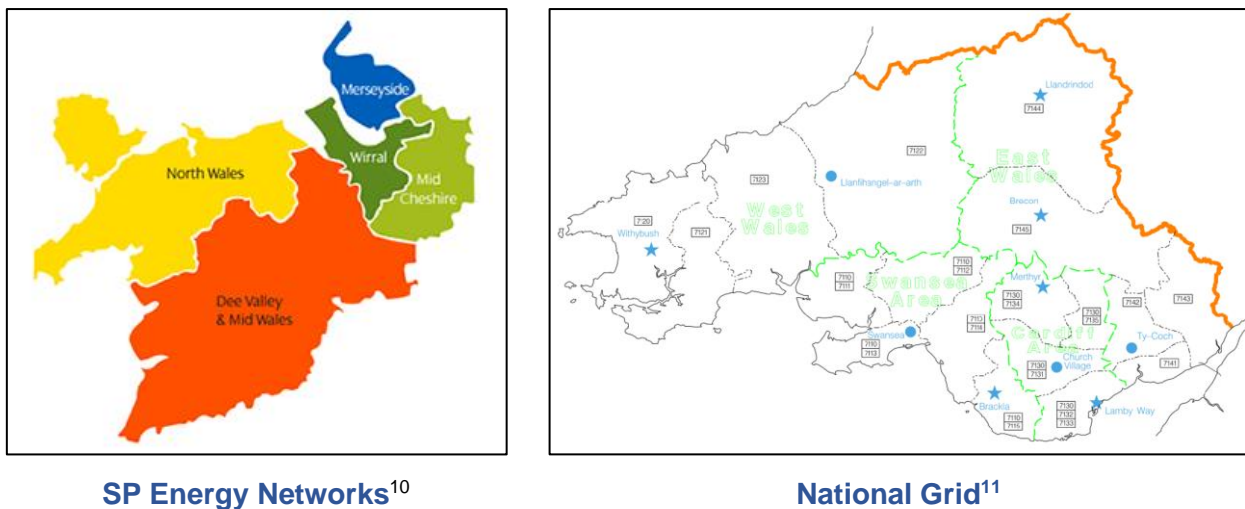
4. Electricity

4.1 The Lead Organisations / Agencies Responsible for Delivery

These are:

- SP Energy Networks
- National Grid

Figure 4.1: Electricity Provider Operational Areas



SP Energy Networks and National Grid are the organisations responsible for the electricity distribution network across the LDP area, as shown in Figure 4.1. SP Energy Networks are responsible for the northern part of the County and North Wales; National Grid are responsible for the South of the County and South Wales.

4.2 Contextual Information

Since declaring a climate emergency in 2019, the Welsh Government has legislated to reduce greenhouse gas emissions (also referred to as carbon emissions) to net zero by 2050. Further to this, the Welsh Government has committed to ensuring that the Welsh public sector will reach a collective net zero by 2030.

The ambitious net zero targets will result in changes to the way homes and businesses use electricity, through the way homes are heated to a shift away from fossil fuels for cars, vans,

¹⁰ [Our Distribution Network - SP Energy Networks](#)

¹¹ [National Grid - Network plans and information](#)

and busses. These changes will lead to an increased reliance on the electricity network for electric vehicle charging points and technology such as air source heat pumps. Whilst these changes will result in increases of electricity use in some areas, there is also likely to be a reduction overall through more efficient use of electricity. Energy efficiency measures should be encouraged in new buildings and in refurbishments of existing facilities. These can include improving insulation in homes and business premises and the use of more energy-efficient appliances.

In addition to changes in the way the energy is used, the decarbonisation initiative will see changes to the way energy is produced. Increasingly, electricity will be generated through the use of renewable sources such as wind power and solar power, and consumers will increasingly become producers as well as users of electricity through the use of renewable generation in the home and at business premises.

Regardless of the amount of renewable energy being produced, it can only be distributed if there is capacity in the infrastructure available. It is, therefore, essential that energy providers respond to the demand for upgrades to facilitate new development and energy production. Developers, and anyone wishing to create a new connection to the electricity network, either to draw from it or provide electricity to it, should consult the energy provider at the earliest opportunity to ensure that there is adequate capacity to support the development and to raise requests for upgrades to the network where appropriate.

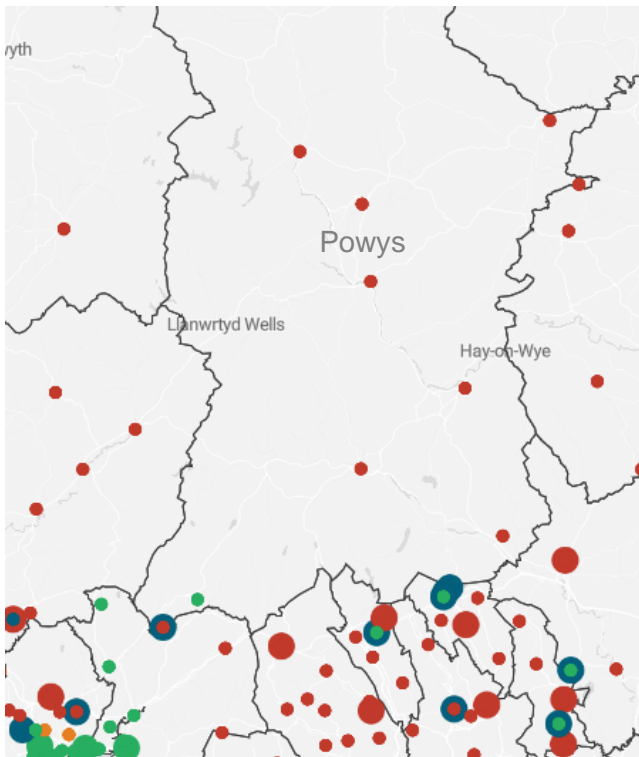
4.3 Capacity of the Existing Network

Where electricity is supplied by National Grid, all primary substations¹² in the Powys area (with the exception of Abercrave) have less than 10% total site capacity available. Abercrave has 20% total capacity available. The bulk supply points¹³ operated by National Grid which provide electricity to Powys are confirmed as having less than 5% site capacity available. Locations of substations and their available capacity is illustrated within Figure 4.2.

¹² Primary substations are a point of connection between high voltage and low voltage systems. High voltage systems are used to safely distribute electricity in large quantities in a safe manner, which then needs to be stepped down to a lower voltage for distribution to homes and businesses. At primary substations power is transformed from 33kV to 11kV or 6.6kV.

¹³ Bulk supply points connect the transmission section of the network to the distribution section of the network. Power comes in at 132kV and is transformed down to 33kV, before being distributed to primary substations.

Figure 4.2: National Grid Network Capacity Map



(Source: National Grid¹⁴)

(Note: blue points identify where some data is unavailable to view on the capacity map)

Where electricity is supplied by SP Energy Networks, all substations within the Powys area are listed as being close to their operational limits. For additional connections to this network, reinforcement works may be required. Locations of substations and their available capacity is illustrated within Figure 4.3.

Bulk Supply Points

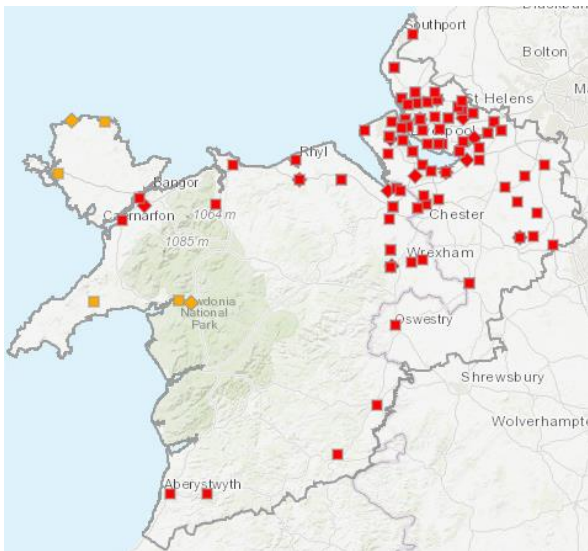
- High - 15% total site capacity still available
- Medium - 5% to 15% total site capacity still available
- Low - Less than 5% total site capacity available

Primary

- High - 20% total site capacity still available
- Medium - 10% to 20% total site capacity still available
- Less than 10% total site capacity available

¹⁴ [National Grid - Network Capacity Map Application](#)

Figure 4.3: SP Energy Networks Capacity Map



Grid Substations

- RED
- AMBER
- GREEN

Supergrid Substations

- ◆ RED
- ◆ AMBER
- ◆ GREEN

Category: Green – All operational factors are within tolerable limits and so opportunities may exist to connect additional Distributed Generation without reinforcing the network (subject to detailed studies).

Category: Amber – At least one factor is nearing its operational limit and hence, depending on the nature of the application, network reinforcement may be required. However this can only be confirmed by detailed network analysis.

Category: Red – At least one factor is close to its operational limit and so installation of most levels of Distributed Generation and a local connection is highly unlikely. It may also require extensive reinforcement works or given the lack of a local connection, require an extensive amount of sole user assets to facilitate such a connection.

(Source: SP Energy Networks¹⁵)

The process for allocating network reinforcement for new developments relies on clear plans for projected growth levels, with accurate projections on the type and scale of development taking place. The process for identifying ahead of need reinforcements is as follows:

1. Network operators are sent plans for where new housing will be focused, the anticipated housing mix, expected electricity usage, and the anticipated timescale for delivery.
2. Network operators identify what ahead of need reinforcement may be required.
3. The network operator schedules and carries out identified reinforcements to accommodate projected growth.
4. An application for connection is sent to the network operator once new development is built out.
5. The network operator provides a connection to the reinforced system.

4.4 Electricity Network Constraints

The Settlement Profiles sit as a background documents to this Infrastructure Plan. The Settlement Profiles, and data available from National Grid and SP Energy Networks (detailed in figures 4.2 and 4.3) confirm that, within North Powys, all substations are classed as being

¹⁵ [SPM Heat Map - SP Energy Networks](#)

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close to their operational limit, while within South Powys, ten of the eleven substations have less than 10% total site capacity available. Within South Powys, only Abercave has a greater level of capacity, currently standing at 20% of total capacity available. For additional connections to the electricity network, additional reinforcement may be required to meet demand.

In addition to increasing demand for electricity from a growing population size, the changes in the way energy is consumed will present challenges to network operators. The commitments towards net zero will lead to a reduction in the use of fossil fuels within the transport network, homes, and businesses and will result in an increased reliance on the electricity network as consumers look to use alternative sources of energy. Whilst the use of more energy-efficient technology and better insulated homes will create some additional capacity, network providers will still need to account for changes to the way energy is used and generated and plan accordingly.

4.5 Improvements To the Network and What Increase in Capacity They Will Bring.

The way energy is produced and consumed has changed in recent years and will continue to change in the decades to come, including across the Replacement LDP Plan period (2022 – 2037). Electricity network operators will need to plan for both changes in the demand for energy and the decentralisation of electricity production. Capacity within the network may be created through both upgrades to existing infrastructure by the network provider and at a local level by consumers with the use of more energy efficient heating, property insulation and more energy-efficient appliances. New developments should strive to be energy efficient to reduce wasted capacity in the network. Electricity Distributors are required to prepare Network Development Plans which set out strategic developments to the electricity network to meet current demand, projected demand, and improvements to the system to facilitate the delivery of Net Zero Targets.

Improvements will be required within areas managed by SP Energy Networks and National Grid to create capacity for the connection of renewable energy sources onto the network. Network operators should be consulted on electricity generation schemes which require a connection to the system as early as possible to check if there is capacity on the grid for the additional power generation, and to plan for improvements where necessary.

SP Energy Networks

SP Energy Networks describes the magnitude of change as significant and unprecedented. Within their Network Development Plan 2022¹⁶ they identify the ways in which generation and use are changing and how they have changed the way they model projected use to adapt to this.

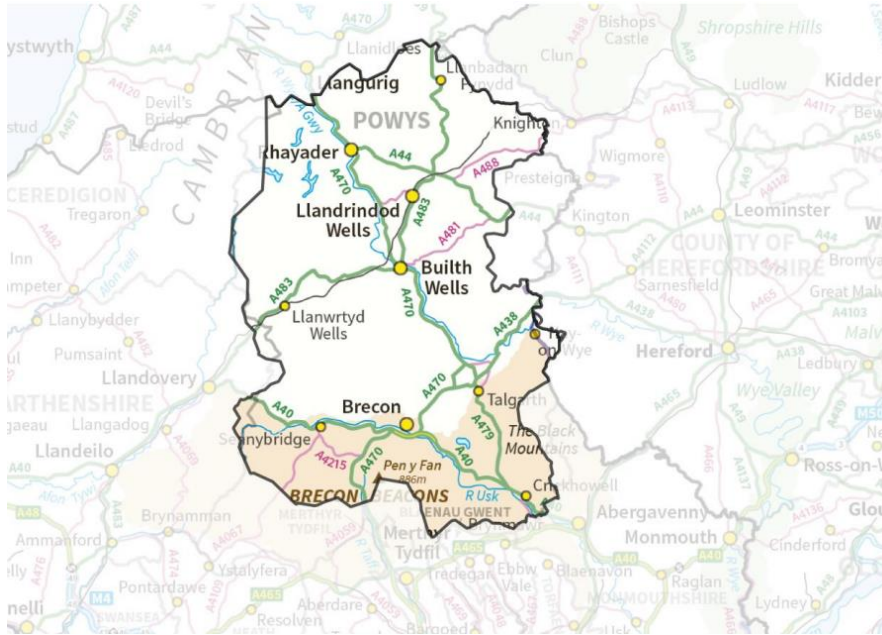
SP Energy Networks have identified three themes within their Network Development Plan¹⁷. Firstly, there needs to be a focus on decarbonisation to meet Net Zero greenhouse gas emissions targets. Secondly, there needs to be a decentralisation of the electricity network to allow more customer generated electricity than the network currently allows. Thirdly, there need to be a democratisation and digitalisation of the energy network to incorporate technology such as smart meters, home energy management systems, and intelligent domestic electric vehicle storage. Interventions include an increase in the provision of low voltage service cables and cut out units to manage the electrification of domestic heat and transport, demand for which is expected to treble. They also include upgrades to existing low voltage cables to maintain safe and secure electricity supplies and upgrades to monitoring technology to reduce and manage a predicted increase in faults from increasing volumes of electricity generation within the network.

The Settlement Profiles identify improvements to SP Energy Networks' system within the Tier 1, Tier 2 and Tier 3 Settlements (as identified in the Replacement LDP) which will be completed within the period up to 2030, subject to funding being available. Improvements identified within the Settlement Profiles include works to reinforce existing provision, increases to capacity and flexibility within the system and modernisation of existing infrastructure.

¹⁶ [Network Development Plan - SP Energy Networks](#)

National Grid

Figure 4.4: Mid Wales 66 kV Network Area



(Source: National Grid Network Development Plan¹⁸, 2022)

Forming part of the Rassau group, the Mid Wales 66 kV network is supplied by Abergavenny Bulk Supply Point and is interconnected with Panteg Bulk Supply Point. In normal network conditions it is currently supplied by three 132/66 kV Grid Transformers Abergavenny GT1, Abergavenny GT2, and Panteg GT2.

National Grid have identified that this geographical area has significant renewable energy potential. However, it acknowledges that there are voltage and thermal limitations imposed by growth forecasts. National Grid's Network Development Plan 2022 identifies that the capacity of the area identified in Figure 4.4 is limited. As a result, under future growth scenarios, it is predicted that the current network running arrangement will not be able to support the forecasted load growth in the area which would result in power cuts. In order to meet predicted network requirements, reinforcements to the grid will be required.

In order to manage increasing demand for electricity from a changing population and increasing use of electricity for domestic, commercial, and transport infrastructure to meet net zero targets, National Grid identifies a number of options. All options are subject to a cost benefit analysis which National Grid is required to carry out. These options are set out

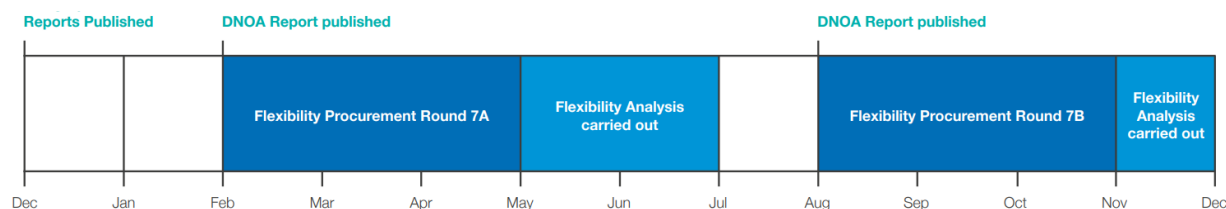
¹⁸ [NDP Network Development Report South Wales.pdf](#)

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within the Network Development Plan 2022¹⁹ (pages 38 and 40). Among other measures, they include reinforcement to the existing system with new and replacement infrastructure, along with operational mitigation to include the development of load survey and analysis techniques to better understand capacity across the network.

Full details of proposed improvements to the network are contained within National Grid's Distribution Network Options Assessments, which are published by the National Grid twice a year in February and August. An indicative timescale is shown in Figure 4.5. As part of each Distribution Network Options Assessment, existing schemes are reassessed to ensure the investment pathway remains optimal, and any new constraints to the network are identified and assessed.

Figure 4.5: Example of a Distribution Network Options Assessment timeline



(Source: National Grid²⁰, 2023, pg. 20)

4.6 Agency Responsible for Delivery and Funding

SP Energy Networks and National Grid are responsible for managing the delivery and funding of reinforcements to the existing electricity distribution networks within their identified regions.

Where development creates the need for new or upgraded infrastructure which is either required in advance of, or falls outside the remit of, the service provider's investment programme, the developer will be expected to meet or contribute towards the cost of providing such infrastructure. Costs will be specific to each individual scheme and will be influenced by the time at which the development comes forward, the scale of the proposed development and any associated works that have been carried out in the time preceding the scheme.

¹⁹ [NDP Network Development Report South Wales.pdf](#)

²⁰ [627462 \(nationalgrid.co.uk\)](https://www.nationalgrid.co.uk/627462)

Regional and National Links

Through policy commitments at a national level, the Welsh Government has set out a clear vision for Wales to generate renewable energy to meet its energy needs and to utilise surplus generation to tackle the nature and climate emergencies. To create a strategy for the delivery of its net zero target, the Welsh Government aims to produce a National Energy Plan to map out future energy demand and supply for all parts of Wales. This will identify gaps in predicted electricity supply to deliver a flexible system which can match local renewable energy generation with energy demand. This national plan will be produced alongside Local Area Energy Plans to ensure an integrated approach is taken across all of Wales.

The National Grid operates the national electricity transmission network across Great Britain and owns and maintains the network in England and Wales. SP Networks covers mid and north Wales, Cheshire and Merseyside.

Both SP Energy Networks and National Grid are part of the Future Grid for Wales group, which combines the skills and resources of the Welsh Government and all other relevant electricity providers, to create a long-term solution for energy provision within Mid Wales, including reinforcement to existing infrastructure.

Future Wales: The National Plan 2040

The Future Wales plan is the highest tier of development plan and is prepared by the Welsh Government. The plan focuses on solutions to issues and challenges at a national level. Future Wales was published in February 2021 and forms part of the development plan for the whole of Wales. This plan, together with Strategic Development Plans will include the management of resources such as the production and distribution of electricity across the network areas.

Future Wales identifies that Wales' topography and weather conditions present many opportunities to generate energy from the wind. The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet its future energy needs. Policy 17 of the plan is clear that, in determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight to the need to meet Wales' international commitments and its target to generate 70% of consumed electricity by renewable means by 2030. The Welsh Government has pre-assessed areas for wind energy (identified in figure 4.6) and there is a presumption in favour of large-scale wind energy development (including repowering) in these areas.

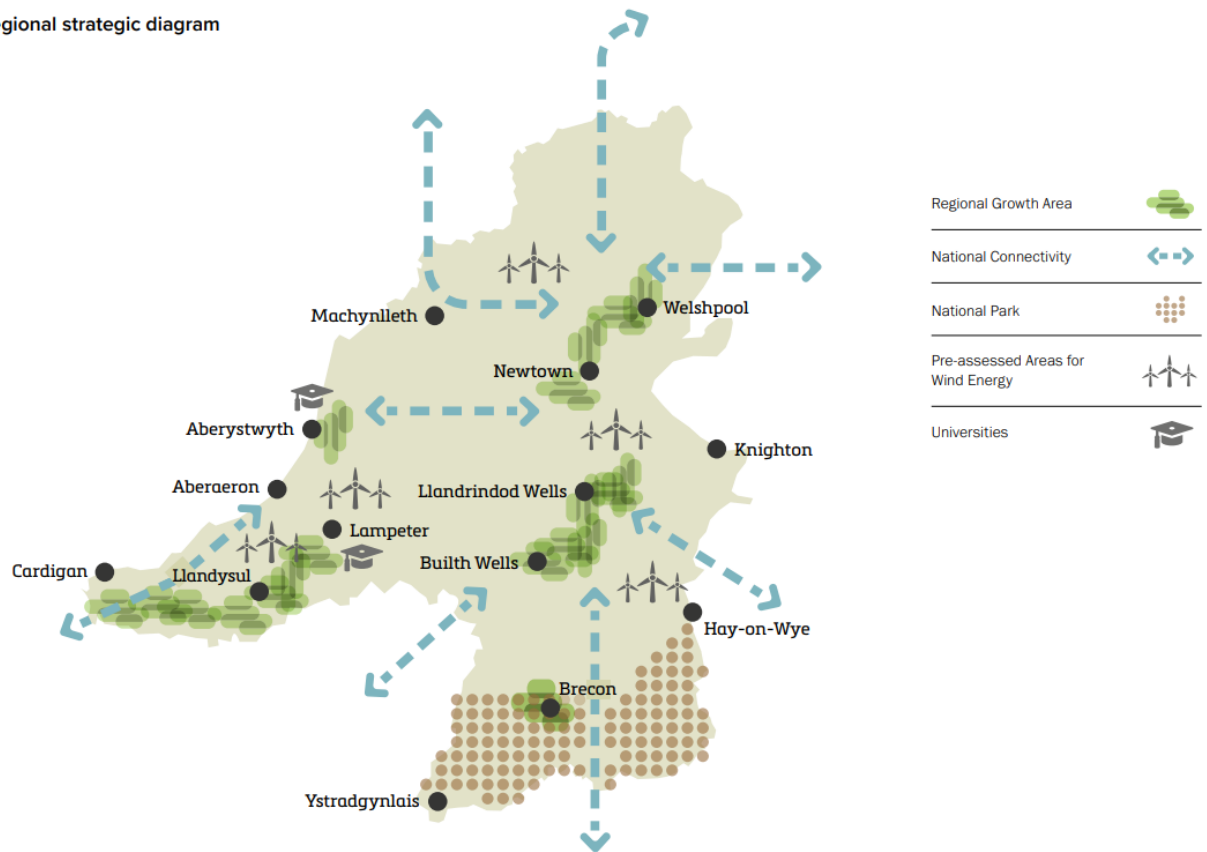
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In order to progress major projects for the generation of renewable energy, there will need to be significant work to improve infrastructure and increase capacity on the electricity network. To aid the delivery of major infrastructure projects, the Welsh Government is introducing the Infrastructure (Wales) Bill 2023 to simplify the process for gaining consent for major infrastructure projects within Wales. The Bill establishes a new regime that adopts a 'one-stop-shop' approach where consents and other permissions can be sought in one application and decision-making process. This Bill will allow infrastructure, such as renewable infrastructure projects, to be determined in a simplified process. This will be more transparent for local communities and provides clear policy for decision makers. The Bill will play an important role in facilitating development that will contribute to the Welsh Government's commitments on the provision of renewable energy and net zero targets. Specifically, the Bill makes provision for matters such as:

- the thresholds when a development is considered to be a significant infrastructure project;
- ensuring publicity and engagement with local communities and local planning authorities;
- the processes and procedures for determining applications (including authorising the compulsory acquisition of land);
- breaches of infrastructure consent and how these can be enforced against; and
- how and when fees are charged.

Figure 4.6: Mid-Wales Regional Strategic Diagram

Regional strategic diagram



(Source: Future Wales: The National Plan 2040²¹, pg. 129)

²¹ [Update to Future Wales - The National Plan 2040 \(gov.wales\)](https://gov.wales)

5. Healthcare

5.1 The Lead Organisation / Agency Responsible for Delivery

The lead organisation / agency responsible for delivery the delivery of health care across the Plan area is Powys Teaching Health Board.

5.2 Contextual Information

Powys Teaching Health Board is one of seven health boards in Wales. Within Powys, it is the responsibility of the Powys Teaching Health Board to plan, commission, and provide local health services to address local needs. The budget for providing health services in Powys and across Wales is set by the Welsh Government.

Primary care is delivered through contractors including:

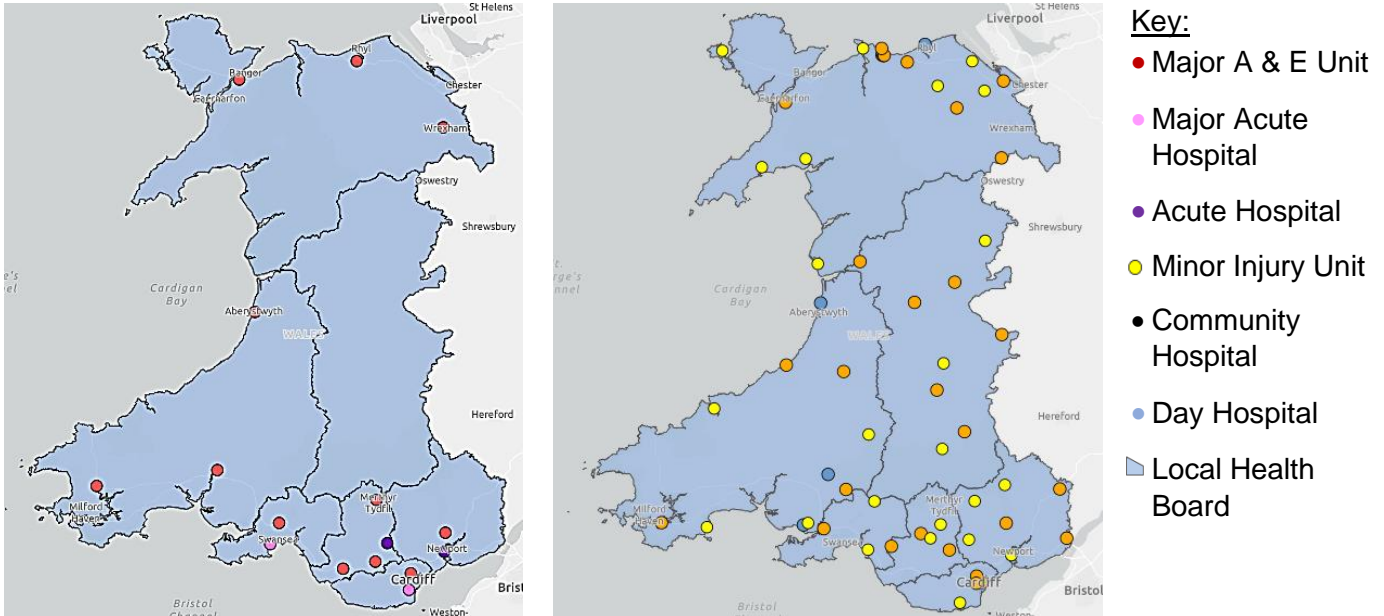
- General Practices.
- Out of Hours services.
- Dental Practices and health board primary care dental services.
- Community Dental Services located across Powys as part of community services.
- Pharmacies.
- Optometrists.

The health board commissions secondary care from District General Hospital providers in both England and Wales. Specialist care is commissioned through collaborative arrangements overseen by the Welsh Health Specialist Services Committee.

The health board is responsible for improving the health and well-being of approximately 133,200 people living in Powys, including those in the BBNP. Within Powys there are approximately 116,000 people registered with a GP Surgery which falls within the responsibility of Powys Teaching Health Board. Powys covers a quarter of the landmass of Wales, but with only 5% of its population, it is a very sparsely populated and rural authority. Due to the low population density, the majority of services are provided locally, through GPs and other primary care services, community hospitals and community services. The health board states that, with such a sparsely populated area, Powys does not have the critical mass of people locally to support a District General Hospital. Where patients require specialist hospital services, this care and treatment is provided by hospitals outside the county. A map of Welsh hospitals is included below in Figure 5.1. The Powys Teaching Health Board works closely with hospitals across the Welsh boarder in England which are

utilised for specialist appointments and for Accident and Emergency services. These hospitals include Hereford County Hospital, Royal Shrewsbury Hospital, and Princess Royal Hospital Telford.

Figure 5.1: Location of Welsh Hospitals

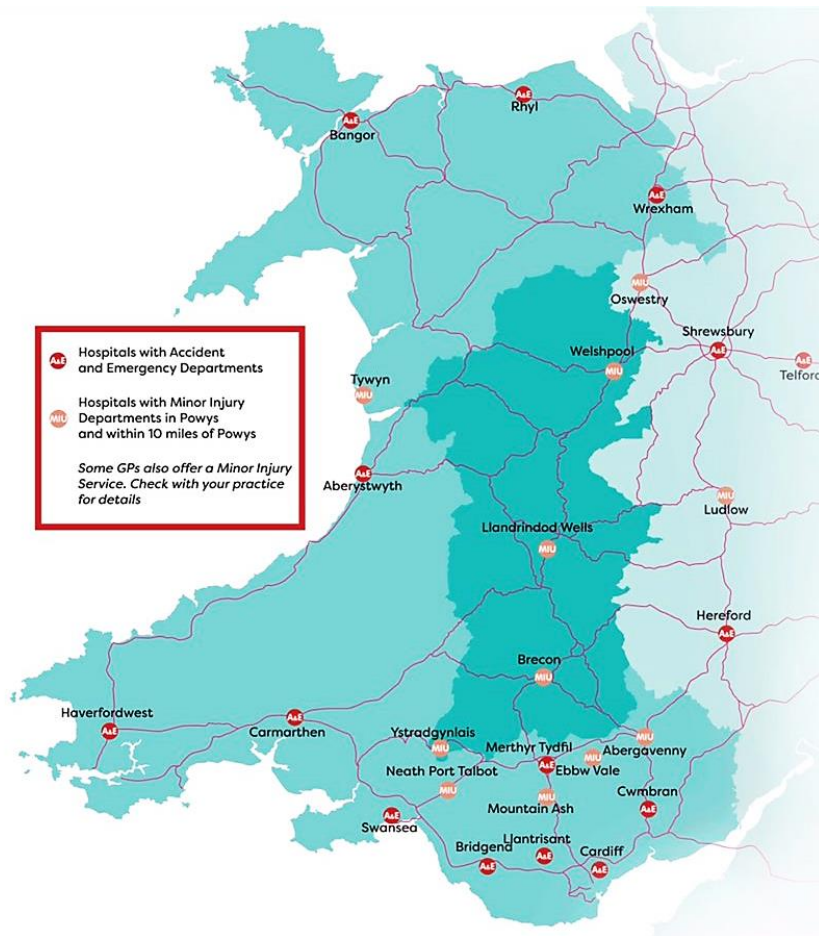


(Source: Wales Hospital Locations, Nhswales.maps.arcgis.com²²)

There are no accident and emergency departments in Powys, where this service is required, treatment will be given at the closest department outside of Powys. There are four Minor Injury Units within Powys, located in Welshpool, Llandrindod Wells, Brecon, and Ystradgynlais.

²² [Wales Health Service Locations \(arcgis.com\)](http://Wales Health Service Locations (arcgis.com))

Figure 5.2: Location of Accident and Emergency Departments and Minor Injuries Units

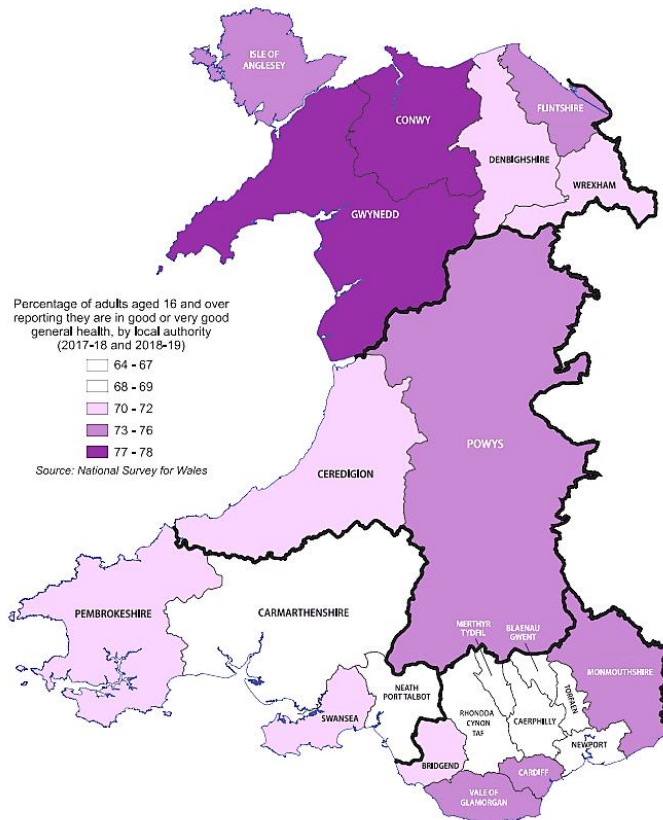


(Source: Powys teaching Health Board)

Future Wales²³ places great importance on improving the health of the Welsh population, seeking to prevent avoidable illnesses by encouraging healthier and more active lifestyles and improving environmental quality. Whilst life expectancy is improving for the Welsh population, it is below that of the UK as a whole (Future Wales, 2021, pg.22). As shown in Figure 5.3 (below), Powys is among the better-performing authorities in Wales for adults who describe their health as being good or very good (73-76% of those surveyed).

²³ [Update to Future Wales - The National Plan 2040 \(gov.wales\)](https://www.gov.wales)

Figure 5.3 – Percentage of adults aged 16 and over reporting they are in good or very good general health, by local authority.



(Source: Future Wales, 2021, pg.22)

Future Wales recognises that the Welsh population is aging and identifies the need to consider the types of housing provided, the locations of these houses and the social and healthcare services available to the population. The Settlement Profiles which support this Infrastructure Plan acknowledge that care home provision and patient population is a factor which could have an impact on GP surgeries. The Health Board acknowledges within the 2021-2022 annual report that the population of Powys is older compared to the rest of Wales and the proportion of older people is growing²⁴. In considering the location of new houses and the housing mix, regard should be given to the provision and accessibility of healthcare services.

²⁴ pthb.nhs.wales/about-us/key-documents/annual-reports-annual-accounts-and-annual-quality-statements/1/

5.3 Capacity of the Existing Network.

The Settlement Profiles confirm that all of the GP surgeries serving the Powys population have capacity for additional patients. There are currently 116,000 patients registered with the 21 GP surgeries in Powys²⁵. Of these surgeries, fifteen have a dispensing service which is utilised by approximately 73,600 patients. Patients whose GP surgery does not have a dispensary are provided with this service from a suitable practice elsewhere.

The Powys Teaching Health Board lists ten dental practices within the County area, with a further seven community dental clinics²⁶. Community dental clinics are operated on a referral-based service and referrals must be made by a healthcare professional.

5.4 Improvements To the Network and What Increase in Capacity They Will Bring.

The Powys Teaching Health Board is responsible for providing and commissioning healthcare provision in Powys. The health board develops its plans based upon an 'assessment of the needs' of the Powys population which takes into account environmental, social and economic issues and the role of the health board in its community.

North Powys Wellbeing Programme

The Powys Teaching Health Board forms part of the Powys Regional Partnership Board, which has made plans to develop a new facility in which will connect to a number of community wellbeing hubs to offer more services locally, bringing the latest technology and training to mid Wales. To date, the Powys Regional Partnership Board has received £4.3m from the Welsh Government to invest in new ways of delivering health and social care services in north Powys and to support the multi-agency wellbeing campus development. The multi-agency wellbeing campus will include primary education, health, social care and supported accommodation and will focus on wellbeing. It will promote early help by providing technology to help people live at home. It will also tackle the biggest causes of ill health and poor wellbeing and will ensure joined-up care (involving neighbourhood teams and communities working together) to ensure a seamless service.

Having been established in May 2019, the North Powys Wellbeing Programme is planned for completion in 2026. A timeline for the projects planned completion is included below in Figure 5.4.

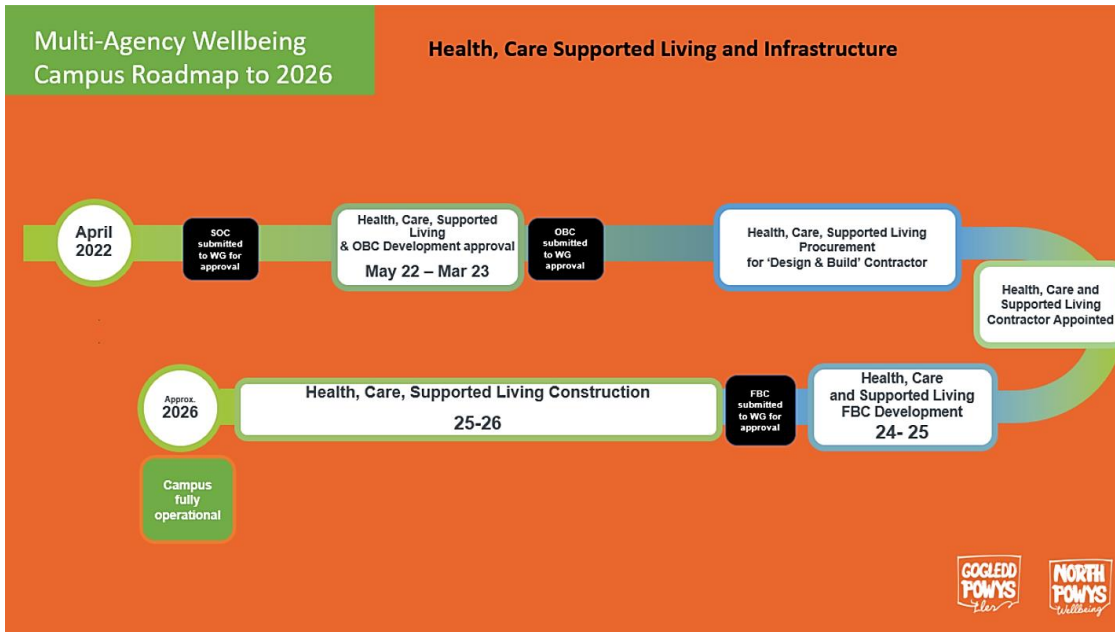
²⁵ Note: some of the services and patients are within the Brecon Beacon's National Park boundary which is subject to a separate Local Development Plan.

²⁶ Note: some of these dental practices may also serve patients within the Brecon Beacons National Park, the National Park area is subject to a separate Local Development Plan.

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The responsibility for delivery of the programme has been delegated to a Programme Board which is jointly chaired by the Powys Teaching Health Board, Chief Executive Officer and the Powys County Council, Chief Executive Officer. The Programme Board reports progress quarterly to the North Powys Sponsor Oversight Group, which is attended by Cabinet and Independent Members.

Figure 5.4: North Powys Wellbeing Programme Timeline



(Source: The North Powys Wellbeing Programme Briefing Pack²⁷, NHS Wales, 2022)

²⁷ mwjc.nhs.wales/files/board-meetings/mwjc-27th-june-2022/ag-item-7-appdx-a-npwp-soc-briefing-feb-2022-finalpdf/

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Improvements to Machynlleth hospital

A £15 million project to refurbish the existing hospital and integrate it with local GP services has been completed at Machynlleth Hospital. The development at the Bro Ddyfi Community Hospital establishes this as an integrated health and wellbeing facility for the local community. The project has created a multi-disciplinary facility, housing community and primary healthcare, adult mental health treatment, outpatient facilities and women's and children's clinics, all provided in one location. As well as integrating primary care services into the hospital site, the facility provides a base for health, local authority, and third sector teams, encouraging improved integration and efficiency and supporting wellbeing, prevention and health promotion.



(Source: Powys Teaching Health Board²⁸)

Funding for this project has been provided by the Welsh Government. Management of the site will continue to be the responsibility of Powys Teaching Health Board. The findings of research undertaken as part of Powys Council's Settlement Audit 2022 confirm that this refurbishment provides a location for the delivery of a number of services but does not provide any significant increase to capacity beyond existing expected population growth.

²⁸ [A £15m redevelopment of Ysbyty Bro Ddyfi has been officially opened by Health Minister Eluned Morgan - Powys Teaching Health Board \(nhs.wales\)](#)

Development of a new doctors' surgery at Llanfair Caereinion

The development of a new GP surgery at Llanfair Caereinion is planned. This will create a new building for the existing surgery and a consolidation of services offered by the Powys Teaching Health Board. This development is part of the planned move out of an old building, with some expansion space provided within a new surgery.

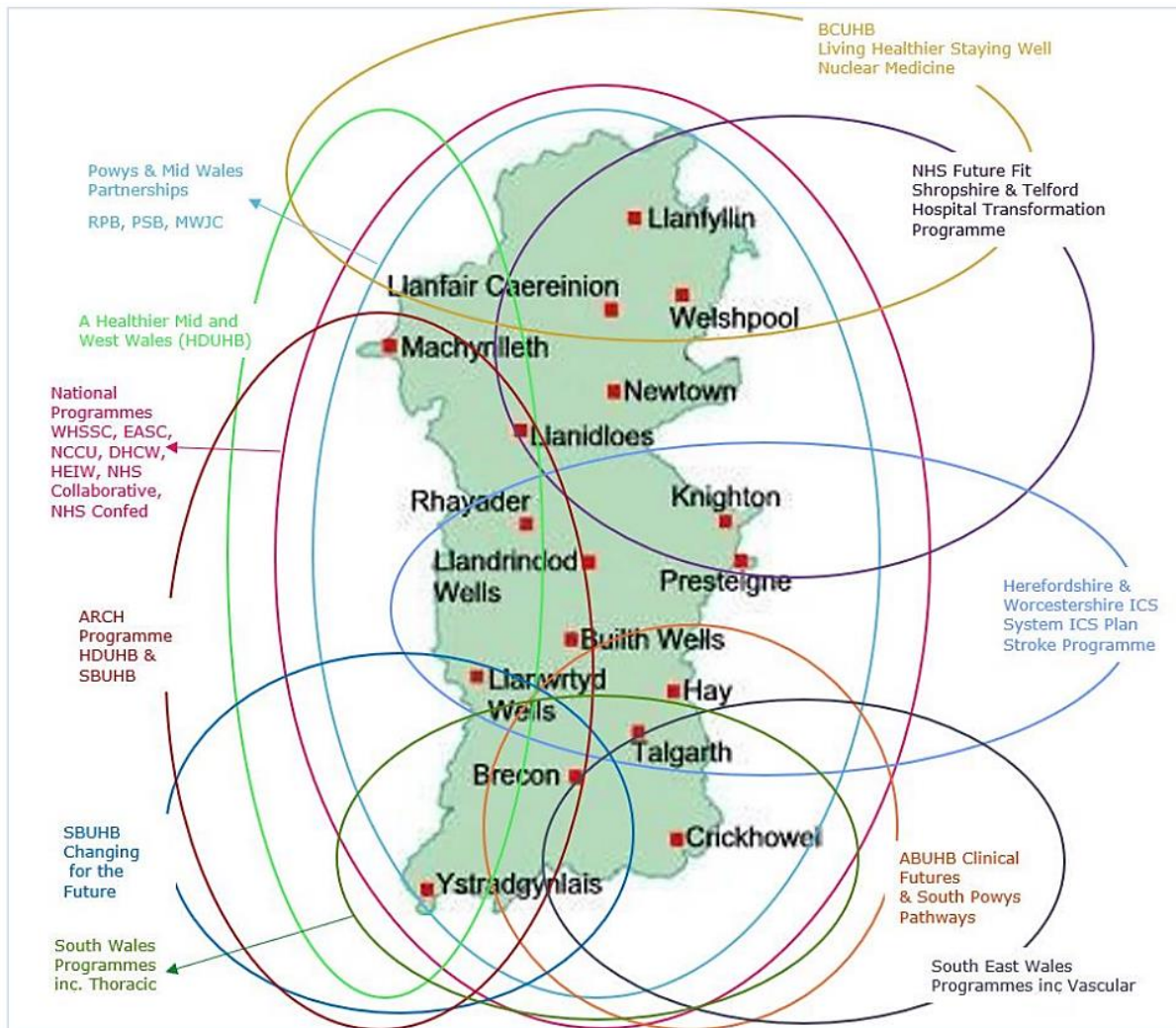
The new surgery is expected to increase patient capacity by 1,500 patients, from 6,500 to 8,000. This is designed to allow for a slow growth in patient numbers and does not provide capacity for any significant increases in population size.

5.5 Links to Neighbouring Authorities

Whilst the Powys Teaching Health Board is responsible for planning, commissioning and providing local health services to address local needs, not all services are provided within the boundaries of the health board. Where patients require specialist hospital services, this care and treatment is provided by hospitals outside of Powys. The health board commissions secondary care from District General Hospital providers elsewhere in England and Wales. Specialist care is commissioned through collaborative arrangements overseen by the Welsh Health Specialist Services Committee.

Powys is involved with a number of collaborative programmes within mid Wales and elsewhere in the UK. An illustration of the geographic area covered by these collaborations is provided below within Figure 5.5. Collaboration between healthcare organisations takes place through the Mid Wales Joint Committee for Health and Care (formerly the Mid Wales Collaborative). This is recognised as a formal planning area by the Welsh Government in line with the regional arrangements for North Wales and South Wales (the latter divided further into East and South/West regions). Full Details of collaboration between Powys Teaching Health Board and regional and national partners can be found within the Health Board's annual monitoring reports.

Figure 5.5: Health Care Collaborations incorporating Powys Teaching Health Board



(Source: NHS Wales, Annual Report 2021-2022²⁹, Pg.71)

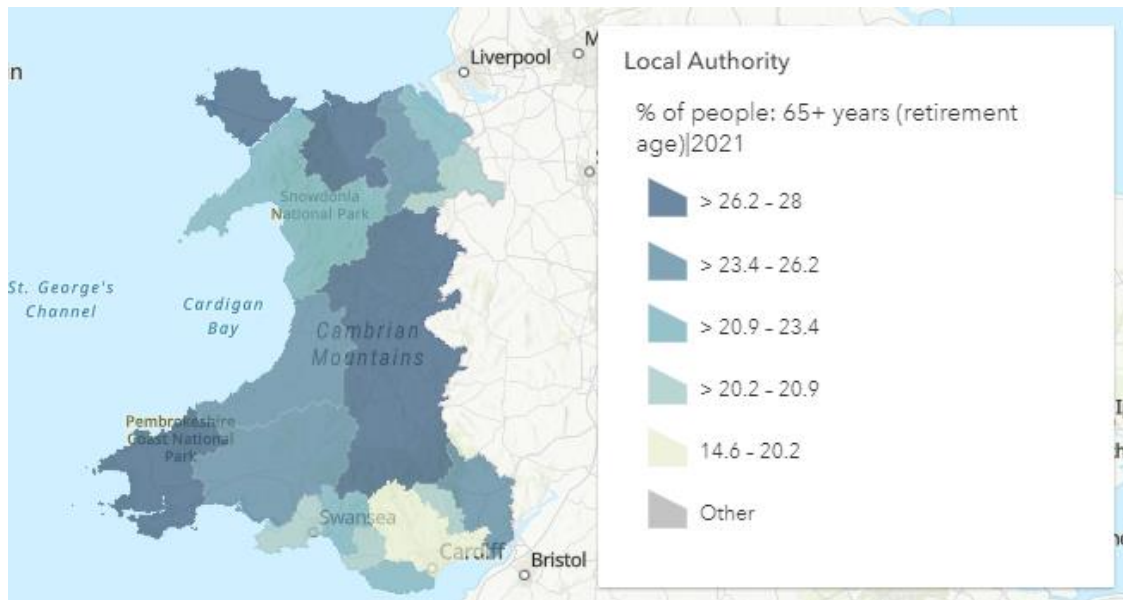
²⁹ pthb.nhs.wales/about-us/key-documents/annual-reports-annual-accounts-and-annual-quality-statements/1/

5.6 Healthcare Constraints

Research carried out in advance of the preparation of this Infrastructure Plan confirmed that the Powys Teaching Health Board has prepared its plan for growth based upon a pattern of distributed growth across settlements within Powys. If significant growth is planned within concentrated areas discussions should take place with the health board to establish whether this is feasible and whether any changes need to be made to the provision of healthcare within the LPA area to meet this growth.

The Health Board acknowledges within the 2021-2022 annual report that the population of Powys is older compared to the rest of Wales and the proportion of older people is growing. Data from 2021 provided by Health Map Wales (Figure 5.6) shows that, within Powys, over one quarter of the population is over retirement age. As stated in part 5.2 of this report, this will lead to an increased need for a range of housing options. In addition to the ability of elderly patients to get to their healthcare providers, the rural nature of Powys means that healthcare practitioners have to travel over a wider area to provide home care than their counterparts in more urban parts of the country. This can lead to a greater stretch on resources. The Settlement Profiles acknowledge that an aging population can have an impact on the capacity for care homes to provide accommodation for additional residents. The provision of accessible homes in locations with a range of services may enable people to live in their own homes or receive home care for longer.

Figure 5.6: Percentage of people 65+ years old (retirement age) as of 2021



(Source: Health Maps Wales³⁰)

³⁰ [% of people: 65+ years \(retirement age\) | DHCW – Data Explorer \(wales.nhs.uk\)](https://www.wales.nhs.uk/dataexplorer)

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Also identified within the Settlement Profiles is that the proximity of Montgomery and Presteigne to the English border could present challenges in terms of recruiting GPs, as GPs need to be registered on the Welsh Performers List to work in Wales. Some GPs working in England choose not to register in Wales. The Health Board is responsible for managing resources and recruiting staff, therefore this Infrastructure Plan makes no recommendations on the availability of staff.

6. Wastewater

6.1 The Lead Organisations / Agencies Responsible for Delivery

These are:

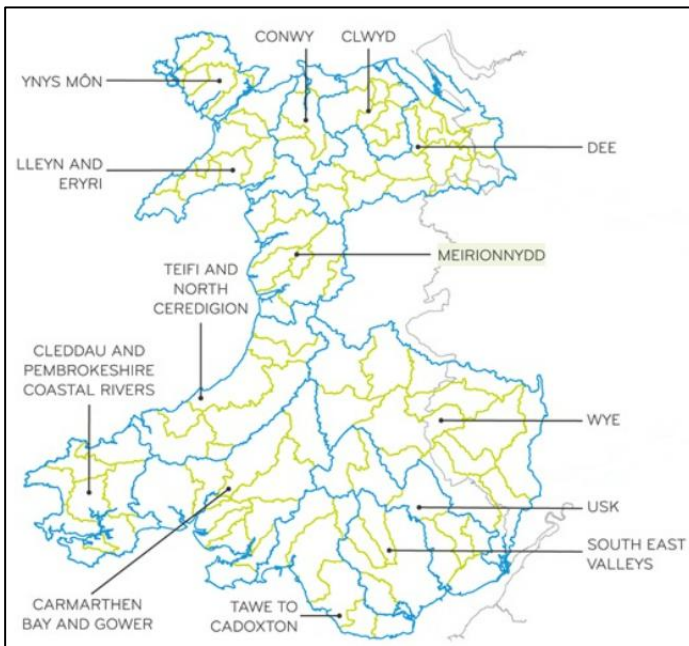
- Hafren Dyfrdwy
- Dŵr Cymru Welsh Water (DCWW)

The respective areas covered by these organisations are shown in Figure 6.1, below.

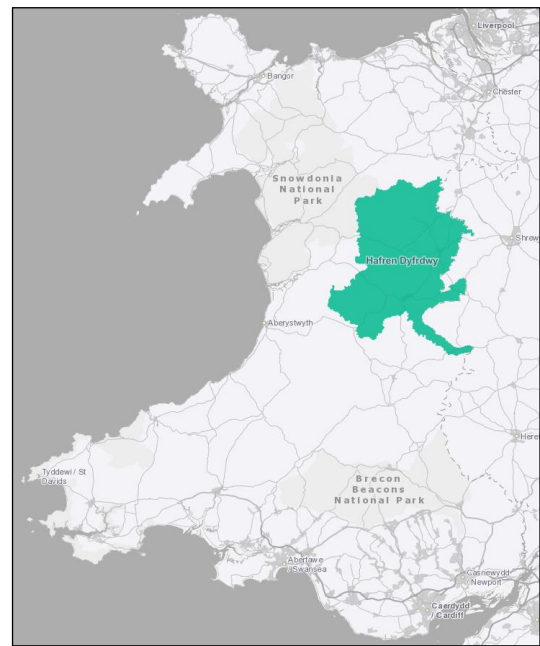
Hafren Dyfrdwy (Severn Dee) is part of Severn Trent and, accordingly, covers the northern part of the LDP area, which lies in the Severn catchment. DCWW covers the remainder of the area, along with most of the rest of Wales.

As statutory water and sewerage undertakers for their respective areas, DCWW and Hafren Dyfrdwy are responsible for operating, maintaining, improving, and extending the system of public sewers, water mains and associated apparatus together with treatment works and pumping stations and has corresponding statutory duties to ensure effectual drainage and for availability of water supply.

Figure 6.1: Wastewater Treatment Works Catchments



Dŵr Cymru Welsh Water (DCWW) Treatment Works Catchments³¹



Hafren Dyfrdwy Wastewater Treatment Works Catchments³²

³¹ [Drainage and Wastewater Management Plan | Dŵr Cymru Welsh Water \(dwrcymru.com\)](#)

³² [DWMP Website - Hafren Dyfrdwy \(arcgis.com\)](#)

6.2 Contextual Information

Within Powys, wastewater is managed and treated by Hafren Dyfrdwy and DCWW across the areas identified within Figure 6.1. However, as per the Conservation of Habitats and Species Regulations 2017³³, LPAs are the competent authorities responsible for undertaking the Habitats Regulations Assessment to consider whether a plan or project is likely to have a significant effect on any Special Areas of Conservation (SAC). This includes developments connecting to a WwTW, that discharges wastewater into a watercourse in a phosphate sensitive Riverine SAC catchment.

Where development is within a riverine SAC catchment area, it will need to prove nutrient neutrality, regardless of whether the waterbodies within the catchment are exceeding critical phosphorus levels. 67% of the water bodies in the river Wye SAC catchment, are currently exceeding their critical load for phosphorous, whilst 88% of water bodies in the river Usk SAC catchment are currently (2023) exceeding their critical load for phosphorous³⁴.

Proposals within the catchments of the River Wye and Usk must evidence with scientific certainty that the proposal will achieve a minimum of phosphorus neutrality as to not increase the phosphorus pollution levels found in these rivers. This is a significant constraint to development, but as mitigation measures are developed there will be a shift in guidance on how schemes can be brought forward. To adapt to changing guidance on achieving phosphorous neutrality, this Infrastructure Plan is accompanied by a Phosphate Position Statement. The Phosphate Position Statement will be adaptive to changing guidance, which will be updated independently to the Infrastructure Plan as a whole, or when updates are deemed necessary by the Powys LPA.

This chapter focuses purely on the provision of wastewater services across the LDP area and upgrades to the wastewater system to meet demand. Improvements to the network which targets the reduction of phosphorus discharge into SAC river catchments is addressed within the accompanying Phosphate Position Statement, which should be read in conjunction with this Infrastructure Plan.

6.3 Capacity Of the Existing Network

Through ongoing monitoring, DCWW have confirmed that there are some settlements that have Wastewater Treat Works (WwTW) capacity issues, these are detailed in the Settlement Profiles. Discussions are taking place between PCC and DCWW as to how the Replacement

³³ <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

³⁴ <https://corporate.dwrcymru.com/en/community/environment/river-water-quality/sac-rivers> Under SAC SAGIS reports and SAC Phosphorus Load Overview Maps

LDP responds to and addresses these constraints. Hafren Dyfrdwy have not identified any concerns regarding the capacity of their network.

Both DCWW and Hafren Dyfrdwy have confirmed that for larger development sites, a hydraulic modelling assessment (HMA) may need to be undertaken. This will identify if any improvements are required to accommodate growth. Site specific investigation will need to take place once the size and location of housing allocations have been confirmed within the Replacement LDP.

6.4 Network constraints

The most significant constraint to developments which are planned to be supported by the sewerage system are constraints resulting from parts of the River Wye and River Usk SACs exceeding their critical load for phosphorous. Within affected catchments, although capacity may exist within the sewerage network, unless a proposal can evidence with scientific certainty phosphorous neutrality, no connection can be made to the sewerage network due to the potential increase in phosphorous discharge from sewage works.

Natural Resources Wales are currently reviewing the permits across Wales for WwTW. These reviews will, often for the first time, add a phosphorus limit which will restrict the amount of phosphorus permitted within the final effluent. Only where a permit review has revealed headroom within the waterbody may developments not need to prove phosphorus neutrality³⁵.

WwTW will increase their capacity for new developments by installing phosphorus stripping technology, such improvements are detailed within the AMP programmes³⁶. Smaller proposals may be permitted where they can evidence neutrality through the use of a private treatment system, however these systems can only be utilised where there is no mains sewer within 30 metres of the development site. Further information regarding constraints related to nutrient neutrality is contained within the Phosphate Position Statement which sits alongside this Infrastructure Plan.

For new development planning to connect to a mains sewer, the sewerage undertaker should be consulted at the earliest opportunity so that they may assess capacity and determine if any constraints to capacity are present, and to plan for improvements where

³⁵ <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/our-role-in-planning-and-development/phosphorus-limits-on-environmental-permits-for-waste-water-treatment-work-discharges/?lang=en>

³⁶ <https://corporate.dwrcymru.com/-/media/project/files/page-documents/corporate/environment/river-manifesto/english/manifesto-for-rivers---e-may-23.ashx#:~:text=Doing%20all%20we%20can%20to,our%20impact%20on%20the%20environment.>
Will automatically download a PDF file.

necessary. A common network constraint is hydraulic capacity (Hydraulic Overload). This is where the sewage system cannot take anymore wastewater due to the risk of sewage flooding. As previously mentioned, this will especially apply to large developments that would result in a large increase in wastewater coming into a WwTW.

6.5 Improvements To the Network and What Increase in Capacity They Will Bring

Both DCWW and Hafren Dyfrdwy are committed to delivering a high-quality service and strive for improvements to the network, both for maintenance of the system and to increase capacity. Ongoing work carried out by these providers includes taking action to reduce internal sewer flooding, reduce sewer blockages, and work to effectively manage and reduce the risk of sewer collapses.

Works are planned during the period 2020-2025 which are set out within AMP7. Documents have been produced by the network operators which include details of planned works and improvements. AMP8 is due to be published late 2024, which will set out proposed improvements for the period 2025-2030.

Improvements to accommodate phosphorous reduction technology are summarised within the Phosphate Position Statement which sits alongside this Infrastructure Plan.

Works to accommodate growth by installing phosphorus stripping technologies are included within AMP7, for the following WwTWs³⁷:

- Presteigne
- Rhayader
- Clyro
- Builth Wells (Not on DCWW manifesto)
- Llandrindod Wells (Not on DCWW manifesto)

6.6 Hay on Wye Wastewater Treatment Works

Hay on Wye WwTW is different to the other WwTW within the Powys LDP area as it is located in England and serves developments located in Wales (both PCC and BBNP) and England (Herefordshire County Council). As a result of this, any developments connecting to Hay on Wye WwTW must follow Natural England's Nutrient Neutrality policy. This states that if a water body of a river SAC catchment is passing its phosphorus targets, then further

³⁷ <https://corporate.dwrcymru.com/-/media/project/files/page-documents/corporate/environment/river-manifesto/english/manifesto-for-rivers---e-may-23.ashx#:~:text=Doing%20all%20we%20can%20to,our%20impact%20on%20the%20environment.>
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Nutrient Neutrality is not required and an outcome of 'no significant effect' can be reached by the competent authority when screening proposals under the Habitat Regulations. As a result of this, any connections to Hay on Wye WwTW can be determined as having 'no significant effect'.

6.7 Agency Responsible for Delivery and Funding

Hafren Dyfrdwy and DCWW are responsible for managing the delivery and funding of reinforcements to the existing sewerage networks within their identified regions.

7. Education

7.1 The Lead Organisations / Agencies Responsible for Delivery

Powys County Council are the statutory body responsible for the education infrastructure within Powys including within the BBNP.

7.2 Contextual Information

Powys County Council's Strategy for Transforming Education in Powys (2020-2032)³⁸ stated that in April 2021, Powys (including BBNP) had 8,916 primary school learners and 6,441 secondary school learners. Primary school learners at the time (2021), were educated across 75 primary schools (reduced to 72 in 2022/2023 school year) and a single infant school and junior school. These consisted of a combination of community primaries, Church in Wales voluntary controlled and voluntary aided schools and one Roman Catholic voluntary aided school. Secondary school learners in April 2021 were educated in nine schools, across 11 sites. With two all age schools (three in 2022/2023), three special schools, two pupil referral units and a number of specialist units. All secondary schools had a sixth form unit providing AS/A Level provision to just over 1,000 learners.

In April 2021, Powys had a total of 2,877 learners in Welsh medium education, delivered across 20 primary schools, four dual stream secondary schools and two dual stream all age schools.

Powys County Council as part of its Transforming Education Strategy, has been reducing the number of small schools in Powys over recent years, with a large proportion of schools falling within the Welsh Government definition of a small school (fewer than 91 pupils). According to the 2021 Pupil Level Annual School Census (PLASC) data, there were 33 small primary schools, making up 43% of the total primary schools in Powys. Fifteen of the primary schools in April 2021 had less than 50 pupils.

7.3 Capacity Of the Existing Network

Powys has seen a decrease in student numbers over the last decade with numbers predicted to continue decreasing. Primary school student numbers are expected to drop by 5% in the five-year period 2021- 2026. Secondary school student numbers are expected to drop slightly until 2025, then drop more significantly between 2025 and 2030³⁹.

³⁸ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

³⁹ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

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These decreases in student numbers have resulted in a large amount of capacity throughout the education network across Powys. The PLASC 2021 data found an average of 14% surplus capacity in primary schools and 23% surplus capacity in secondary schools.

Considering the expected drop in student numbers over the next seven years, it is not foreseen there will be any significant issues with the capacity of the existing education provision.

7.4 Education Network Restraints

Constraints on the education network arise largely due to financial limitations.

Building Condition

Welsh Government categorises building condition on a A-D scale (A being a brand-new build and D being in a poor state of repair with significant improvements needed). The majority of secondary schools in Powys are in the C-D category. Costs of repair and maintenance will increase the longer these schools are left in a poor state or repair⁴⁰.

Post-14 and Post-16 Education

A report on post-16 education opportunities in Powys was published September 2019. The report outlined a number of issues including decreasing student numbers, financial strain, and concerns over the sustainability of the curriculum which includes Welsh medium education. It is estimated that around 1,000 students access post-16 education outside of Powys. This has a negative effect on funding and curriculum offered. Engagement with schools suggested this is also happening for students post-14⁴¹.

Additional Learning Needs (ALN)

Students with ALN attend a variety of school settings, including special, specialist and mainstream schools as well as pupil referral units. Mainstream secondary schools provide inconsistent ALN facilities. Some students are not educated in the settings that would best suit their needs. Students in special schools could be taught in mainstream schools or vice versa for example. The location of such facilities can also cause issues for ALN students, with some students having to travel long distances to get access to the facilities they require⁴².

⁴⁰ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

⁴¹ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

⁴² <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

Welsh-medium Education

In 2017 the Welsh Government launched a strategy which aimed to have one million Welsh speakers in Wales by 2050. To achieve this target there is a need to increase in students accessing Welsh-medium education within Powys. Pupils accessing Welsh-medium education has stagnated over the past few years⁴³.

Financial Pressures

The Covid-19 Pandemic and the ongoing cost of living crisis have put more pressure on an already stretched sector. The infrastructure for education in Powys means that the overall funding allocated for education is having to be thinly spread with an increasing amount of the budget share per pupil being used on transport, running and maintenance costs of the current infrastructure.

7.5 Improvements To the Existing Network (and Capacities it Will Unlock)?

Strategy for Transforming Education in Powys 2020-2032 (Updated July 2022)⁴⁴

The Council has published a “Strategy for Transforming Education in Powys 2020-2032 (Updated July 2022)”. The strategy includes a vision and guiding principles, and sets out the council's priorities to transform education in Powys, focusing on four strategic aims:

- Improve learner entitlement and experience.
- Improve learner entitlement and experience for post-16 learners.
- Improve access to Welsh-medium provision across all key stages.
- Improve the provision for learners with ALN.

The strategy also includes a commitment to a capital investment programme to ensure that schools in Powys have inspiring, environmentally sustainable buildings which are able to provide opportunities for wider community activity such as childcare services, early years, ALN and multi-agency support, as well as community and leisure facilities.

The Sustainable Communities for Learning Programme

⁴³ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

⁴⁴ <https://en.powys.gov.uk/article/9344/Transforming-Education-Strategy> Strategy for transforming education in Powys 2020-2032 PDF

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The Sustainable Communities for Learning Programme⁴⁵ was formerly known as the 21st Century Schools Programme. It is the Welsh Government's long term investment programme for schools. Powys has, and is able to, bring forward projects as part of this programme, creating new schools that may be jointly funded by the Welsh Government and Powys County Council.

The programme's aims include the following:

- Transforming learning environments and learner experience
- Meeting demand for school places
- Improving the condition and suitability of the education estate
- Developing sustainable learning environments
- Supporting the community.

Welsh in Education Strategic Plan

To support implementation of the Welsh in Education Strategic Plan (WESP), work is progressing on a number of capital projects to improve or extend early years provision, including Welsh-medium settings, as part of the Welsh Government's Welsh-medium Education Capital Grant / Childcare Capital Grant.

New Developments

Since the start of the Replacement LDP plan period (2022) the following projects have been undertaken:

Welshpool

A new 150 place Welsh-medium primary school (Gymraeg y Trallwng) was opened in Welshpool. This building was the first 21st Century Schools project in Powys as well as the first Passivhaus hybrid project. The school moved to its new building in May 2023⁴⁶.

The following projects are under construction or planned:

Machynlleth

A replacement building is being planned for Ysgol Bro Hyddgen in Machynlleth. The school currently operates from the former primary and secondary buildings in Machynlleth. This

⁴⁵ <https://en.powys.gov.uk/article/3743/Sustainable-Communities-for-Learning-Programme#:~:text=The%20Sustainable%20Communities%20for%20Learning,Meeting%20demand%20for%20school%20places>

⁴⁶ <https://en.powys.gov.uk/article/9521/Completed-Projects>

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project will provide a replacement building for the school, bringing the primary and secondary campuses on to the same site.

The new school infrastructure will be a community focused campus, with facilities being bookable spaces available for community use. Facilities will include a four-court sports hall, activity studio, MUGA and a 3G pitch. Completion is expected in 2026⁴⁷.

Newtown

Construction of a brand new, purpose-built ALN school with specialist sixth form and early years provision in Newtown started in July 2022 replacing the former provision. The new purpose built, 21st Century School for Ysgol Cedewain will feature a hydrotherapy pool, two sensory rooms, rebound room, garden, community café and much more. The project will also provide outdoor facilities to be shared between Ysgol Cedewain and Maesyrrhandir C.P. School. Completion of works is planned for March 2024⁴⁸.

A replacement school building is being planned for Ysgol Calon y Dderwen as part of the North Powys Wellbeing Programme. This means that the new Ysgol Calon y Dderwen building would form part of the innovative integrated health campus which is being planned for the middle of Newtown. Consideration is being given to expanding the capacity of the proposed new Ysgol Calon y Dderwen building to also accommodate pupils from Treowen C.P. School.

Llandrindod Wells / Builth Wells

The Council is considering plans for Ysgol Calon Cymru, regarding the provision of a new secondary school building in Llandrindod Wells and establishing a Welsh medium all-age school in Builth Wells, however this has yet to be subject to the statutory school reorganisation processes. An implementation plan is currently being developed for this complex scheme.

Brynllwarch Hall Kerry

This project will see the construction of a brand new, purpose-built special school building for pupils with behavioural and emotional difficulties at the school's existing site in Kerry.

The new building will include:

- Specialist support and provision for pupils with challenging behaviour, emotional and social difficulties in a modern and innovative learning environment.

⁴⁷ <https://en.powys.gov.uk/article/3744/Ysgol-Bro-Hyddgen> + Summer Term Newsletter 2023

⁴⁸ <https://en.powys.gov.uk/article/9518/Ysgol-Cedewain> + Summer Term Newsletter 2023

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- Appropriate learning spaces to deliver the new curriculum.
- Specialist equipment, including IT facilities, which will support teaching and learning ensuring all learners can maximise their potential.
- A fully equipped class base, including a breakout space, hygiene facilities, and an outdoor learning area.

Community groups will also have access to the facilities out of school hours and summer months⁴⁹.

Llanfyllin / North Welshpool Catchment

The Council has considered a proposal that includes capital investment to build up to three new schools in the Llanfyllin / North Welshpool catchment, as well as supporting schools to move along the language continuum to improve Welsh-medium provision. As part of these plans some of the existing schools may be combined or closed, these changes will be subject to Cabinet decisions and the statutory school reorganisation process.

7.6 Links To Other Local Authorities

Due to the geography of Powys with its extensive boundaries, neighbouring 13 other authorities, there is a lot of movement both from pupils residing in Powys going over the border to schools in other authorities and pupils from outside of Powys being taught in Powys schools. This is particularly the case when it comes to sixth form provision with colleges in Shropshire, Herefordshire and Merthyr Tydfil able to offer a wider range of subjects.

⁴⁹ <https://en.powys.gov.uk/article/9519/Brynllwarch-Hall-School> + Summer Term Newsletter 2023

8. Digital Infrastructure

8.1 Lead Organisations / Agencies Responsible for Delivery

Broadband Infrastructure

“Openreach Limited runs the UKs digital network”⁵⁰. They are wholly owned as a subsidiary of BT Group. Openreach has a strategic infrastructure division and as a company, builds fibre infrastructure to new builds as well as building the UKs communications infrastructure. Openreach are responsible for installing and repairing the network.

Openreach supply network services to over 650 service providers who provide customers with broadband packages. Openreach themselves do not supply broadband packages.

In Powys, other companies which provide infrastructure rollout include Beacons Telecom, Voneus, and IP River Limited.

Mobile Infrastructure

Mobile services and infrastructure throughout the UK is provided by four private Mobile Network Operators (MNO). They are EE (owned by BT), O2 (joint venture with Virgin Media), Three and Vodafone. These MNOs make commercial decisions about where to build masts.

Within the UK there are also several Mobile Virtual Network Operators (MVNO) which provide customers with alternative ways to connect to the UK mobile network. Companies will lease a network from one of the MNOs, and then repackage for customers.

8.2 Funding Available for Communities

The Gigabit Broadband Scheme is a common way to fund infrastructure roll out projects. This scheme from the UK Government’s Department for Digital, Culture, Media and Sport and Welsh Government enables customers to apply for help to fund broadband infrastructure in rural areas. The UK Government is providing up to £210 million in voucher funding, specifically aimed at improving broadband speeds in rural areas. Each voucher is worth up to £4,500. In Powys, Openreach, Beacons Telecom, Voneus, and IP River LTD are using this funding stream to provide rural homes with ultrafast broadband speeds.

Access Broadband Cymru is a scheme which provides a grant for the installation of equipment to allow for increased broadband speeds. To apply for the funding, new

⁵⁰ <https://www.openreach.com/about/our-company>

connections much at least double the download speeds previously found at the location. The new speed will determine the amount of funding received through this scheme. If the new speed achieved is between 10Mbs – 30Mbs then £400 is available. If the new speed achieved is above 30Mbs then £800 is available. This grant is available to individual residents, businesses and third sector organisations.

The Local Broadband Fund is a Welsh Government fund which Powys County Council successfully applied to in January 2021. This fund is part of Welsh Government’s work to make sure everyone has access to fast and reliable digital infrastructure. The fund is to be used by local authorities and social enterprises to deliver speeds of over 30Mbs.

Through the Universal Service Obligation, customers are able to request an upgraded connection from BT if customers are not able to receive 10Mbs download speeds and 1Mbs upload speed. BT will cover costs of the upgrade up to £3,400. Customers will need to pay any excess amount.

Information about each of the above funding streams can be found collated on the referenced Powys website⁵¹.

8.3 Policy Supporting the Expansion of Digital Infrastructure

Broadband Infrastructure

Digital Strategy

The Digital Strategy for Wales⁵² is designed to “accelerate the benefits of digital innovation of people, public services and across the business community”. The vision for this strategy is the following:

“Digital in Wales: improving the lives of everyone through collaboration, innovation and better public services”.

This is supported by six missions. Mission 5 is that:

“Digital connectivity: Services are supported by fast and reliable infrastructure”.

Although digital connectivity is the UK governments responsibility, the Welsh Government invests to support service delivery where needed and ensures that the UK government fulfils

⁵¹ <https://en.powys.gov.uk/article/11953/Funding>

⁵² <https://www.gov.wales/digital-strategy-wales-html>

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its responsibilities in Wales. To ensure this mission is achieved the Welsh Government will also:

- Re-invest funding through Welsh Governments superfast broadband roll-out.
- Build on Access Broadband Cymru and the Local Broadband approaches.
- Create appropriate conditions for investment and innovation in broadband and mobile infrastructure.
- Explore opportunities to drive internet technology innovation including wireless network and 5G.
- Support connectivity needs of both the public sector and public service delivery.

Through these aims; residents, businesses, and the public sector throughout Wales will be able to access and benefit from fast and reliable digital connectivity to further utilise advantages such as online learning, communication with friends and families, buying and selling products and enabling remote working.

Mid Wales Growth Deal

The Mid Wales Growth Deal⁵³ is an ambitious portfolio of investment priorities which has been developed in collaboration between partners across governments, local authorities (PCC and Ceredigion County Council) and regional stakeholders. This will bring about significant economic and employment change throughout Mid Wales.

By entering this agreement, the UK and Welsh Government have committed to investing £110 million over a 10 – 15-year period. The Mid Wales economy will receive a total investment of around £280 – 400 million.

As part of the Growth Deal, eight strategic growth areas have been identified within the vision. Digital connectivity has been identified as an essential part of modern life, stating significant economic opportunities could be unlocked through investment in digital infrastructure.

The Growth Deal acknowledges the challenges around digital connectivity due to the rural nature of the mid-Wales region. It recognises that it is vital for the region to capitalise on the economic opportunities that can arise from investing in digital infrastructure. This will allow for higher quality business growth, innovation and providing opportunities for employment, education and services.

⁵³ <https://www.growingmid.wales/documents> (Signed Growing Mid Wales Final Deal Agreement)

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The strategic aim for digital connectivity is as follows:

“Capitalising on the economic opportunities that can be unlocked by investing in our digital infrastructure.

Spending Objectives:

- Job creation: To create between 370 and 450 jobs over a 10-year period.
- GVA: Create net additional GVA of £95-115 million over a 10-year period.
- Investment: Investment of between £50 and £72 million over a 10-year period.”

Future Wales – The National Plan 2040

Future Wales⁵⁴ is a national development framework which sets out the direction of development in Wales up to 2040. It addresses key national priorities including the economy, decarbonisation, climate-resilience, ecosystem strength and health and well-being of communities.

Future Wales contains eight outcomes, the eighth of which is “a Wales where people live in places with world-class digital infrastructure”. The aim is to have comprehensive coverage of superfast broadband in order to aid businesses and improve the population of Wales’s quality of life. By having strong digital communications, Wales can keep pace and lead with global technological advances.

Mobile telecommunications and fixed line broadband are described as being “essential” to addressing social isolation, enhance education, support well-being, access services and enable social and economic interaction.

Mobile Action Plan

The Mobile Action Plan⁵⁵ sets out how Welsh Government, MNO’s, and regulators will provide connectivity. They will work together to create the right conditions for mobile coverage and support investment to go forward.

The Mobile Action Plan looks to support the Well-being of Future Generations Act goal and Taking Wales Forward through expanding the usable mobile phone signal across Wales.

Infrastructure improvements not only require masts and antennae, but also fibre connectivity, power supply and general access. There is a significant population in Wales, including

⁵⁴ <https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf>

⁵⁵ <https://www.gov.wales/sites/default/files/publications/2019-06/mobile-action-plan.pdf>

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Powys, living within mountainous and very rural area which is why the challenges to mobile rollout are primarily focused in these areas. However, MNO's must also improve infrastructure to existing sites, particularly in more urban areas as demand is likely to increase. This is further emphasised with the introduction of new technologies like 5G.

Wales hosts many tourist destinations and large events which results in population fluctuations. The network will need to be able to cope with these large fluctuations to provide connectivity at Welsh events such as the Royal Welsh Show, in Powys.

MNO's will ultimately be vital to providing the evidence which will influence where future interventions will be carried out. Telecommunications policy is not devolved to Wales, but Welsh Government have tools they can use to facilitate improvements in mobile coverage across Wales.

Mobile Infrastructure

As part of the Levelling-Up White Paper, the UK Government have included two targets for mobile coverage by 2030⁵⁶:

- 4G mobile coverage nationwide (95% of UK landmass).
- 5G mobile coverage reaches the majority of the population.

The Shared Rural Network (SRN) is an agreement between the UK Government and the Mobile Industry. This agreement aims to have a 4G coverage of 95% by 2025. Its primarily aimed at rural areas due to the amount of 'partial not-spots' (spots with coverage from one but not all providers) and 'total not-spot' (areas with no coverage)⁵⁷.

8.4 Contextual Information

Using data from Welsh Governments Open Market Review (June 2022), the Tier 1, Tier 2 and Tier 3 settlements as identified in the Replacement LDP, have been evaluated to determine the percentage of premises that can achieve speeds of over 30mbs (white premises). Table 8.1 details the percentage of households within each settlement which are capable of achieving speeds of more than 30mb/s.

⁵⁶ <https://www.gov.uk/government/publications/levelling-up-the-united-kingdom>

⁵⁷ <https://www.gov.uk/government/news/shared-rural-network>

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Table 8.1: Broadband Performance (% of Properties within Settlement)

Settlement	Broadband speed of >30 Mb/s	Broadband speed of <30 Mb/s
Abercrave	100%	0%
Abermule	100%	0%
Arddleen	100%	0%
Berriew	100%	0%
Bettws Cedewain	100%	0%
Boughrood and Llyswen	100%	0%
Bronllys	98%	2%
Builth Wells and Llanelwedd	100%	0%
Caersws	100%	0%
Carno	100%	0%
Castle Caereinion	100%	0%
Churchstoke	100%	0%
Clyro	99%	1%
Coelbren	100%	0%
Crewgreen	99%	1%
Crossgates	100%	0%
Forden and Kingswood	100%	0%
Four Crosses	100%	0%
Glasbury	100%	0%
Guilsfield	100%	0%
Hay on Wye	100%	0%
Howey	75%	25%
Kerry	100%	0%
Knighton	100%	0%
Knucklas	99%	1%
Llanbrynmair	100%	0%
Llandinam	100%	0%
Llandrindod Wells	100%	0%
Llandrinio	100%	0%
Llanfair Caereinion	100%	0%
Llanfechain	100%	0%

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Settlement	Broadband speed of >30 Mb/s	Broadband speed of <30 Mb/s
Llanfyllin	100%	0%
Llangurig	100%	0%
Llangynog	99%	1%
Llanidloes	100%	0%
Llanrhaeadr-ym-Mochnant	99%	1%
Llansantffraid-ym-Mechain	100%	0%
Llansilin	100%	0%
Llanwrtyd Wells	100%	0%
Llanymynech	96%	4%
Llanyre	100%	0%
Machynlleth	100%	0%
Meifod	99%	1%
Middletown	100%	0%
Montgomery	100%	0%
New Radnor	100%	0%
Newbridge on Wye	100%	0%
Newtown	100%	0%
Penybontfawr	100%	0%
Pontrobert	100%	0%
Presteigne	69%	31%
Rhayader	94%	6%
Trewern	100%	0%
Three Cocks	100%	0%
Trefeglwys	99%	1%
Tregynon	100%	0%
Welshpool	100%	0%
Ystradgynlais	100%	0%

(Source: Data collected from Welsh Government OMR, June 2022, only includes properties within development boundaries.)

Of the 58 settlements evaluated, 46 settlements have complete, 100% coverage, meaning all premises in these settlements can achieve 30+ mb/s. The remaining 12 settlements have

only partial 30+ mb/s coverage. For 10 of these settlements, 30+ mb/s coverage lays between 90-99% and for the other two, Presteigne and Howey, 30+ mb/s coverage is 69% and 75% respectively. All settlements have a level of broadband coverage throughout.

Broadway Partners identified ongoing Community Broadband Projects in the following settlements: Knighton, Llanwrtyd Wells, Machynlleth, Presteigne and Rhayader.

Ofcom have collected broadband and mobile coverage across the UK. The Powys Wellbeing Information Bank has presented this coverage data for Powys (including BBNP) with other Welsh counities being also being visible⁵⁸.

Table 8.2: Broadband Coverage in Powys (2023)

Percentage of premises unable to receive 30 Mbit/s	14.60%
UFPB (100 Mbit/s) availability	19.30%

(Source: Ofcom, Powys Wellbeing Information Bank)

Table 8.3: Mobile Coverage in Powys (2023)

Percentage of premises with no 3G indoors	5.76%
Percentage of premises with no 4G indoors	7.36%

(Source: Ofcom, Powys Wellbeing Information Bank)

8.5 Improvements To the Network and Increases in Capacity

Broadband Infrastructure

Most projects begin by gauging the interest of the local community. Homeowners within communities must register their interest with the UK Gigabit scheme. Once the funds have been secured the new infrastructure roll out can be planned and delivered. The scheme does not cost the property anything, though a 12 month full fibre service must be committed to once connections are available.

As of Jan 2023 Aberedw and Glascum, Dwyriw and Manafon, as well as Llanafan Fawr and Llanwrthwl communities all have Ultrafast broadband connections. This totals to around 950 homes capable of Ultrafast connections as a result of an investment of more than £650,000

⁵⁸ <https://en.powys.gov.uk/article/11123/Wellbeing-Information-Bank-View-information-about-broadband-and-mobile-statistics>

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funded by the UK Gigabit Scheme and the Welsh Governments Top Up. The Ultrafast infrastructure was supplied by Broadway Partners.

In Summer 2023, Openreach set up a scheme urging homeowners and businesses in Tregynon, Llanbrynmair and Kerry to apply for the UK Gigabit Scheme as a means to fund works to roll out ultrafast broadband to more than 1,000 properties in these communities.

There are many communities in Powys at various stages of the process improving digital connectivity, with over twenty schemes currently in the works. Rhayader and Nantmel as well as Llangunllo and Whitton are current at the early stage of community engagement. Whereas schemes in Aberedw and Glasco as well as Dwyriw and Manafon are completed with new properties able to connect. PCC have a website with all ongoing schemes along with the areas they serve and the stage of the process each scheme is⁵⁹.

⁵⁹ <https://en.powys.gov.uk/article/11954/Community-Broadband-Schemes>

9. Replacement LDP

The provision of appropriate infrastructure, services, and facilities is vital to ensure the delivery of the Replacement LDP's policies and proposals. Appropriate infrastructure is key to facilitate development but is also a necessity to support the ongoing needs and demands arising from the development and sustainable communities.

In addition to infrastructure provided by specific consultation bodies, or required and delivered by others, there are other types of infrastructure that are needed for development to fulfil the requirements of Placemaking and to achieve sustainable communities. In these circumstances infrastructure is required to mitigate the impacts of development for it to be considered acceptable. Mitigation requirements are often delivered through Section 106 obligations or planning conditions.

A range of infrastructure may be required and will vary according to the nature, type, scale, and location of development and the capacity of existing infrastructure provision. In considering the needs of development proposals, contributions towards the following infrastructure, services and facilities may be required:

- Highways and other transport facilities including sustainable transport, public transport, Active Travel and other walking and cycling routes.
- Affordable Housing.
- Public Open Spaces, green and blue infrastructure.
- Utility services, including upgrades and improvements to Waste-Water Treatment Works and Water Supply infrastructure.
- Welsh language mitigation.
- Schools and other educational and training facilities.
- Biodiversity and environmental protection and enhancement.
- Community facilities.
- Digital Infrastructure.
- Other facilities and services considered necessary.

This Infrastructure Plan will inform the Replacement LDP, including the infrastructure needed to facilitate the delivery of allocated sites. Further detailed information will be included in the version of this paper to be published alongside the Deposit LDP. Additionally, an Implementation and Delivery Appendix which will be included within the Deposit LDP.

Further information relating to transport infrastructure is included within the Settlement Profiles and the Integrated Planning and Transport Strategy background paper.