SP Energy Networks | DSO

Network Development Plan

SP Manweb

Parts 1 & 2 - Development & Capacity Report

May 2026

Contents

1 Introduction

1.1 Who we are

We are SP Energy Networks. We own and operate the electricity distribution network in Central and Southern Scotland (our SP Distribution network), and in North Wales, Merseyside, Cheshire, and North Shropshire (our SP Manweb network). It is through these two networks of underground cables, overhead lines, and substations that we provide our 3.5 million customers with a safe, reliable, and efficient supply of electricity.

1.2 Document context and purpose

Sharing data is key to the efficiency of the energy system as we decarbonise to Net Zero. It enables customers and stakeholders to assess market opportunities and participate in flexibility markets, in turn promoting the efficiency and competitiveness of these markets. It enables network companies and key stakeholders to work together to promote efficient whole system planning and operation and spur innovation and new solutions benefitting all customers.

In this context, Standard Licence Condition 25B came into force on 31 December 2020. It introduced a requirement for each DNO to publish a Network Development Plan (NDP), and set out a high-level scope of what was to be included. DNOs then worked together via the Energy Networks Association (ENA) to define the detailed scope and content of NDPs; the resulting proposed Form of Statement was published in December 2021.

The primary objective of the NDP is to provide information on available network capacity to accommodate demand and generation growth, and interventions the DNO plans, which will increase network capacity (such as reinforcement and flexibility use). The NDP is a medium-term outlook, and is designed to sit between Long Term Development Statements (LTDS) looking five-year ahead and long-term 2050 Distribution Future Energy Scenarios (DFES) forecasts.

Each DNO's NDP must cover three main components:

1. **Part 1: Development report** – detailed information on the interventions we plan that will increase capacity. This includes non-load interventions which are not done to provide capacity but will increase capacity nonetheless (e.g. asset management interventions such as replacing an end-of-life transformer with a larger equivalent)[1].
2. **Part 2: Network scenario headroom report** – the indicative demand and generation capacity available at each primary substation (down to and including the HV busbar). Forecasts are produced for every year for the first 10 years, and then for every five years after that out to 2050. These capacity forecasts must take account of known planned interventions which will increase capacity (i.e. those listed in Part 1).
3. **Part 3: Methodology statement** – a document explaining how we have produced Parts 1 and 2.

Parts 1 and 2 need to be produced for each DNO licence area, down to primary substation group (i.e. the NDP does not include network interventions and capacity headroom for the LV and HV networks). We have two licence areas: SP Distribution and SP Manweb.

[1] Non-load interventions that increase network capacity (included in the document) are assumed to be due to switchgear and transformer asset-risk driven replacements. Where this is done on a like-for-like basis, there will be no network capacity increase.

Therefore to meet our NDP licence obligation we are publishing four NDP documents[2]:

1. A **summary** document to introduce our NDP, set out strategic context and summarise the contents.
2. A pdf report and supporting excel datasheet for **SP Distribution**, covering Parts 1 and 2.
3. A pdf report and supporting excel datasheet for **SP Manweb**, covering Parts 1 and 2. That is this document and supporting excel datasheet.
4. A single document for Part 3, covering SP Manweb and SP Distribution together as the **methodology** is the same for each. This includes the consultation feedback we received.

Our NDP will be updated annually. Figure 1 shows the document map for these four documents.

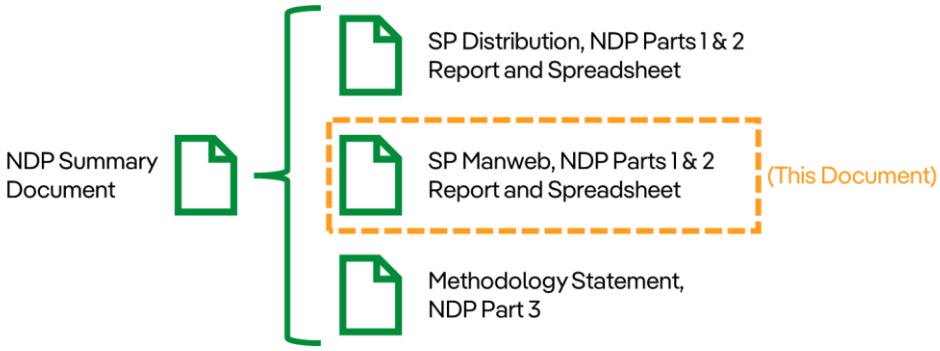


Figure 1: SP Energy Networks' NDP document map

In addition to financially approved interventions in RIIO-ED2 (April 2023 – March 2028), for this year's publication, we have also signposted indicative interventions that are being planned for the next price control period, i.e. RIIO-ED3 (April 2028 – March 2033) in NDP Parts 1 and 2.

These signposted RIIO-ED3 interventions remain subject to regulatory approval and are therefore provided for information only. We are preparing for the Draft Submission of our RIIO-ED3 plan to Ofgem in July 2026, followed by Final Submission in December 2026. Ofgem's Final Determination is expected December 2027.

We welcome stakeholder input and engagement throughout our RIIO-ED3 planning process.

[2] www.spenergynetworks.co.uk/NDP

2 Understanding the results in this document

2.1 Network Development Plan results (NDP Part 1)

Our NDP Part 1 outlines the specific details of all the interventions we are planning in the SP Manweb network that increase network capacity. This means that in our NDP Part 1 we have not only included load-driven interventions but also included losses-driven and asset management-driven interventions which increase network capacity, even though this is not the primary reason for the intervention.

We have included interventions that add capacity and are part of our Business Plan for RIIO-ED2 (April 2023 – March 2028). As mentioned in Section 1.2, for this year's publication, we have also signposted indicative interventions that are in the process of being planned for the next price control period, i.e. RIIO-ED3 (April 2028 – March 2033) in NDP Parts 1 and 2. These signposted RIIO-ED3 interventions remain subject to regulatory approval and are therefore provided for information only. The capacity headroom results (Part 2) provide an indication of potential future intervention needs for the period between 2028-2035, for the range of scenarios.

The Engineering Justification Papers (EJPs) for each RIIO-ED2 capacity driven intervention are linked to in the NDP Part 1 tables to give transparency in the decision making process at a scheme by scheme level. These are the technical and cost appraisals undertaken to develop robust, efficient, and fully justified intervention plans for our load and non-load plans.

In reviewing the planned network interventions, it is worth noting that the timing and type of network intervention may vary, depending on the rate of change in stakeholder requirements influenced by regional and national policies, requirements for emerging new connections, and further development of flexibility markets.

2.1.1 Types of constraints

There are three main types of network constraint. These are:

Thermal constraints – where network current would exceed equipment thermal ratings. Thermal constraints can affect any type of asset at any voltage level. High loadings on certain assets may simply reduce their life, however significant overloading introduces safety risk. For example, an overhead line conductor will sag more if it is overloaded – this may risk the statutory minimum safety clearance distances outlined in the ESQCR[3].

The thermal loading on each asset is considered against its capability under normal and fault/outage conditions. Equipment thermal ratings are considered to vary seasonally with temperature throughout the year. Cyclic thermal ratings of assets are used when assessing the network under fault/outage conditions. The cumulative time exposure to overloads, and whether equipment has sufficient cool back periods are considered. We prioritise interventions when the network assets are at risk of exceeding 100% of their thermal rating.

Voltage constraints – where network voltage would be in breach of statutory limits. Network voltages can be too low (usually caused by excess demand), too high (usually caused by excess generation), or change too quickly (instantaneous change in voltage due to planned/unplanned outages). Voltage excursions can cause damage to customer equipment and network assets, or introduce safety risks.

We have a duty to maintain voltages within the statutory limits at each voltage level. We prioritise interventions when the network is at risk of breaching these limits.

Fault current constraints – where the network fault current would exceed the fault current rating of switchgear. If this happened, it would represent a serious safety risk as the network could not be safely isolated in the event of a fault. Fault current constraints can affect equipment at any voltage level.

Circuit breakers may be called upon to disconnect faulting equipment from the network; or energise onto faulty or earthed equipment. A range of types of fault (including 3-phase and single-phase faults) are assessed under make and break fault duties. Where substations are approaching switchgear capability or operationally managed, detailed assessments of the maximum fault flows through each individual breaker are undertaken. Substation infrastructure such as busbars, supporting structures, flexible connections, current transformers, and terminations must be capable of withstanding the mechanical forces associated with the passage of high magnitude fault

[3] Electricity Safety, Quality and Continuity Regulations (ESQCR). Available here: https://www.hse.gov.uk/esqcr/index.htm

current i.e. through-current withstand duty. Where switchgear is in excess of 95% of equipment or design rating we consider the substation to be constrained.

These constraints can occur together or independently. In all cases, these network constraints are a result of there being insufficient network capacity to accommodate customer power flows.

2.1.2 Types of interventions

To resolve constraints we consider a range of flexible, energy efficient, smart, innovative, and conventional intervention solutions. Table 1 shows the six main categories of interventions to add capacity. They are not mutually exclusive, so can be combined to provide capacity.

Table 1: Types of intervention

	Intervention Type	Description
	**Asset Intervention**	Where we permanently increase network capacity by replacing existing assets or adding more assets – for example, a new substation.
	**Flexibility Services**	Where customers agree to actively manage their demand/generation to help avoid constraints (see Section 2.1.3 for more information).
	**Innovative Solutions**	
	Smart Network Interventions	Where we look to get more out of existing network capacity.
	Using Enhanced Network Asset Ratings	Where we seek to increase the thermal capacity of individual existing network assets without having to replace them.
	Network Reconfiguration	Where we temporarily or permanently adjust the topography of the network to better match existing network capacity with customer power flows.
	Energy Efficiency	Where customers have agreed to passive measures to manage their demand to help avoid constraints.

2.1.3 Flexibility

To meet evolving customer needs, we are developing smarter, more flexible network solutions to help mitigate the need for traditional reinforcement and reduce costs for our customers. This is cheaper for our customers as it enables us to delay expensive reinforcement work for as long as possible.

Flexibility services are where our customers agree to actively manage their demand or generation to help us manage capacity constraints on our network. Flexibility services can help us defer or avoid new network capacity, as it can be deployed more quickly than reinforcement interventions, and can help democratise and bring competition to the energy sector. They provide an agile smart means of managing our network, and are complementary to reinforcement solutions by providing short-term solutions where we need to act quickly or manage uncertainty. They will play a key part in helping to manage the pace of the Net Zero transition.

Given this, we tender for flexibility for all viable network constraints. This helps us understand the availability and cost of flexibility, which we use in our options assessment.

In previous years, we procured the ENA products under Sustain, Secure, Restore and Dynamic. These products have been updated under the 2023 Products Alignment Programme. Table 2 shows the definitions and how the new aligned products are utilised. More information on the aligned products developed by the ENA Working Group is available on the ON Flexibility Products Review and Alignment page on the ENA website4.

When we tender for flexibility we state the location, service product (see Table 2), service window and time (e.g. 4-6pm weeknights between October and March), required magnitude (MW/MVArs), and any other necessary technical parameters (e.g. response time). In some cases we will also send ceiling price information.

[4] https://www.energynetworks.org/publications/on-flexibility-products-review-and-alignment-(feb-2024)

Table 2: Flexibility products

Flexibility Product	Product Description
Scheduled Utilisation (SU)	In this product, the time that flexibility is delivered has been pre-agreed in advance with the provider. This product will primarily benefit flexibility service providers that cannot respond in real-time or near to real-time. This service is used to manage seasonal peak demands and defer network reinforcement.
Operational Utilisation (OU)	This product allows for the use case where the amount of flexibility delivered is agreed nearer to real time. This can be utilised to facilitate a change in demand profile from flexibility service providers based on network conditions close to real-time. The assets will be dispatched for the required level of service that is required based upon actual network measurement data thus managing the cost. We utilise this product in order to restore network supplies following an unplanned outage/fault where the regulatory funding does not allow for availability payments e.g. customer interruptions (CI).
Operational Utilisation + Scheduled Availability (OUSA)	This product procures, ahead of time, the ability of a flexibility service provider to deliver an agreed change following a network abnormality. The availability will be defined at the point of procurement and cannot be modified once the contract has been agreed. The assets will be dispatched for the required level of service that is required based upon actual network measurement data, meaning that the DNO/ESO is only paying utilisation payments based upon the actual needs of the network. An example use case for this product is when a DNO is planning for sufficiency of flexible services contracts based upon long range forecasting of network constraints.
Operational Utilisation + Variable Availability (OUVA)	This product allows for DNOs to procure a level of contracted capacity, but then refine the requirements in terms of availability closer to the event. The assets will be dispatched for the required level of service that is required based upon actual network measurement data, meaning that the DNO is only paying utilisation payments based upon the actual needs of the network. An example use case for this product is when a DNO is planning for sufficiency of flexible services contracts based upon short-medium range forecasting of network constraints.

We will continue to test every viable network constraint for flexibility. We used to operate bi-annual bidding rounds, in the spring and autumn, which sought to procure long-term requirements often over multiple years. Based on stakeholder feedback regarding the ability to deliver long term contracts, we moved to a new procurement model and in May 2024 began tendering on a monthly basis for the following month's requirements. This increases the certainty of service delivery from flexibility service providers, increasing the confidence by DSOs that flexibility services can provide expected support to mitigating network constraints.

For more information on our flexibility activities, please visit the flexibility area of our website[5]. This includes links to our tenders on the ElectronConnect procurement platform.

[5] https://www.spenergynetworks.co.uk/pages/flexibility.aspx

2.2 Network Scenario Headroom results (NDP Part 2)

Future network scenario headroom is indicated for all SP Manweb grid (132/33kV) and primary substations (33/11kV) in terms of demand and generation. For further details on the process to forecast capacity headroom see our NDP Methodology Statement.

2.2.1 Demand headroom

To calculate the demand headroom, we consider the expected increase in demand from the baseline, low and high scenarios, up to 2050, and compare these with the firm capacity of the group, including all planned interventions that increase capacity and flexibility services. A positive number indicates spare capacity and zero indicates a forecast constraint.

In reviewing the capacity headroom results, it is worth noting:

- The firm capacity is the maximum load the substation (or substation group) can support whilst keeping the network operating safely within limits. For primary substations this is generally the capacity available during single circuit outage conditions.
- When calculating the firm capacity, we consider the season of most onerous demand (typically winter). This is because the ratings of some equipment differ seasonally.
- For multi-transformer substations, the firm capacity considers only the capacity that can be available through automatic processes (e.g. parallel operation of the transformers or automatic changeover schemes).
- For single-transformer substations, the firm capacity values include the capacity that will be available through both automatic and manual switching processes, provided these can be carried out within the time constraints specified in Engineering Recommendation P2[6].
- The firm capacity of solidly interconnected network groups in SP Manweb must be calculated from network analysis due to the more complex interconnected nature of the system.
- In the headroom calculations we consider demand for developments that are due to connect, including that of Green Recovery schemes.

2.2.2 Generation headroom

To calculate the generation headroom, we consider the expected increase in generation from the baseline, low and high scenarios, up to 2050, and compare these against the reverse power flow capability of the substation/substation group, and the fault level limits. A positive number indicates spare capacity and zero or negative number indicates a forecast constraint.

The fault levels are calculated under the most onerous network conditions to yield the maximum anticipated fault currents. The most onerous network condition is considered to be when the following conditions occur concurrently:

- all generating apparatus is in service;
- all transformers are set to nominal tap position;
- the system is intact (N); and
- fault level contributions are included from all independent generators.

Fault contributions from synchronous generators and converter connected generators are treated differently. Typical fault current contributions from synchronous generators and converter connected generators are used to determine the available fault level headroom when considering forecast generation.

[6] Engineering Recommendation P2

2.2.3 Further considerations

In reviewing the capacity headroom results, it is worth noting:

- Headroom results take account of planned interventions, as outlined in Section 3 of this document. A negative headroom result changing to a positive result is indicative of a planned intervention taking place or a decrease in demand.
- Headroom results do not take account of the additional capacity provided through the rollout of Constraint Management Zones (CMZs) or other flexible connection arrangements - see Section 0 of this document.
- Generation headroom at a substation/group may be limited by upstream constraints beyond our network boundary. These upstream constraints are flagged in column E within the Part 2 spreadsheets, but are not reflected within the capacity headroom values. Any new generation connections where there are upstream constraints beyond our network boundary will be subject to detailed network assessments to determine the actual generation capacity headroom.
- The SP Manweb distribution network is configured as a mesh network with interconnection at all voltage levels (see Section 2.3). Headroom results provide the calculated headroom of the substation/substation group. The actual headroom at a particular location within interconnected networks is subject to further assessments, as the changing distribution of demand and generation across the mesh may alter available headroom.
- Demand and generation forecasts are subject to factors which can change over time and influence pre-determined plans.
- The timing and type of network interventions may vary, depending on the rate of change in stakeholder requirements influenced by regional and national policies, and requirements for emerging new connections.
- We have taken all reasonable endeavours to ensure the accuracy of the results using information available at the time of publishing. We are not responsible for any loss that may be attributed to the use of the information presented in this report and the capacity headroom results.

2.3 Consideration of the SP Manweb Interconnected network

The SPM network is unique in its design, configuration and operation. Over half of our network – predominantly that in urban areas across Merseyside, Cheshire, and Wirral – is operated fully interconnected at all voltage levels. The primary system is wholly configured to support this interconnected operation.

This interconnected operation means power can flow through more than one path to reach its destination in normal operation. By comparison, most distribution networks in Great Britain, including SP Distribution, have a radial design, where power typically has only one possible path. Meshed networks give exceptionally high reliability but, once capacity is saturated, are typically more expensive to reinforce.

The tools we have developed to identify our planned interventions and assess network scenario headroom, work for both meshed and radial networks.

3 Part 1 – Network development information

Our NDP Part 1 outlines the specific details of all the interventions we are planning in the SP Manweb network that increase network capacity. This means we have also included in our NDP Part 1 losses-driven and asset management-driven interventions which increase network capacity even though this is not the primary reason for the intervention. This section provides a detailed breakdown of our 10-year intervention plans, arranged by GSP and disaggregated by intervention driver, down to the HV voltage level of primary (33kV/HV) sites. The information provided is as follows:

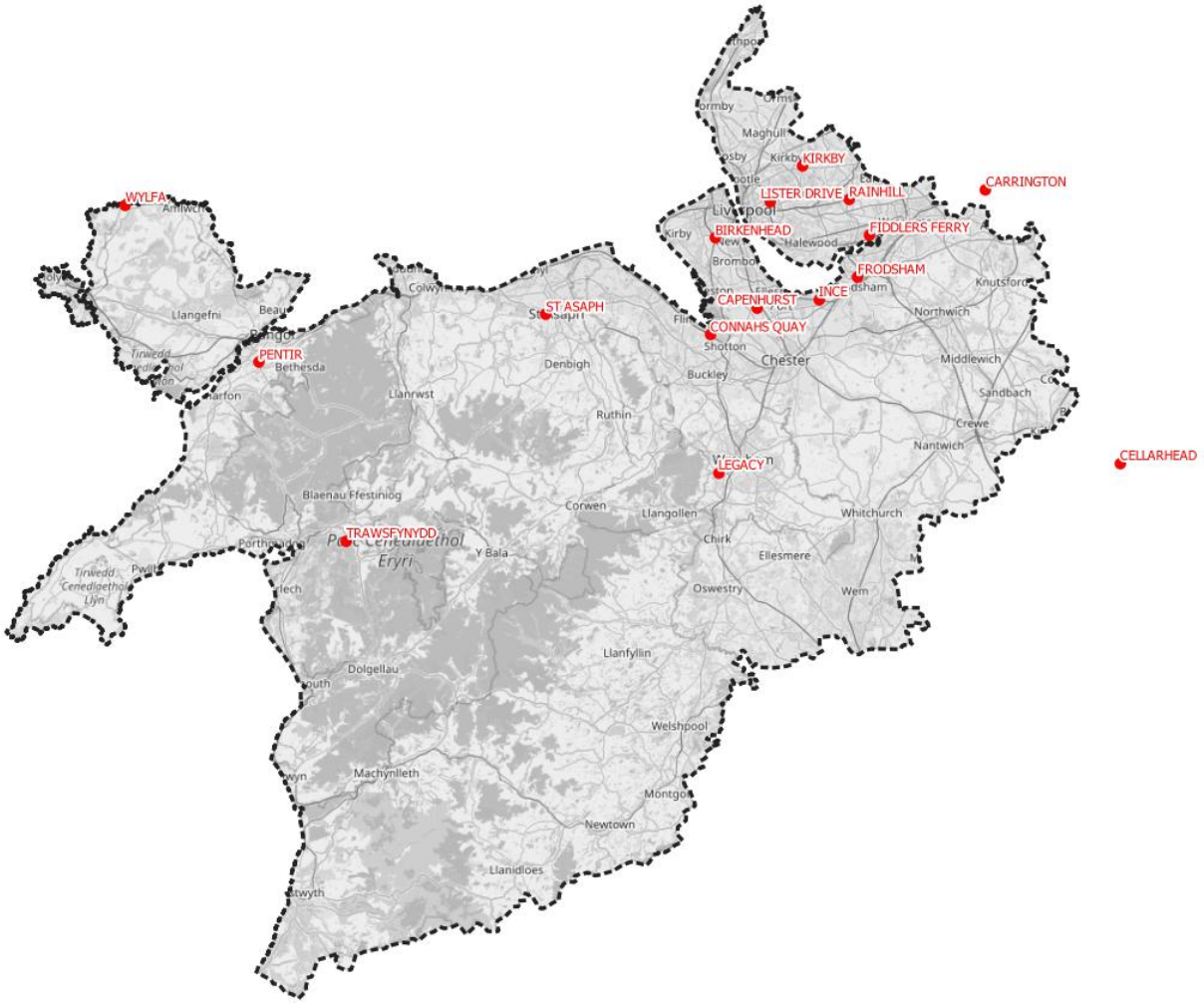
For each individual intervention the following information is summarised:

- Network Area: Name of the network group where the intervention is to be carried out.
- Driver: Primary driver for the intervention (thermal, voltage, fault level, asset modernisation[7], etc.).
- Type: Type of intervention (Section 2.1.2).
- Solution: Brief description of the intervention.
- Flexibility: Flexible capacity to be employed in MW.
- Increase in firm capacity: Capacity change resulting from the intervention in MVA.
- Expected by: Expected intervention completion year.
- Status: Whether the intervention is in delivery or planned in RIIO-ED2, including interventions that are signposted for post RIIO-ED2 (to be updated upon receiving the outcome of the RIIO-ED3 plan).

In addition to the list of interventions summarised in the following sections, we are planning to install enhanced voltage control at a number of grid (132kV/33kV) and primary (33kV/HV) sites during RIIO-ED2 (1 April 2023 - 31 March 2028). For details, see Enhanced Voltage Control EJP[8].

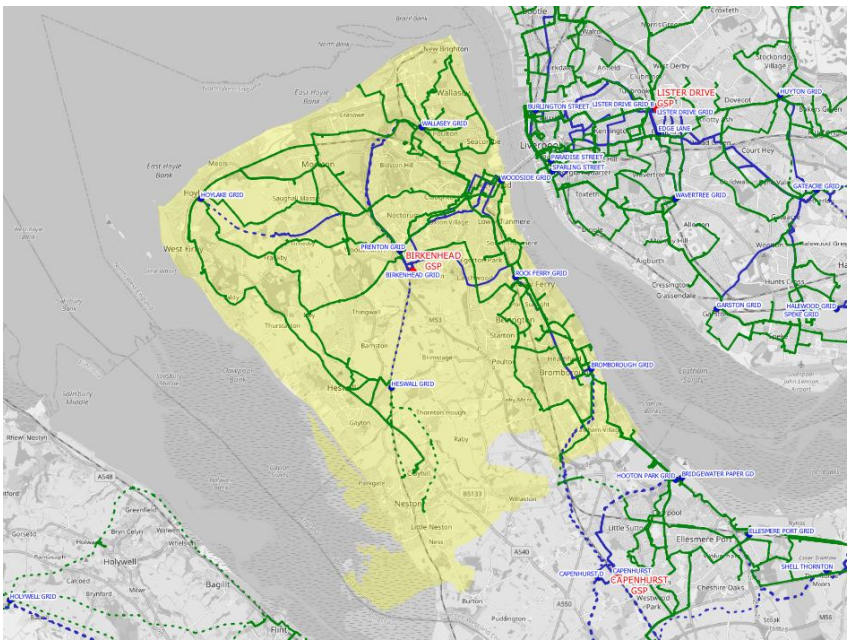
[7] Only asset modernisation interventions associated with substation asset replacement are included.
[8] Enhanced Voltage Control EJP

The map below shows the GSP locations. Users assessing this document electronically can navigate to the GSP of interest by clicking on the names of the GSPs in the list further below.



1 - Birkenhead	6 - Frodsham – Ince	11 - Swansea North
2 - Capenhurst	7 - Kirkby	12 -Trawsfynydd
3 - Carrington – Fiddlers Ferry	8 - Legacy	13 - Wylfa
4 - Cellarhead	9 - Lister Drive	
5 - Connah's Quay – Pentir – St. Asaph	10 - Rainhill	

3.1 Birkenhead



This section of network is fed via three 240MVA 275/132kV super grid transformers. This group supplies around 110,000 consumers in Bromoborough, Rock Ferry, Woodside and surrounding areas.

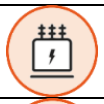
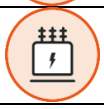
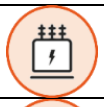
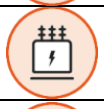
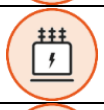
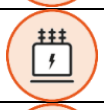
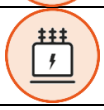
Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	-	-
	132kV/EHV	2	2
	EHV	10*	8
	EHV/HV	6*	1
	HV	4*	3
Capacity Added (MVA)		4.5	TBC
Flexibility Services (MW)		15.9	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BROMBOROUGH GT3 / ROCK FERRY GT2	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement and refurbishment at Rock Ferry	-	*	2024/25	Delivery
WALLASEY GT1 / WALLASEY GT2 / WOODSIDE GT2	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement at Woodside	-	*	2027/28	Planned
HESWALL GT1 / HOYLAKE GT2 / PRENTON GT3	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement at Heswall Grid	-	TBC	2029/30	Signposted **
PRENTON GT1 / ROCK FERRY GT1	Thermal		**Prenton / Rock Ferry Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

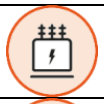
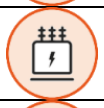
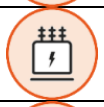
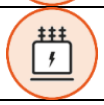
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BROMBOROUGH GT3 / ROCK FERRY GT2	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at BXL Bromborough	-	*	2025/26	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at New Ferry	-	TBC	2032/33	Signposted **
HESWALL GT1 / HOYLAKE GT2 / PRENTON GT3	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at Greasby	-	*	2024/25	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Champion Plugs	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Gayton	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Caldy	-	TBC	2032/33	Signposted **
PRENTON GT1 / ROCK FERRY GT1	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints For details see: EJP	15.9	-	2025/26 to 2027/28	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Shell Tranmere	-	*	2027/28	Planned

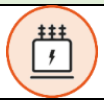
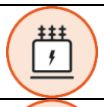
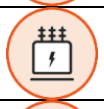
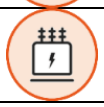
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Cammell Laird North	-	*	2024/25	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Singleton Avenue 11kV	-	TBC	2032/33	Signposted **
WALLASEY GT1 / WALLASEY GT2 / WOODSIDE GT2	Fault Level		**Woodside Grid 33kV Fault Level Mitigation** Replace EHV switchgear and associated remote end protection modifications For details see: DNOA and EJP	-	*	2026/27	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace the EHV RMUs at BR Shore Road and Mobil Oil Wallasey For details see: EJP	-	*	2024/25	Delivery
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at Gilbrook Dock	-	*	2027/28	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at Seaview Road	-	*	2027/28	Planned
	Fault Level		**Egremont Fault Level Reinforcement** Scoping and optioneering underway	-	*	2028/29	Signposted **
	Fault Level		**Seaview Rd Fault Level Reinforcement** Scoping and optioneering underway	-	*	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Cadbury	-	TBC	2032/33	Signposted **
	Fault Level		**Fault Level Monitoring and Management** Install Real Time Fault Level Monitoring equipment at Wallasey For details see: EJP	-	*	2027/28	Planned

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BENTINCK ST T1 / BENTINCK ST T2 / CHESTER ST T1	Fault Level		**SPM 6.6kV Network Groups Fault Level Mitigation** Uprating from 6.6kV to 11kV For details see: EJP	-	1.8	2026/27	Planned
GILBROOK DOCK T1 / HILL RD T1 / MOBIL OIL (WALLASEY) T1	Fault Level		**SPM 6.6kV Network Groups Fault Level Mitigation** Uprating from 6.6kV to 11kV For details see: EJP	-	1.8	2027/28	Planned
MDHB EGERTON DOCK T1 / MDHB EGERTON DOCK T2	Fault Level		**SPM 6.6kV Network Groups Fault Level Mitigation** Uprating from 6.6kV to 11kV For details see: EJP	-	0.9	2026/27	Planned

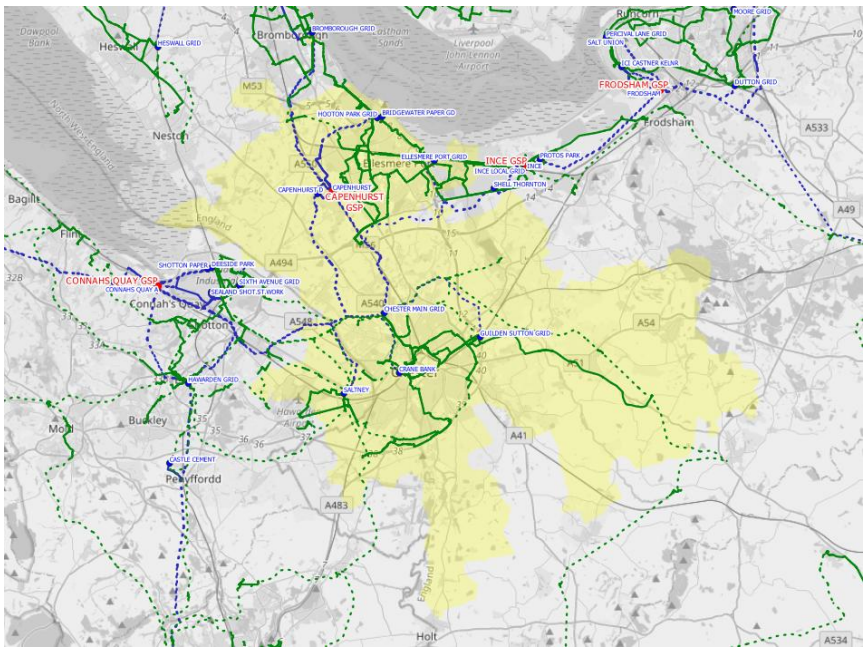
PRENTON GRID GT1 / ROCK FERRY GT1	Asset Mod.		**EHV Transformer Modernisation** EHV transformer replacement at Mere	-	*	2025/26	Planned
WALLASEY GT1 / WALLASEY GT2 / WOODSIDE GT2	Asset Mod.		**EHV Transformer Modernisation** EHV transformer replacements at BR Shore Road Primary	-	*	2025/26	Planned
HESWALL GT1 / HOYLAKE GT2 / PRENTON GRID GT3	Asset Mod.		**EHV Transformer Modernisation** EHV transformer replacements at West Kirby South	-	*	2027/28	Planned
HESWALL GT1 / HOYLAKE GT2 / PRENTON GRID GT3	Thermal		**Heswall - Hoylake - Prenton Primary Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
PRENTON GRID GT1 / ROCK FERRY GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Shell Tranmere	-	*	2026/27	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Cammell Laird North	-	*	2024/25	Delivery
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Ford	-	*	2024/25	Delivery
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Singleton Avenue	-	*	2027/28	Planned
BROMBOROUGH GT3 / ROCK FERRY GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at New Ferry	-	TBC	2032/33	Signposted **
HESWALL GT1 / HOYLAKE GT2 / PRENTON GRID GT3	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Hoylake	-	TBC	2032/33	Signposted **
WALLASEY GT1 / WALLASEY GT2 / WOODSIDE GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Moreton	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.2 Capenhurst



This section of network is fed via three 180MVA 275/132kV super grid transformers. This group supplies around 115,000 consumers in Bromborough, Hooton Park, Ellesmere Port, Chester Main, Guilden Sutton, Crane Bank and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	-	1
	132kV/EHV	-	-
	EHV	5*	6*
	EHV/HV	3*	1
	HV	-	1
Capacity Added (MVA)		-	TBC
Flexibility Services (MW)		2.1	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
CHESTER MAIN GT4 / CRANE BANK GT1 / GUILDEN SUTTON GT1 / SALTNEY G2A	Asset Mod.		**132kV Transformer Modernisation** 132kV Transformer replacement at Chester Main Grid	-	TBC	2029/30	Signposted **

**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
CHESTER MAIN GT4 / CRANE BANK GT1 / GUILDEN SUTTON GT1 / SALTNEY G2A	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace the EHV RMU at Mannings Lane For details see: EJP	-	*	2024/25	Delivery
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Installation of Real Time Fault Level Monitoring equipment at Northgate Terrace For details see: EJP	-	*	2027/28	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Tarvin	-	*	2026/27	Planned
	Fault Level		**Linenhall St Fault Level Reinforcement** Scoping and optioneering underway	-	*	2029/30	Signposted **
	Fault Level		**Pipers Ash Fault Level Reinforcement** Scoping and optioneering underway	-	*	2029/30	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Chester Main Grid	-	TBC	2032/33	Signposted **
	Thermal		**Chester Main – Crane Bank – Guilden Sutton Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Fault Level		**Fault Level Monitoring and Management** Install Real Time Fault Level Monitoring equipment at Crane Bank and Guilden Sutton For details see: EJP	-	*	2027/28	Planned
HOOTON PK GT1B / HOOTON PK GT2B	Fault Level		**Fault Level Monitoring and Management** Install Real Time Fault Level Monitoring equipment at Hooton Park Grid B For details see: EJP	-	*	2027/28	Planned
BROMBOROUGH GT2 / ELLESMERE PORT GT1 / HOOTON PK GT1A / HOOTON PK GT2A	Thermal		**Bromborough – Ellesmere Port – Hooton Park** Scoping and optioneering underway	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Hooton Main	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

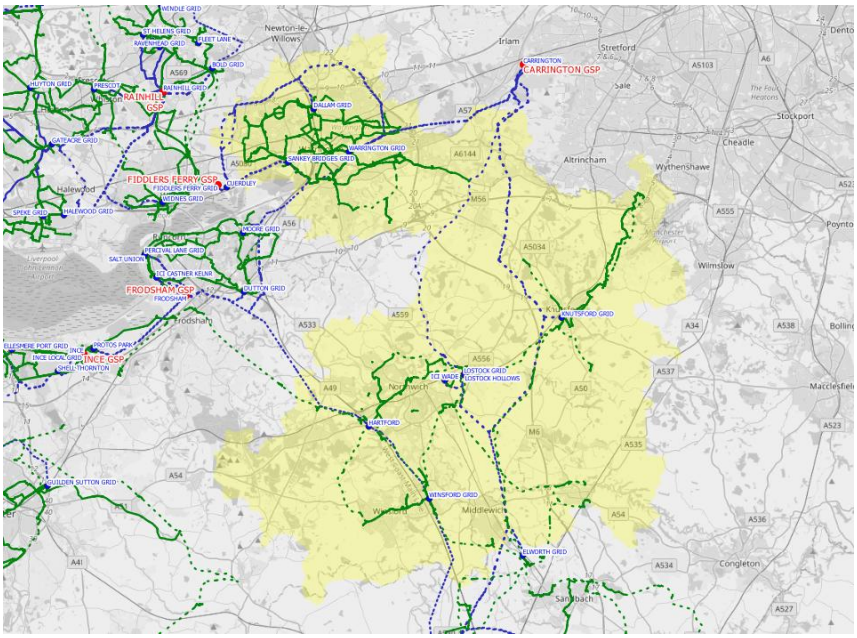
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
CHESTER MAIN GT4 / CRANE BANK GT1 / GUILDEN SUTTON GT1 / SALTNEY G2A	Thermal		**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Tarvin For details see: **EJP**	2.1	-	2025/26 to 2027/28	Planned
	Asset Mod.		**EHV Transformer Modernisation** EHV Transformer replacement at Crane Bank		*	2024/25	Delivery
	Asset Mod.		**EHV Transformer Modernisation** EHV Transformer replacement at Grosvenor Street	-	*	2024/25	Delivery
BROMBOROUGH GT2 / ELLESMERE PORT GT1 / HOOTON PK GT1A / HOOTON PK GT2A	Thermal		**BOWATER CONTAINERS T1 / ELLESMERE PORT LOCAL T1 / HH ROBERTSONS T1 / MOBIL OIL (E PORT) T1 / WHITBY T1** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
CHESTER MAIN GT4 / CRANE BANK GT1 / GUILDEN SUTTON GT1 / SALTNEY G2A	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Grosvenor Street	-	TBC	2030/31	Signposted **

**Post RIIO-ED2 plans are indicative.

3.3 Carrington – Fiddlers Ferry



This section of network is normally fed via two 240MVA 275/132kV super grid transformers at Fiddlers Ferry and two 120MVA 275/132kV super grid transformers at Carrington. This group supplies around 153,000 consumers in Warrington, Dallam, Knutsford, Sankey Bridges, Elworth, Hartford, Lostock and Winsford areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	1*	1
	132kV/EHV	2*	4
	EHV	3*	3
	EHV/HV	9*	4
	HV	1*	4
Capacity Added (MVA)		2.5	TBC
Flexibility Services (MW)		68.9	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

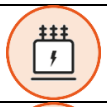
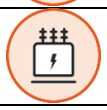
132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
DALLAM GT1 / SANKEY BRIDGES GT1 / WARRINGTON GT3	Asset Mod.		**132kV Switchgear Modernisation** Replace switching isolator at Dallam	-	*	2027/28	Planned
Carrington - Fiddlers Ferry 132kV Group	Thermal		**Carrington - Fiddlers Ferry 132kV Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

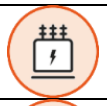
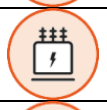
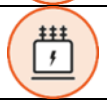
132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
Carrington - Fiddlers Ferry 132kV Group	Thermal	OUSA	**Carrington Fiddlers Ferry 132kV Smart Management** Dedicated monitoring and automation at Cuerdley 132kV substation Flexibility services to manage the Sankey Bridges to Hartford 132kV circuit For details see: DNOA and EJP	36	-	2026/27 to 2027/28	Planned
	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer(s) replacement at I.C.I Wade	-	TBC	2028/29	Signposted **
HARTFORD GT1 / LOSTOCK GT2 / WINSFORD GT1 / WINSFORD GT2	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement and refurbishment at Lostock	-	*	2025/26	Delivery
DALLAM GT1 / SANKEY BRIDGES GT1 / WARRINGTON GT3	Thermal and Fault Level		**Dallam - Sankey Bridges - Warrington Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
SANKEY BRIDGES GT3 / WARRINGTON GT5	Thermal and Fault Level		**Sankey Bridges - Warrington Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **
ELWORTH GT1 / ELWORTH GT2 / KNUTSFORD GT1 / KNUTSFORD GT2	Thermal		**Elworth - Knutsford Primary Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **

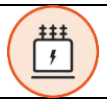
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
DALLAM GT1 / SANKEY BRIDGES GT1 / WARRINGTON GT3	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Installation of Real Time Fault Level Monitoring equipment at Hawleys Lane For details see: EJP	-	*	2027/28	Planned
	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints For details see: EJP	25.8	-	2025/26 to 2027/28	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Gigg Lane Thelwall	-	*	2026/27	Planned

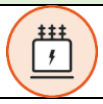
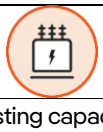
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Hillcliffe	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Crossfield's	-	TBC	2032/33	Signposted **
ELWORTH GT1 / ELWORTH GT2 / KNUTSFORD GT1 / KNUTSFORD GT2	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Holmes Chapel	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
HARTFORD GT1 / LOSTOCK GT2 / WINSFORD GT1 / WINSFORD GT2	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Anderton For details see: EJP	0.9	-	2026/27 to 2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Hartford For details see: EJP	3.3	-	2025/26 to 2027/28	Planned
	Asset Mod.		**EHV Transformer Modernisation** EHV Transformer replacement at Northwich Town	-	*	2027/28	Planned
	Thermal		**Hartford - Lostock - Winsford Primary Reinforcement** Scoping and optioneering underway	-	TBC	2028/29	Signposted **
	Thermal		**Hartford T1 Reinforcement** Scoping and optioneering underway	-	TBC	2032/33	Signposted **
ELWORTH GT1 / ELWORTH GT2 / KNUTSFORD GT1 / KNUTSFORD GT2	Thermal		**Middlewich Primary Reinforcement** Additional 10MVA 33/11kV transformer. Extension of the 33kV switchboard Transfer Morrisons primary into Lostock-Gadbrook 33kV circuit and re-route the existing 33kV Lostock- Morrisons circuit to Middlewich primary For details see: DNOA and EJP	-	2.5	2026/27	Planned
	Thermal	 SU	**Middlewich Primary Reinforcement** Flexibility services to manage the network risk during delivery of reinforcement For details see: EJP	1.7	-	2023/24 to 2025/26	Delivery
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Holmes Chapel For details see: EJP	0.3	-	2027/28	Planned

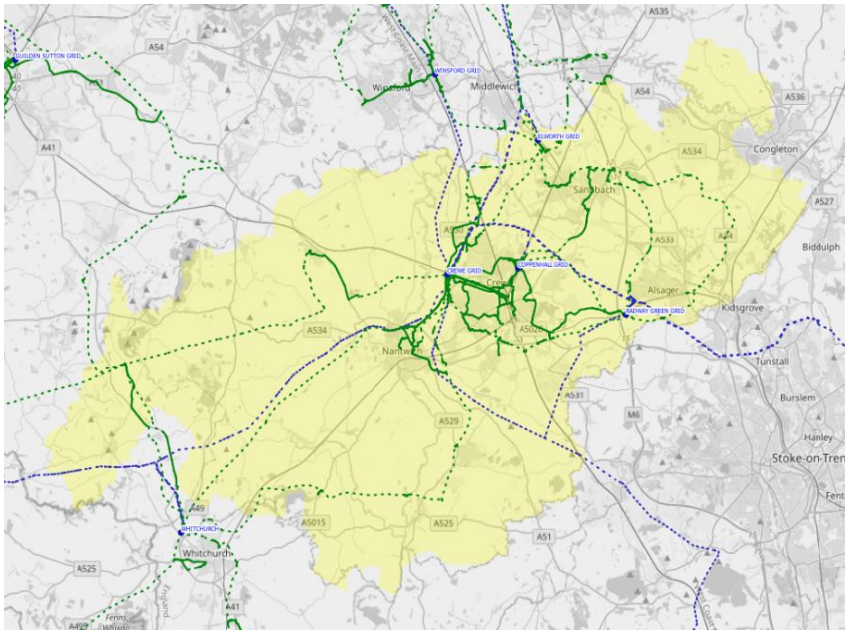
ELWORTH GT1 / ELWORTH GT2 / KNUTSFORD GT1 / KNUTSFORD GT2	Thermal		**Holmes Chapel Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
SANKEY BRIDGES GT3 / WARRINGTON GT5	Thermal		**Flexibility Services for High Utilisation Groups** Enhanced transformer ratings and installation of network automation at Lymm T1 / Whiteleggs T1	-	-	2024/25	Delivery
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Lymm T1 / Whiteleggs T1 For details see: **EJP**	0.9	-	2024/25 to 2027/28	Delivery
	Asset Mod.		**EHV Transformer Modernisation** EHV Transformer replacement at Solvay Interox	-	*	2027/28	Planned
	Thermal		**Lymm/Whiteleggs Lane Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
STOCKTON HEATH	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear	-	*	2027/28	Planned
HARTFORD GT1 / LOSTOCK GT2 / WINSFORD GT1 / WINSFORD GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Castle Beeston St	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at United Peripherals	-	TBC	2032/33	Signposted **
SANKEY BRIDGES GT3 / WARRINGTON GT5	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Hillcliffe	-	TBC	2032/33	Signposted **
GILLMOSS GT1 / KIRKBY GT2 / SIMONSWOOD GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Safeway	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.4 Cellarhead



This section of network is fed via one 132kV circuit from the Cellarhead GSP, one 132kV circuit from Whitfield (NGED) and one 132kV circuit from Barlaston (NGED). This group supplies around 81,000 consumers in Coppenhall, Radway Green, Barlaston, Crewe, Whitchurch and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	1*	-
	132kV/EHV	2	1
	EHV	1*	2
	EHV/HV	7*	-
	HV	-	1
Capacity Added (MVA)		25.0	TBC
Flexibility Services (MW)		26.5	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
COPPENHALL GT1 / CREWE GT1 / CREWE GT2A / CREWE GT4A / RADWAY GREEN GT1 / RADWAY GREEN GT2 / WHITCHURCH GT2	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Cellarhead For details see: **EJP**	-	*	2025/26	Planned

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
COPPENHALL GT1 / CREWE GT1 / CREWE GT2A / CREWE GT4A / RADWAY GREEN GT1 / RADWAY GREEN GT2 / WHITCHURCH GT2	Thermal		**Radway Green 33kV Reinforcement** Replace the Radway Green 45MVA GT1 with a 60MVA unit For details see: DNOA and EJP	-	15.0	2027/28	Planned
	Thermal	SU	**Radway Green 33kV** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	2.1	-	2027/28	Planned
	Thermal		**Crewe – Coppenhall – Radway Green Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
COPPENHALL GT1 / CREWE GT1 / CREWE GT2A / CREWE GT4A / RADWAY GREEN GT1 / RADWAY GREEN GT2 / WHITCHURCH GT2	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Smallwood	-	*	2024/25	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Crewe Grid A	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Wistaston Hall	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

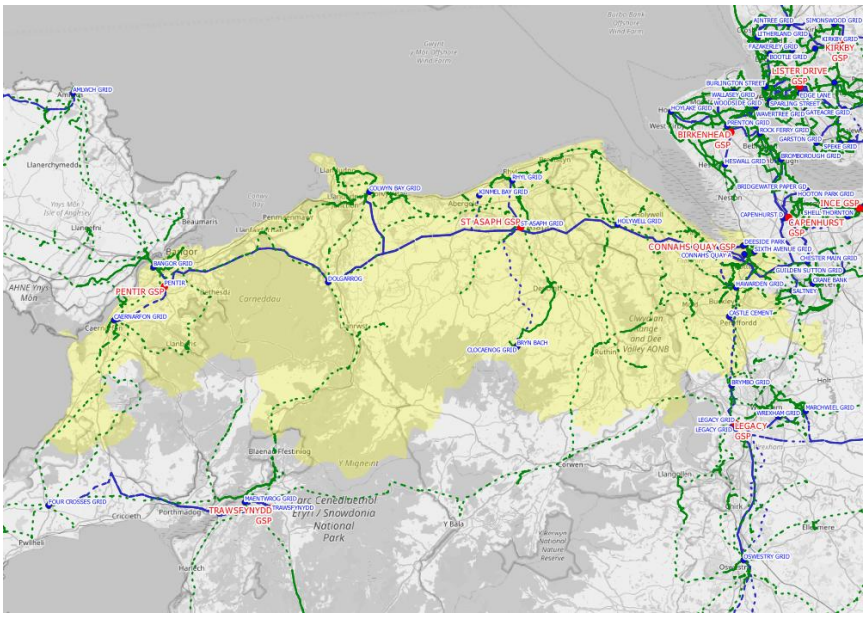
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
COPPENHALL GT1 / CREWE GT1 / CREWE GT2A / CREWE GT4A / RADWAY GREEN GT1 / RADWAY GREEN GT2 / WHITCHURCH GT2	Thermal		**Acer Avenue Primary Reinforcement** Additional 10MVA 33/11kV transformer Replace 33kV and 11kV switchgear Transfer Acer-Avenue into Coppenhall-Wheelock 33kV circuit and re-route the existing 33kV Coppenhall-Acer Avenue circuit to Rolls Royce primary. For details see: DNOA and EJP	-	2.5	2026/27	Planned
	Thermal	 SU	**Acer Avenue** Flexibility services to manage the network risk during delivery of reinforcement. For details see: EJP	9.5	-	2023/24 to 2027/28	Delivery
	Thermal		**Sandbach Primary Reinforcement** Additional 10MVA 33/11kV transformer at Fodens. Replace 33kV and 11kV switchgear. Establish new 11kV interconnector between Sandbach and Fodens For details see: DNOA and EJP	-	7.5	2026/27	Planned
	Thermal	 SU	**Sandbach** Flexibility services to manage the network risk during delivery of reinforcement. For details see: EJP	8.1	-	2023/24 to 2025/26	Delivery
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Smallwood For details see: EJP	3.9	-	2025/26 to 2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Nantwich For details see: EJP	2.9	-	2026/27 to 2027/28	Planned
	Fault Level		**Fault Level Monitoring and Management** Install Real Time Fault Level Monitoring equipment at Crewe and Radway Green For details see: EJP	-	*	2027/28	Planned

*Could increase generation hosting capacity.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
COPPENHALL GT1 / CREWE GT1 / CREWE GT2A / CREWE GT4A / RADWAY GREEN GT1 / RADWAY GREEN GT2 / WHITCHURCH GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Rolls Royce	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

3.5 Connah's Quay – Pentir – St. Asaph



This section of network is fed via four 240MVA 400/132kV super grid transformers at Connah's Quay, two 240MVA super grid transformers at Pentir and one 240MVA 400/132kV super grid transformer at St Asaph. This group supplies arond 261,000 consumers in Deeside Park, Saltney, Hawarden, Castle Cement, Brymbo, Holywell, Rhyl, St Asaph, Colwyn Bay, Dolgarrog, Bangor, Caernarfon and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	2	2
	132kV/EHV	2*	1
	EHV	8*	10
	EHV/HV	4*	3
	HV	1*	9
Capacity Added (MVA)		130.0	TBC
Flexibility Services (MW)		133.0	-

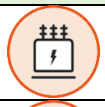
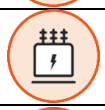
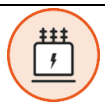
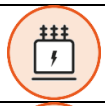
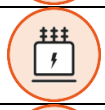
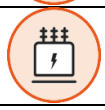
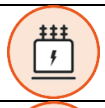
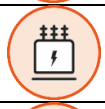
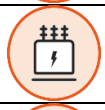
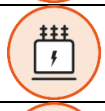
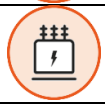
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

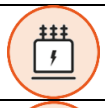
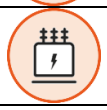
132kV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
Connah's Quay 132kV group DEESIDE PK GT1 / SIXTH AVE GT1 CASTLE CEMENT GT1 / HAWARDEN GT1 / SALTNEY GT1 / SALTNEY G2B	Thermal and Security of Supply		**Connah's Quay 132kV Reinforcement** Install 60MVA GT at Deeside Park. Install 132kV Bus Section circuit breaker at Connahs Quay to enable 2+2 SGT operational arrangement. Swap Sixth Avenue GT with RAF Sealand circuit. Transfer Sixth Avenue GT onto busbar section "C" and "Normally open" bus section reactor. Run the bus section reactor at Hawarden - Normally Open For details see: DNOA and EJP	-	130.0	2027/28	Planned
	Thermal and Security of Supply	SU	**Connah's Quay 132kV** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	70.1	-	2026/27 to 2027/28	Planned
Connah's Quay 132kV Group	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Connahs Quay A	-	TBC	2032/33	Signposted **
	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Shotton Paper	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

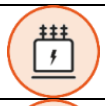
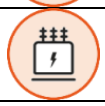
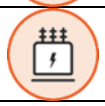
132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BRYMBO GT2 / HAWARDEN GT2 / HOLYWELL GT2	Asset Mod.		**132kV Transformer Modernisation** Replace and refurbish 132kV transformers at Hawarden	-	*	2026/27	Planned
COLWYN BAY GT1 / COLWYN BAY GT2 / DOLGARROG GT2	Asset Mod.		**132kV Transformer Modernisation** Replace and refurbish 132kV transformers at Colwyn Bay	-	*	2027/28	Planned
CONAHS QUAY 132kV GROUP	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer(s) replacement at Sealand Shot Work	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

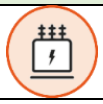
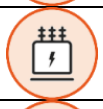
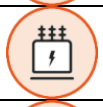
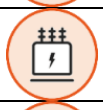
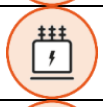
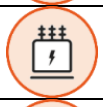
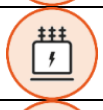
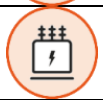
EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BANGOR GT2 / CAERNARFON GT2	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Peblic Mills	-	*	2025/26	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Bangor Hospital	-	*	2025/26	Planned
BRYMBO GT2 / HAWARDEN GT2 / HOLYWELL GT2	Voltage	 SU	**Brymbo-Hawarden-Holywell 33kV** Contract flexibility services to mitigate low voltage issues in the group For details see: DNOA and EJP	21.8	-	2023/24 to 2027/28	Delivery
	Thermal		**Brymbo-Hawarden-Holywell Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Woodfield Avenue	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Ponterwyl	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Bromfield	-	TBC	2032/33	Signposted **
CASTLE CEMENT GT1 / HAWARDEN GT1 / SALTNEY GT1 / SALTNEY G2B	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Queensferry	-	*	2025/26	Planned
COLWYN BAY GT1 / COLWYN BAY GT2 / DOLGARROG GT2	Security of Supply		**Colwyn Bay-Dolgarrog 33kV Reinforcement** Install 25MVA 33kV 5% reactor at Colwyn Bay Grid substation For details see: DNOA and EJP	-	*	2027/28	Planned
	Security of Supply	 OUSA	**Colwyn Bay-Dolgarrog 33kV** Flexibility services to manage the constraint on the 33kV circuit from Colwyn Bay to Dolgarrog For details see: DNOA and EJP	35.2	-	2023/24 To 2027/28	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Penmaenmawr	-	*	2026/27	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Rhos On Sea	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Ivy Street	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Deganwy	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Nant – Y- Gamar	-	TBC	2032/33	Signposted **

HOLYWELL GT1 / RHYL GT1 / ST ASAPH GT2 / ST ASAPH GT4	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment and Active Fault Level Monitoring equipment at St Asaph Grid For details see: **EJP**	-	*	2027/28	Planned
	Thermal		**St Asaph – Holywell – Rhyl Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Nant Hall	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

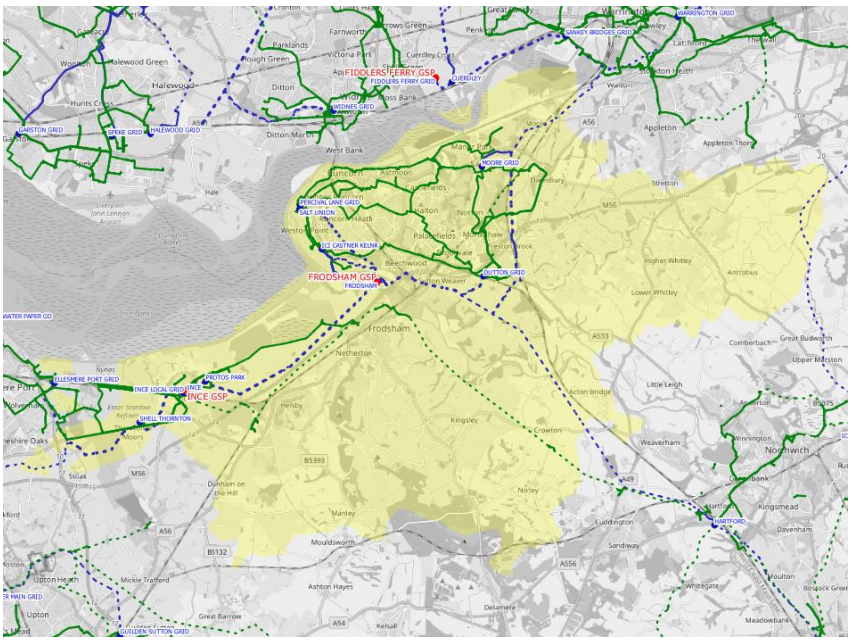
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
CASTLE CEMENT GT1 / HAWARDEN GT1 / SALTNEY GT1 / SALTNEY G2B	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Caergwrle T1 For details see: EJP	4.6	-	2027/28	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Hawarden	-	*	2026/27	Planned
	Thermal		**Caergwrle Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **
COLWYN BAY GT1 / COLWYN BAY GT2 / DOLGARROG GT2	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Nant-Y-Gamar T1 For details see: EJP	0.1	-	2027/28	Planned
HOLYWELL GT1 / RHYL GT1 / ST ASAPH GT2 / ST ASAPH GT4	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Abergele T1 / Pensarn T1 For details see: EJP	1.2	-	2027/28	Planned
	Thermal		**Abergele T1 / Pensarn T1 Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
BRYMBO GT2 / HAWARDEN GT2 / HOLYWELL GT2	Thermal		**Holway Road / Flint** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
HOLYWELL GT1 / RHYL GT1 / ST ASAPH GT2 / ST ASAPH GT4	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Promenade	-	*	2026/27	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Westbourne Avenue	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Nant Hall	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Prestatyn	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Dyserth Road	-	TBC	2032/33	Signposted **
BANGOR GT2 / CAERNARFON GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Bangor Hospital	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Caernarfon	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Dynoplast	-	TBC	2032/33	Signposted **
CASTLE CEMENT GT1 / HAWARDEN GT1 / SALTNEY GT1 / SALTNEY G2B	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Mixalloy	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Queensferry	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.6 Frodsham – Ince



This section of network is fed via one 180MVA and one 240MVA 275/132kV super grid transformers at Frodsham and three 180MVA 275/132kV SGTs at Capenhurst. This group supplies arond 42,000 consumers in Moore, Dutton, Percival Lane, Ince Local, Ellesmere Port and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	-	1
	132kV/EHV	-	2
	EHV	1*	2
	EHV/HV	2*	1
	HV	1*	-
Capacity Added (MVA)		-	TBC
Flexibility Services (MW)		0.4	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
Frodsham – Ince 132kV Group	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Shell Thornton	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
Ince 132kV Group	Thermal		**Ince Reinforcement** Scoping and optioneering underway	-	TBC	2029/30	Signposted **
DUTTON GT2 / MOORE GT1 / PERCIVAL LA GT1	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement at Dutton Grid	-	TBC	2029/30	Signposted **

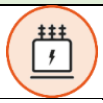
**Post RIIO-ED2 plans are indicative

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
INCE LOCAL GT1 / INCE LOCAL GT2	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Ince	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Crowton	-	TBC	2032/33	Signposted **
	Fault Level		**Fault Level Monitoring and Management** Install Real Time Fault Level Monitoring equipment at Ince Local For details see: EJP	-	*	2027/28	Planned

**Post RIIO-ED2 plans are indicative.

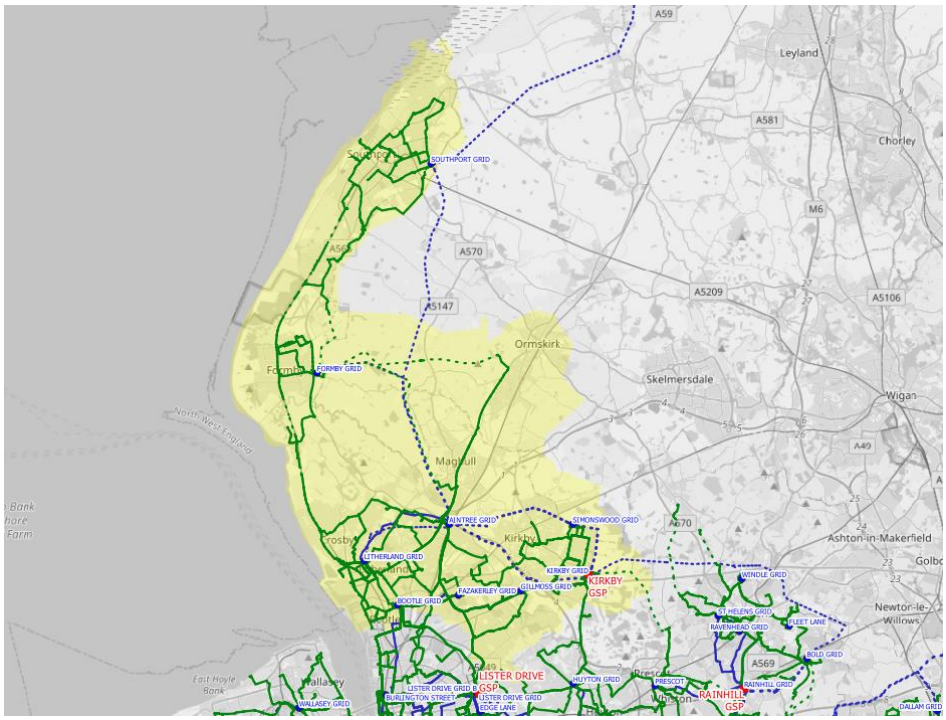
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
INCE LOCAL GT1 / INCE LOCAL GT2	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Frodsham Local For details see: EJP	0.4	-	2027/28	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Crowton	-	*	2025/26	Planned y
	Thermal		**Frodsham Local** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
DUTTON GT2 / MOORE GT1 / PERCIVAL LA GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Percival Lane	-	*	2026/27	Planned

*Could increase generation hosting capacity.

3.7 Kirkby



This section of network is fed via three 240MVA 275/132kV super grid transformers and one 180MVA 400/132kV super grid transformer. This group supplies arond 258,000 consumers in Kirkby, Litherland, Simonswood, Aintree, Formby, Southport, Gillmoss, Fazakerley, Bootle and surrounding areas.

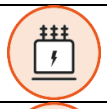
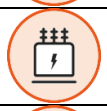
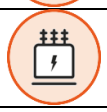
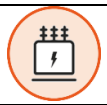
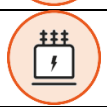
Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	-	-
	132kV/EHV	1*	1
	EHV	11*	4
	EHV/HV	2*	-
	HV	3*	7
Capacity Added (MVA)		10.0	TBC
Flexibility Services (MW)		38.6	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

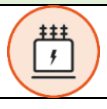
132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AINTREE GT1 / FORMBY GT2A / LITHERLAND GT1B AINTREE GT2 / FAZAKERLEY GT1 / GILLMOSS GT2	Asset Mod.		**132kV Transformer Modernisation** 132kV transformers replacement at Aintree	-	*	2027/28	Planned
GILLMOSS GT1 / KIRKBY GT2 / SIMONSWOOD GT1	Asset Mod.		**132kV Transformer Modernisation** 132kV transformer replacement at Simonswood Grid	-	TBC	2031/32	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

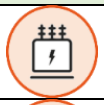
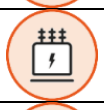
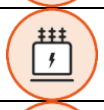
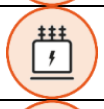
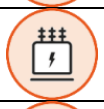
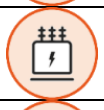
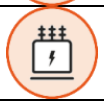
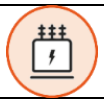
EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AINTREE GT1 / FORMBY GT2A / LITHERLAND GT1B	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints For details see: EJP	2.6	-	2027/28	Planned
	Thermal		**Aintree - Formby - Litherland Primary Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
FORMBY GT2B / SOUTHPORT GT1 / SOUTHPORT GT2	Thermal		**Formby-Southport 33kV Reinforcement** Overlay 14km of cable and establish new 33kV interconnector between Formby and Southport. Extend 33kV switchboard at Formby by one circuit breaker. Refurbish and use spare circuit breaker at Southport Grid substation For details see: DNOA and EJP	-	28.0	2028/29	Planned
	Thermal	SU	**Formby-Southport 33kV** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	36.0	-	2023/24 to 2027/28	Delivery
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Mullards Balmoral Road	-	*	2025/26	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at Grantham Close	-	*	2024/25	Delivery

	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at Market Street	-	*	2025/26	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacements at York Road	-	*	2024/25	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Ainsdale	-	TBC	2032/33	Signposted **
GILLMOSS GT1 / KIRKBY GT2 / SIMONSWOOD GT1	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace 33kV RMU at Hammond Road For details see: EJP	-	*	2025/26	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace 33kV RMU at Dickinsons For details see: EJP	-	*	2026/27	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace 33kV RMU at St Ivel Foods For details see: EJP	-	*	2025/26	Planned
	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment at Yorkshire Imperial Metals For details see: EJP	-	*	2027/28	Planned
AINTREE GT1 / FORMBY GT2A / LITHERLAND GT1A	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Haskayne	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Burlington Avenue	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

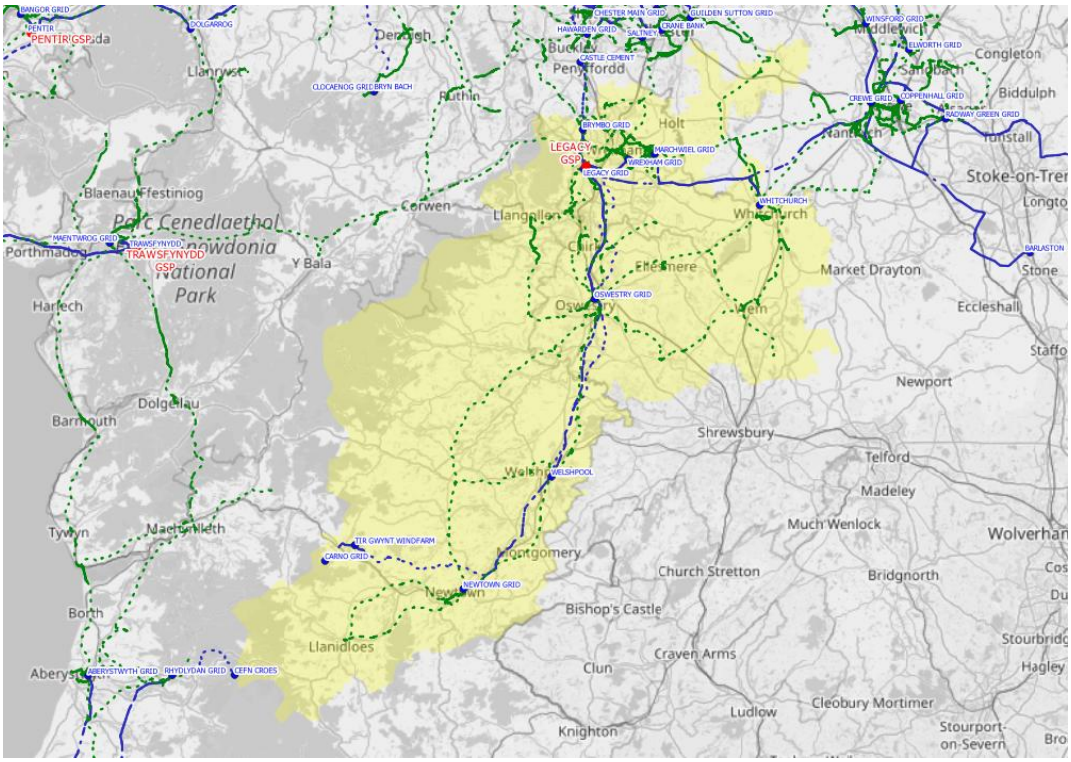
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AINTREE GT2 / FAZAKERLEY GT1 / GILLMOSS GT2	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Orb Close	-	*	2025/26	Planned
GILLMOSS GT1 / KIRKBY GT2 / SIMONSWOOD GT1	Fault Level		**SPM 11kV Network Group Fault Level Mitigation** Establish a new 7.5/10MVA 33/11kV transformer at Ainsworth Lane substation by looping into the Kirkby-Palco 33kV circuit via 2 x 0.8km cable to split the Kelco-News International-Palco-Southdene group For details see: EJP	-	10.0	2025/26	Planned

*Could increase generation hosting capacity.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AINTREE GT2 / FAZAKERLEY GT1 / GILLMOSS GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Lucas Fazakerley	-	*	2024/25	Delivery
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Orb Close	-	*	2025/26	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Old Roan	-	TBC	2032/33	Signposted **
FORMBY GT2B / SOUTHPORT GT1 / SOUTHPORT GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Marshside	-	*	2025/26	Planned
AINTREE GT1 / FORMBY GT2A / LITHERLAND GT1A	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Marsh Brows	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Haskayne	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Crosby	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Blundellsands South	-	TBC	2032/33	Signposted **
GILLMOSS GT1 / KIRKBY GT2 / SIMONSWOOD GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Northwood	-	TBC	2032/33	Signposted **
BOOTLE GT1 / LITHERLAND GT1B	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Washington Street	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.8 Legacy



This section of network is fed via four 240MVA 400/132kV super grid transformers. This group supplies arond 142,000 consumers in Legacy Local, Wrexham, Marchwiel, Whitchurch, Oswestry, Welshpool, Wem, Newtown, Brymbo and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	1	-
	132kV/EHV	-	1
	EHV	9*	4
	EHV/HV	9*	3
	HV	1*	6
Capacity Added (MVA)		17.2	TBC
Flexibility Services (MW)		34.6	-

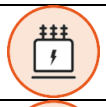
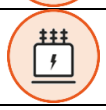
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
Legacy 132kV Group	Security of Supply		**Legacy 132kV Reinforcement** Swap SGT2 and SGT4 tails across the 132kV busbar. Install bus section circuit breaker between reserve busbars For details see: DNOA and EJP	-	0.0	2027/28	Planned

132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
LEGACY LOCAL GT2 / NEWTOWN GT2 / OSWESTRY GT8 / WELSHPOOL GT1	Thermal		**Newton / Welshpool Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **

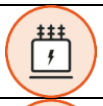
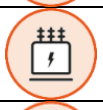
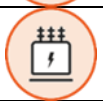
**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BRYMBO GT1 / LEGACY LOCAL GT1 / MARCHWIEL GT1 / MARCHWIEL GT2 / WREXHAM GT1	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Clywedog Road	-	*	2027/28	Planned
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Davy Way	-	*	2026/27	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Fibreglass	-	*	2026/27	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Maelor Creamery	-	*	2027/28	Planned
	Thermal		**Brymbo – Legacy Local – Marchwiel – Wrexham Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Wrexham	-	TBC	2032/33	Signposted **
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Rossett	-	TBC	2032/33	Signposted **
LEGACY LOCAL GT2 / NEWTOWN GT2 / OSWESTRY GT8 / WELSHPOOL GT1	Voltage		**Newtown-Morda 33kV Reinforcement** Additional 10MVAr STATCOM at Newton Grid substation, 33/11 kV step up transformer and outdoor circuit breaker. Additional 33kV, 5MVAr MSC and outdoor circuit breaker at Morda Substation For details see: DNOA and EJP	-	15.0	2028/29	Planned
	Voltage	SU	**Newtown-Morda 33kV** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	26.0	-	2023/24 to 2027/28	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Llanddu Quarry	-	*	2025/26	Planned

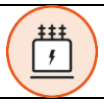
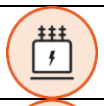
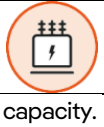
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Milford	-	*	2024/25	Delivery
OSWESTRY GT5 / WHITCHURCH GT1	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at West Felton	-	*	2024/25	Delivery
BRYMBO GT1 / LEGACY LOCAL GT1 / MARCHWIEL GT1 / MARCHWIEL GT2 / WREXHAM GT1	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Davy Way	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BRYMBO GT1 / LEGACY LOCAL GT1 / MARCHWIEL GT1 / MARCHWIEL GT2 / WREXHAM GT1	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Coedpoeth T1 / Coedpoeth T2 For details see: EJP	1.0	-	2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Gwersyllt T1 For details see: EJP	4.3	-	2026/27 to 2027/28	Planned
	Thermal		**Rhosddu Road** Scoping and Optioneering underway	-	TBC	2030/31	Signposted **
LEGACY LOCAL GT2 / NEWTOWN GT2 / OSWESTRY GT8 / WELSHPOOL GT1	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Forden T1 For details see: EJP	0.4	-	2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Johnstown T1 For details see: EJP	0.9	-	2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Llandrinio T1 For details see: EJP	0.7	-	2027/28	Planned
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Llanidloes T1 / Llanidloes T2 For details see: EJP	0.7	-	2027/28	Planned

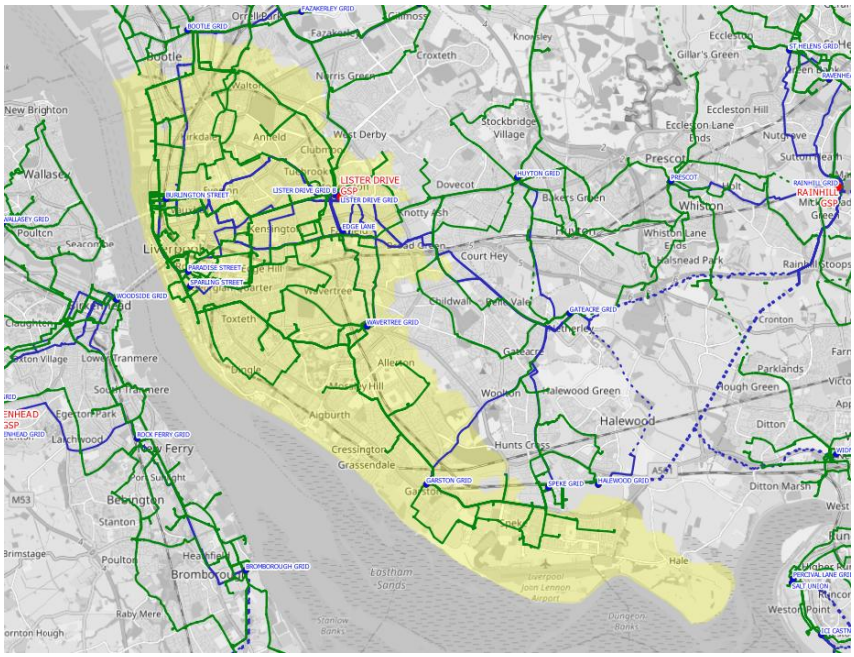
	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Raven Square T1 For details see: **EJP**	0.6	-	2027/28	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace Llanfyllin T1 and T2 with 7.5/10MVA units	-	2.2	2026/27	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Llanddu Quarry	-	*	2025/26	Planned
	Thermal		**Forden Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Thermal		**LLanfyllin Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BRYMBO GT1 / LEGACY LOCAL GT1 / MARCHWIEL GT1 / MARCHWIEL GT2 / WREXHAM GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Ind Coope	-	*	2025/26	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at W.I.E Central	-	TBC	2032/33	Signposted **
LEGACY LOCAL GT2 / NEWTOWN GT2 / OSWESTRY GT8 / WELSHPOOL GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Johnstown	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at MAES Y CLAWDD	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Llanidloes	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Milford	-	TBC	2032/33	Signposted **
OSWESTRY GT5 / WHITCHURCH GT1 / WEM GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Express Foods	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

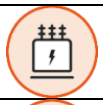
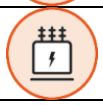
3.9 Lister Drive



This section of network is normally fed via three 240MVA 275/132kV super grid transformers. This group supplies arond 186,000 consumers in Lister Drive, Speke, Wavertree, Burlington Street, Sparling Street, Paradise Street, Bootle and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
	132kV	2	2
Number of Interventions and Schemes	132kV/EHV	-	2
	EHV	11*	1
	EHV/HV	3*	-
	HV	2*	3
Capacity Added (MVA)		5.1	TBC
Flexibility Services (MW)		87.4	-

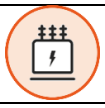
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
Lister Drive 132kV Group	Thermal		**Lister Drive 132kV Reinforcement** Install real time thermal monitoring equipment on 132kV circuit to Burlington Street. CMZ based automation scheme to trip Burlington St. – Bootle circuit and close either line or bus section beaker at Bootle. Annual tendering for flexibility to reduce dependence on automation scheme and higher demand turnout For details see: DNOA and EJP	-	-	2027/28	Planned
	Thermal	 SU	**Lister Drive 132kV** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	87.4	-	2024/25 to 2027/28	Delivered
BOOTLE GT2A / BURLINGTON ST GT1 / LISTER DV A GT2	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Burlington Street	-	TBC	2032/33	Signposted **
	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Bootle Grid	-	TBC	2032/33	Signposted **

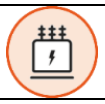
**Post RIIO-ED2 plans are indicative.

132kV/ EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
Lister Drive 132kV Group	Thermal and Fault Level		**Lister Drive 132kV Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **
BOOTLE GT2A / BURLINGTON ST GT1 / LISTER DV A GT2	Thermal		**Bootle/Burlington/Lister Drive Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **

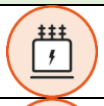
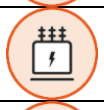
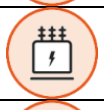
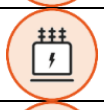
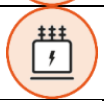
**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BOOTLE GT2A / BURLINGTON ST GT1 / LISTER DV A GT2	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment at Bootle Grid B For details see: EJP	-	*	2027/28	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Gardners Row For details see: EJP	-	*	2026/27	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Regent Road For details see: EJP	-	*	2026/27	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Sheil Park For details see: EJP	-	*	2024/25	Delivery
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Installation of Real Time Fault Level Monitoring equipment at Suburban Road For details see: EJP	-	*	2027/28	Planned
BURLINGTON ST GT2 / LISTER DV B GT1 / PARADISE ST GT1	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment at Paradise Street For details see: EJP	-	*	2027/28	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Littlewoods For details see: EJP	-	*	2024/25	Delivery
	Asset Mod.		**EHV RMU Modernisation** EHV RMU replacement at Oldham Place	-	*	2024/25	Delivery
GARSTON GT2 / SPEKE GT3 / WAVERTREE GT1A	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Weaver Ind Estate For details see: EJP	-	*	2024/25	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Airport	-	TBC	2032/33	Signposted **
LISTER DV B GT3 / SPARLING ST GT1 / WAVERTREE GT2	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMUs at St James For details see: EJP	-	*	2025/26	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMUs at Blundell Street For details see: EJP	-	*	2025/26	Planned

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

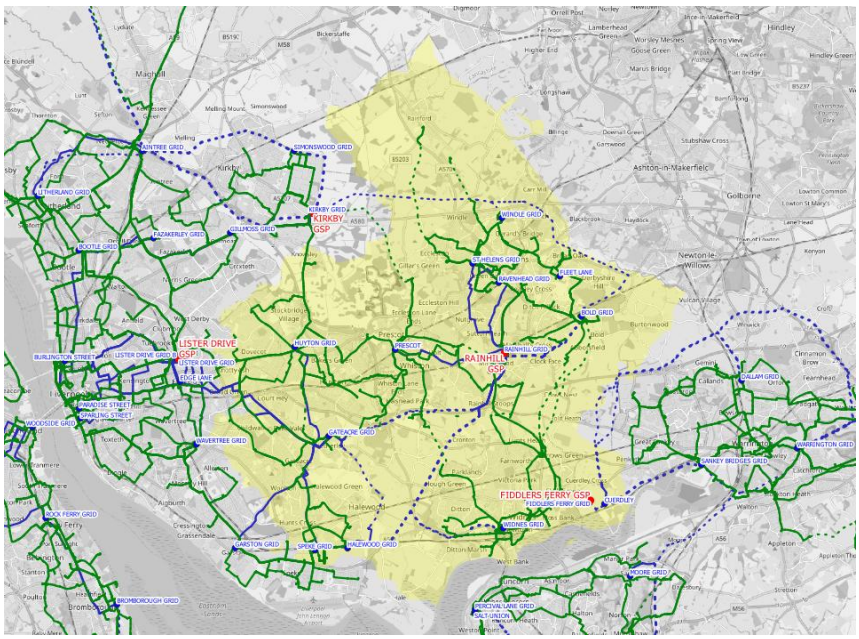
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BOOTLE GT2A / BURLINGTON ST GT1 / LISTER DV A GT2	Thermal and Fault Level		**Bootle Canal Quarter Regeneration Scheme** Voltage uprating to 11kV at Bibbys. Delamore Street, Inland Revenue, Kirkdale, Regent Road, Sandhills Lane and Walton For details see: **DNOA** and **EJP**	-	5.1	2027/28	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Dunlops Walton	-	*	2025/26	Planned
BURLINGTON ST GT2 / LISTER DV B GT1 / PARADISE ST GT1	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Highfield Street A	-	*	2024/25	Delivery

*Could increase generation hosting capacity.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm**	**Expected By**	**Status**
BOOTLE GT2A / BURLINGTON ST GT1 / LISTER DV A GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Lister Drive	-	*	2025/26	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Suburban Road	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Old Roan	-	TBC	2032/33	Signposted **
GARSTON GT2 / SPEKE GT3 / WAVERTREE GT1A	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Yew Tree Road	-	*	2027/28	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Airport	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.10 Rainhill



This section of network is fed via four 180MVA 275/132kV super grid transformers. This group supplies arond 177,000 consumers in Prescot, Bold, Gateacre, Huyton, Kirkby, Ravenhead, St. Helens, Halewood, Windle, Widnes, Speke and surrouding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	2*	2
	132kV/EHV	1*	-
	EHV	5*	3
	EHV/HV	5*	-
	HV	4*	3
Capacity Added (MVA)		14.5	TBC
Flexibility Services (MW)		4.9	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

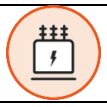
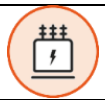
132kV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
GATEACRE GT1 / HUYTON GT1 / KIRKBY GT3 / PRESCOT GT1A	Asset Mod.		**Gateacre 132kV Modernisation** Replace 132kV circuit breaker at Gateacre	-	*	2026/27	Planned
HALEWOOD G1B / HALEWOOD G2B / HALEWOOD GT3 / SPEKE GT1A	Asset Mod.		**Halewood 132kV Modernisation** Replace 132kV circuit breakers at Halewood	-	*	2027/28	Planned
Rainhill 132kV Group	Thermal		**Rainhill 132kV Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
	Asset Mod.		**132kV Switchgear Modernisation** 132kV switchgear replacement at Rainhill	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

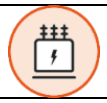
132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
GATEACRE GT1 / HUYTON GT1 / KIRKBY GT3 / PRESCOT GT1A	Asset Mod.		**Gateacre 132kV Modernisation** Replace 132kV transformer at Gateacre	-	*	2026/27	Planned

*Could increase generation hosting capacity.

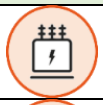
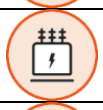
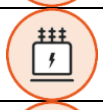
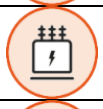
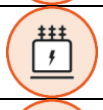
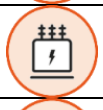
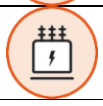
EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BOLD G2A / PRESCOT GT1B / WIDNES GT1 / WIDNES GT2	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace EHV RMU at Hills Moss For details see: EJP	-	*	2026/27	Planned
BOLD G2A / PRESCOT GT1B / WIDNES GT1 / WIDNES GT2 BOLD G2B / RAVENHEAD G1A2 / ST HELENS GT2A	Thermal		**Bold - Prescot - Widnes - Ravenhead - St Helens Primary Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **
RAVENHEAD G1A1 / ST HELENS GT2B / WINDLE GT1	Thermal		**St Helens - Windle - Ravenhead Reinforcement** Scoping and optioneering underway	-	TBC	2032/33	Signposted **

GATEACRE GT1 / HUYTON GT1 / KIRKBY GT3 / PRESCOT GT1A	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment at East Prescot Road and Huyton For details see: EJP	-	*	2027/28	Planned
	Fault Level		**Prescot Grid 33kV Fault Level Mitigation** Install 60MVA 33kV 6% reactor For details see: DNOA and EJP	-	*	2027/28	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacement at Brook Bridge	-	TBC	2032/33	Signposted **
HALEWOOD G1B / HALEWOOD G2B / HALEWOOD GT3 / SPEKE GT1A	Fault Level		**Fault Level Monitoring and Management** Installation of Real Time Fault Level Monitoring equipment at Halewood Grid For details see: EJP	-	*	2027/28	Planned
	Fault Level		**SPM 33kV RMUs Fault Level Mitigation** Replace 33kV RMU at Woodend Avenue For details see: EJP	-	*	2026/27	Planned

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

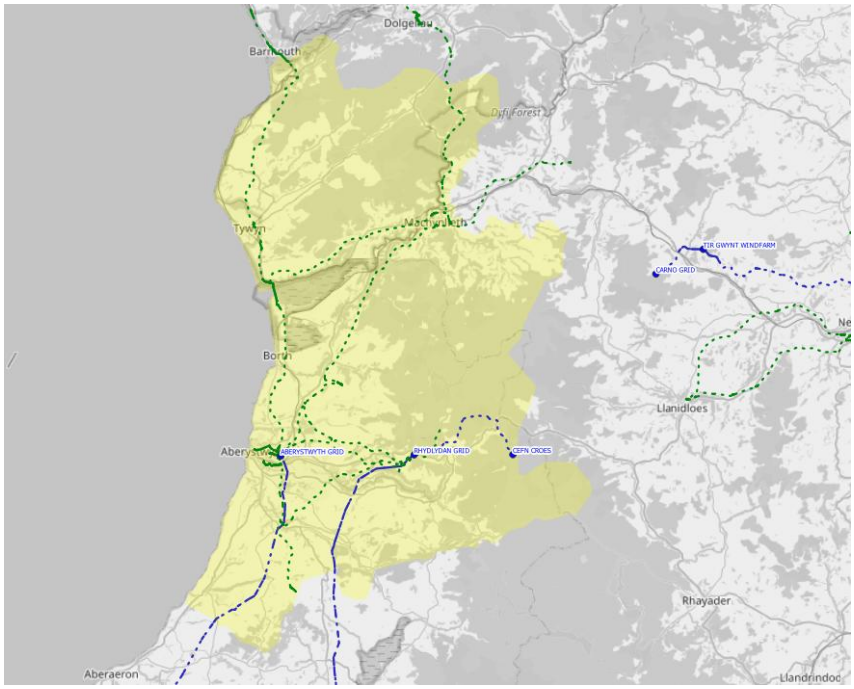
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
BOLD G2A / PRESCOT GT1B / WIDNES GT1 / WIDNES GT2	Thermal	 SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Appleton T1 / Hornsbridge T1 / Lugsdale T2 For details see: EJP	4.9	-	2026/27 to 2027/28	Planned
	Asset Mod.		**EHV Transformer Replacement** Replace transformer at Peter Spence	-	*	2026/27	Planned
BOLD G2B / RAVENHEAD G1A2 / ST HELENS GT2A	Fault Level		**SPM 6.6kV Network Groups Fault Level Mitigation** Uprating from 6.6 to 11kV at British Sidac For details see: EJP	-	11.8	2024/25	Delivery
	Thermal and Fault Level		**St. Helens 6.6kV uprating** Uprating from 6.6 to 11kV at Sherdley Road	-	1.8	2027/28	Planned
	Thermal and Fault Level		**St. Helens 6.6kV uprating** Uprating from 6.6 to 11kV at Watery Lane	-	0.9	2027/28	Planned

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
GATEACRE GT1 / HUYTON GT1 / KIRKBY GT3 / PRESCOT GT1A	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Brook Bridge	-	*	2026/27	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Lyndene Road	-	*	2024/25	Delivery
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Marled Hey	-	*	2026/27	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Tarbock	-	TBC	2032/33	Signposted **
RAVENHEAD G1A1 / ST HELENS GT2B / WINDLE GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Windlehurst	-	*	2027/28	Planned
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Hornsbridge	-	TBC	2032/33	Signposted **
HALEWOOD GT3 / SPEKE GT1A	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Kenton Road	-	TBC	2032/33	Signposted **

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

3.11 Swansea North



This section of network is fed via two 132kV circuits from Rhos (NGED). This group supplies arond 23,000 consumers in Aberystwyth, Rhydlydan and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	-	-
	132kV/EHV	-	1
	EHV	2	-
	EHV/HV	3	
	HV	-	2
Capacity Added (MVA)		10.0	TBC
Flexibility Services (MW)		16.6	-

*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV/EHV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
ABERYSTWYTH GT2 / RHYDLYDAN GT1	Thermal		**Aberystwyth - Rhydlydan Primary Reinforcement** Scoping and optioneering underway	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

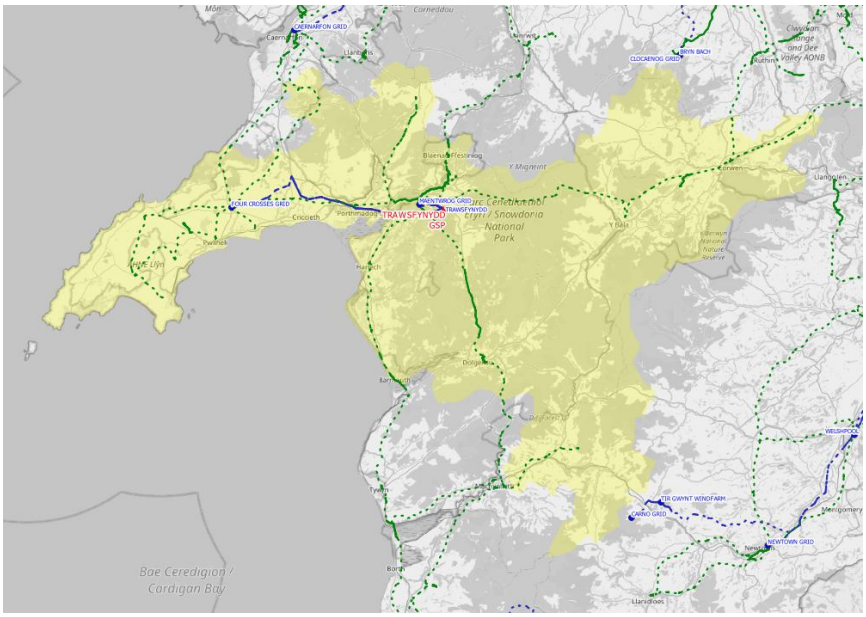
EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
ABERYSTWYTH GT2 / RHYDLYDAN GT1	Voltage		**Aberdyfi-Harlech 33kV Reinforcement** Installation of 10MVAr STATCOM, 33/11kV step up transformer and 33kV board extension at Aberdyfi For details see: DNOA and EJP	-	10.0	2028/29	Planned
	Voltage	SU	**Aberdyfi-Harlech 33kV Reinforcement** Flexibility services to manage the network risk during delivery of reinforcement For details see: EJP	15.2	-	2023/24 to 2027/28	Delivery

EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
ABERYSTWYTH GT2 / RHYDLYDAN GT1	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Bow St T1 For details see: EJP	0.4	-	2027/28	Planned
	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Llanilar For details see: EJP	1.0	-	2026/27 to 2027/28	Planned
	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Machynlleth T1 For details see: EJP	-	-	2027/28	Planned

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
ABERYSTWYTH GT2 / RHYDLYDAN GT1	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Windlehurst	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Machynlleth	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

3.12 Trawsfynydd



This section of network is fed via two 120MVA 275/132kV super grid transformers. This group supplies arond 42,000 consumers in Four Crosses, Maentwrog and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	1*	-
	132kV/EHV	-	1
	EHV	5*	-
	EHV/HV	3	2
	HV	-	3
Capacity Added (MVA)		27.5	TBC
Flexibility Services (MW)		17.6	-

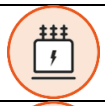
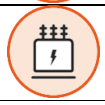
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
FOUR CROSSES GT2 / MAENTWROG GT1 / MAENTWROG GT2	Asset Mod.		**Trawsfynydd 132kV Modernisation** Replace 132kV circuit breakers at Trawsfynydd	-	*	2026/27	Planned

*Could increase generation hosting capacity.

132kV/ EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
FOUR CROSSES GT2 / MAENTWROG GT1 / MAENTWROG GT2	Thermal		**Four Crosses - Maentwrog Reinforcement** Scoping and optioneering underway	-	TBC	2031/32	Signposted **

**Post RIIO-ED2 plans are indicative.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
FOUR CROSSES GT2 / MAENTWROG GT1 / MAENTWROG GT2	Voltage		**Aberdyfi-Harlech 33kV Reinforcement** Installation of 33kV, 5MVAr MSC and replacement of 33kV AIS breakers with 5-panel switch board at Harlech primary substation For details see: EJP	-	7.5	2027/28	Planned
	Thermal		**Maentwrog-Porthmadog 33kV Reinforcement** Overlay 11km of cable and establish new 33kV circuit between Maentwrog and Porthmadog. Extend 33kV switchboard at Maentwrog and Porthmadog Substations For details see: DNOA and EJP	-	20	2027/28	Planned
	Thermal	 SU	**Maentwrog-Porthmadog 33kV Reinforcement** Flexibility services to manage the network risk during delivery of reinforcement For details see: DNOA and EJP	8.4	-	2023/24 to 2027/28	Delivery
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Rhoslan	-	*	2025/26	Planned
	Asset Mod.		**EHV CB Modernisation** EHV circuit breaker replacements at Rivals	-	*	2027/28	Planned

*Could increase generation hosting capacity.

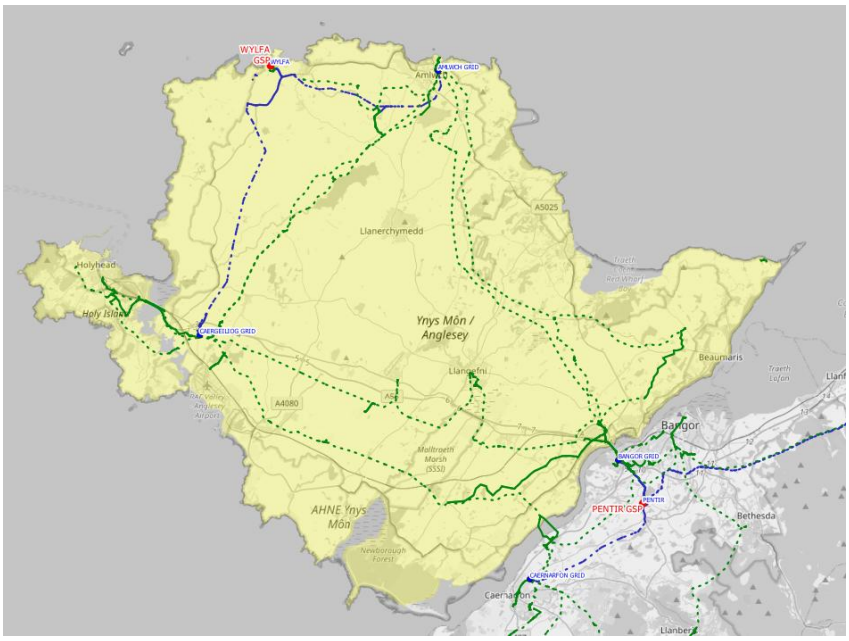
EHV/HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
FOUR CROSSES GT2 / MAENTWROG GT1 / MAENTWROG GT2	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Abersoch T1 For details see: **EJP**	0.2	-	2027/28	Planned
	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Cemmaes Rd T1 For details see: **EJP**	0.1	-	2027/28	Planned
	Thermal	SU	**Flexibility Services for High Utilisation Groups** Flexibility services to manage thermal constraints at Edern T1 For details see: **EJP**	8.9	-	2023/24 to 2027/28	Delivery
	Thermal		**Edern Primary Reinforcement** Scoping and optioneering underway	-	TBC	2028/29	Signposted **
	Thermal		**Corwen T1 Reinforcement** Scoping and optioneering underway	-	TBC	2030/31	Signposted **

**Post RIIO-ED2 plans are indicative.

HV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
FOUR CROSSES GT2 / MAENTWROG GT1 / MAENTWROG GT2	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Blaenau Festiniog	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Rivals	-	TBC	2032/33	Signposted **
	Asset Mod.		**HV Switchgear Primary Condition Modernisation Programme** Replace Switchgear at Machynlleth	-	TBC	2032/33	Signposted **

**Post RIIO-ED2 plans are indicative.

3.13 Wylfa



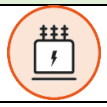
This section of network is fed via two 240MVA 400/132kV super grid transformers. This group supplies arond 39,000 consumers in Amlwch, Caergeiliog and surrounding areas.

Summary		RIIO-ED2	Post RIIO-ED2**
Number of Interventions and Schemes	132kV	1*	-
	132kV/EHV	1*	-
	EHV	3*	-
	EHV/HV	-	-
	HV	-	-
Capacity Added (MVA)		-	-
Flexibility Services (MW)		-	-

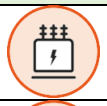
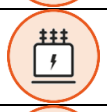
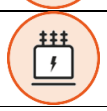
*Could increase generation hosting capacity.
**Post RIIO-ED2 plans are indicative.

132kV Interventions							
Network Area	Driver	Type	Solution	Flexibility (MW)	Increase in Firm Capacity (MVA)	Expected By	Status
AMLWCH GT1 / CAERGEILIOG GT1	Asset Mod.		**Trawsfynydd 132kV Modernisation** Replace 132kV circuit breakers at Wylfa	-	*	2025/26	Planned

*Could increase generation hosting capacity.

132kV/EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AMLWCH GT1 / CAERGEILIOG GT1	Asset Mod.		**Amlwch 132kV Modernisation** Replace 132kV transformer at Amlwch	-	*	2025/26	Planned

*Could increase generation hosting capacity.

EHV Interventions							
Network Area	**Driver**	**Type**	**Solution**	**Flexibility (MW)**	**Increase in Firm Capacity (MVA)**	**Expected By**	**Status**
AMLWCH GT1 / CAERGEILIOG GT1 / CAERGEILIOG GT2	Asset Mod.		**33kV CB Modernisation** 33kV circuit breaker replacements at Llangefni Ind Estate	-	*	2024/25	Delivery
	Asset Mod.		**33kV CB Modernisation** 33kV circuit breaker replacements at Llandyfrydog	-	*	2027/28	Planned
	Asset Mod.		**33kV CB Modernisation** 33kV circuit breaker replacement at Llanfaelog	-	*	2024/25	Delivery

*Could increase generation hosting capacity.

4 Part 2 – Network scenario headroom

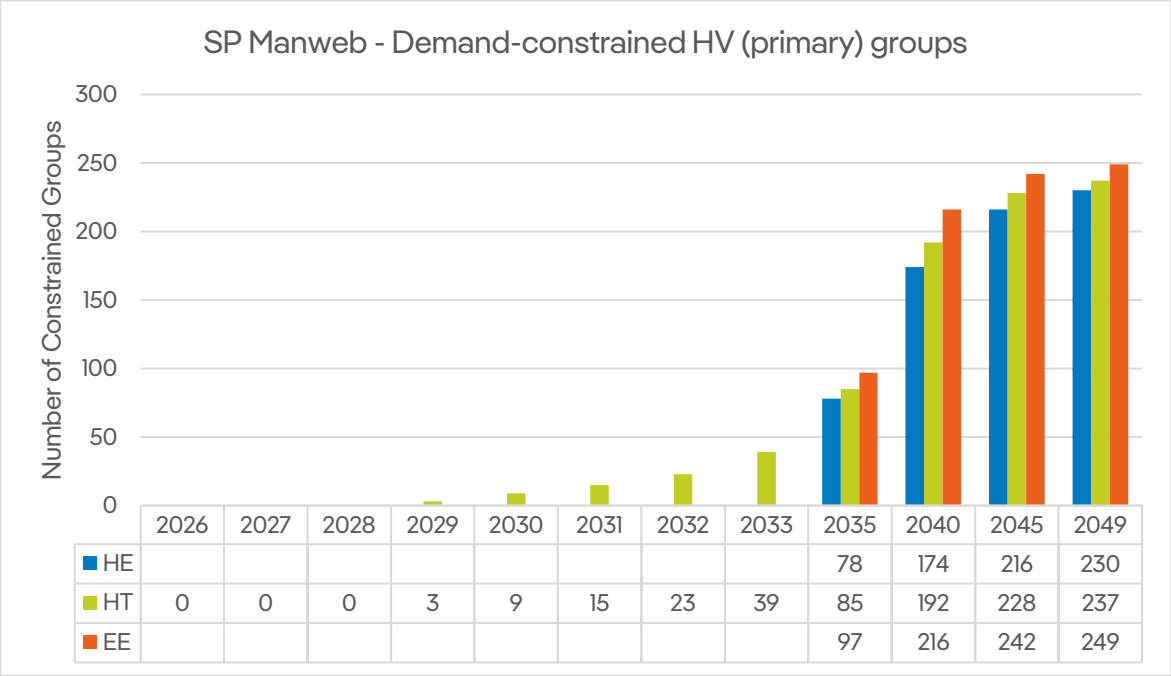
This section provides a forecast of post-intervention headroom across all network groups out to 2050. We've calculated this post-intervention headroom by combining our existing network model, our scenario forecasts, and our known intervention plans.

Our NDP Capacity Headroom spreadsheet data files provide this information for each grid (132/33kV) and primary (33kV/HV) substation/substation group for each year for the first ten years and every five years thereafter through to 2050. Given the forecast uncertainty in future pathways to achieve Net Zero, we have done this for each of the Holistic Transition (HT), Hydrogen Evolution (HE), and Electric Engagement (EE) scenarios (see NDP Methodology Statement) We provide our headroom calculation for demand and generation separately as the constraints limiting each can be different (see Section 2.2).

4.1 Demand headroom results

Demand growth is increasing from now out to 2050 due to the decarbonisation of heat and transport. This isn't fully reflected in Figure 2, which shows the number of constrained primary groups only increasing after 2028, as this constraint data incorporates our planned RIIO-ED1 and RIIO-ED2 investments (i.e. there are few constraints up to 2028 as we have planned interventions to resolve these rather than because there is no demand increase). Constraints increase after this point, as we haven't yet planned interventions for that period (we started this in 2025 when we started preparing for RIIO-ED3).

The difference in constraints pre-2028 and post-2028 illustrates an important point: we can provide the interventions our customers need to decarbonise providing Ofgem authorise the investment. However, without interventions, the network will suffer from widespread constraints. These would make 2050 Net Zero target unachievable, and the network would be overloaded, exposing customers to safety risks, supply interruptions, and higher overall costs. It is absolutely in our customers' interests that we deliver additional capacity.



	2026	2027	2028	2029	2030	2031	2032	2033	2035	2040	2045	2049
HE									78	174	216	230
HT	0	0	0	3	9	15	23	39	85	192	228	237
EE									97	216	242	249

Figure 2: SP Manweb number of demand constrained primary substation groups

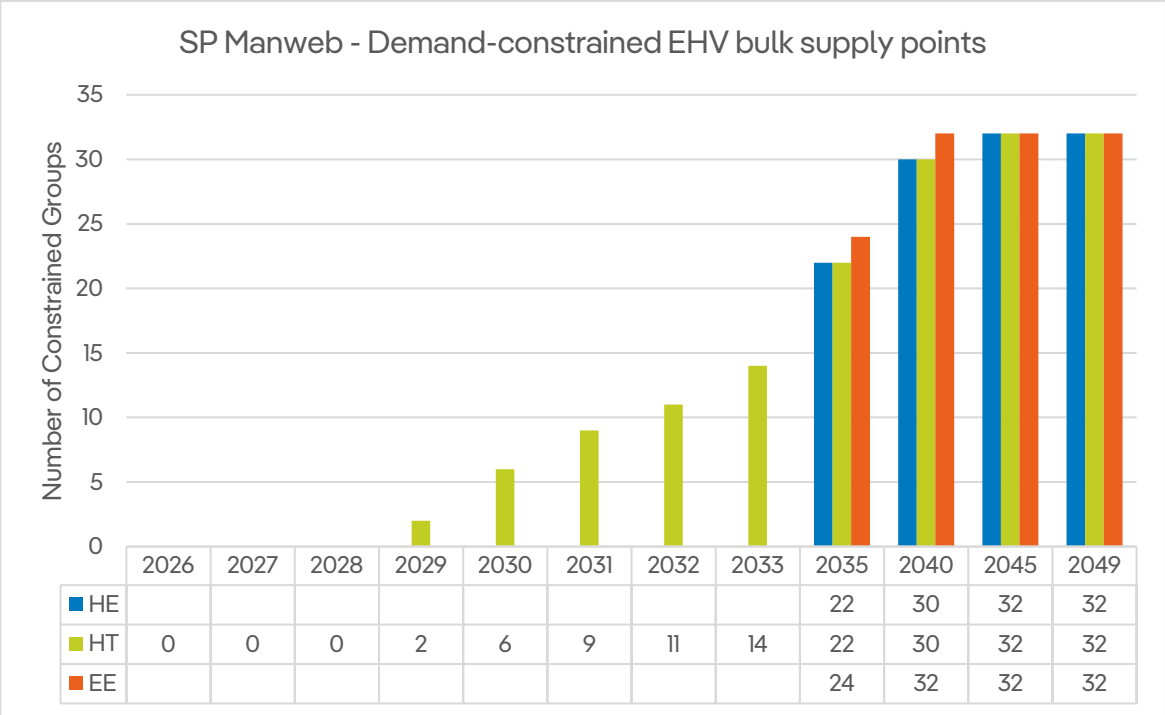
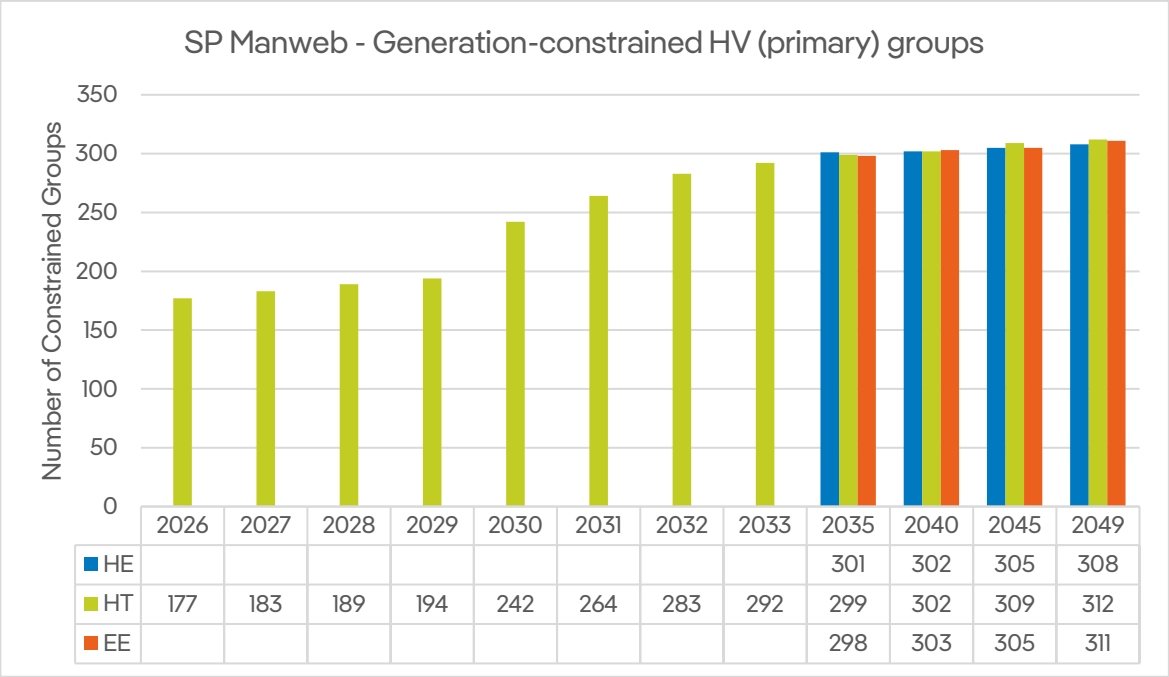


Figure 3: SP Manweb number of demand constrained EHV (33kV) grid groups

4.2 Generation headroom results

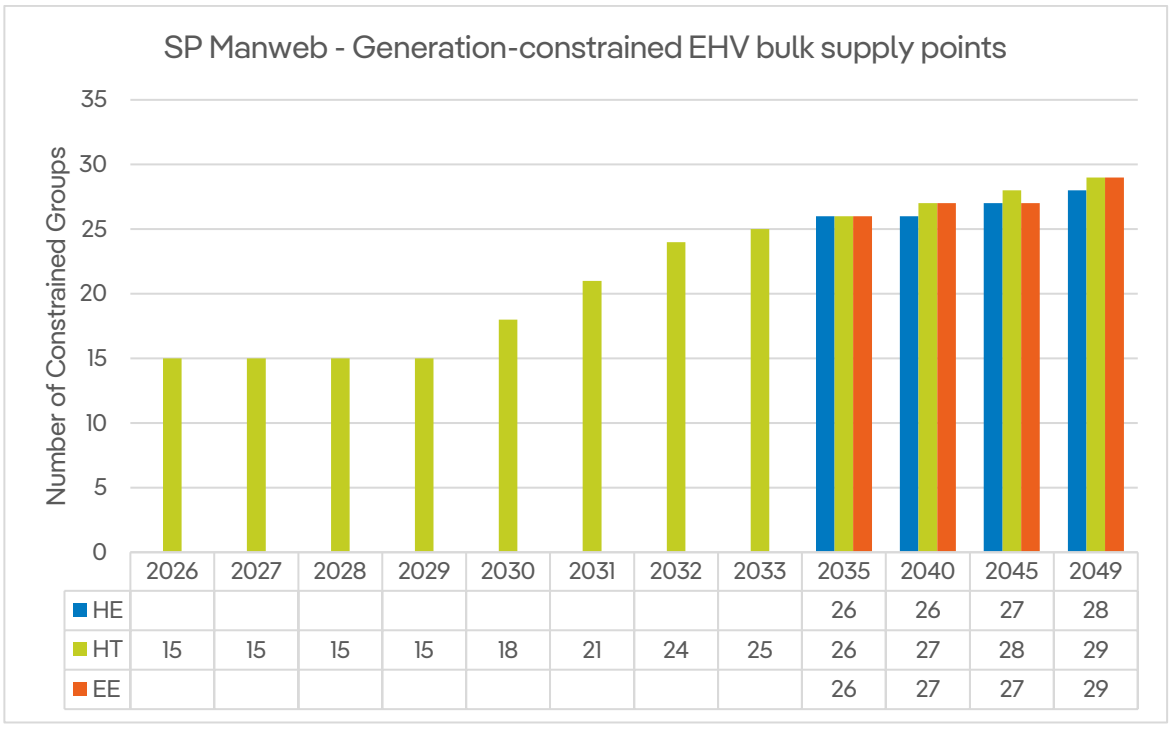
Generation growth is increasing from now out to 2050. These figures show that we are not reducing all known generation constraints within RIIO-ED2. Some key points:

1. Figure 4 shows the number of primary substation groups with no spare firm capacity. However, we are enabling generation to connect to some of these primary substation groups through flexible connection arrangements such as ANM and AFLM.
2. As these show constrained primary substations, these constraints will not necessarily impede larger-scale generation where this connects to 33kV or 132kV network assets.
3. These constraints will likely not impede domestic-scale (<50kW) generation given its minimal contribution to network constraints and is below the Transmission Impact Assessment limit.
4. Figure 4 incorporates upstream constraints but does not reflect constraints beyond the boundaries of our network.



	2026	2027	2028	2029	2030	2031	2032	2033	2035	2040	2045	2049
HE									301	302	305	308
HT	177	183	189	194	242	264	283	292	299	302	309	312
EE									298	303	305	311

Figure 4: SP Manweb number of generation constrained primary substation groups



	2026	2027	2028	2029	2030	2031	2032	2033	2035	2040	2045	2049
HE									26	26	27	28
HT	15	15	15	15	18	21	24	25	26	27	28	29
EE									26	27	27	29

Figure 5: SP Manweb number of generation constrained EHV (33kV) grid groups

5 Glossary

Active Fault Level Management (AFLM) – Active Fault Level Management is a solution which improves fault level headroom utilisation in order to avoid or defer network reinforcement works and accelerate the integration of renewable generation.

Active Network Management (ANM) – Active Network Management is a distributed control system that continually monitors the limits in a given area of the network and then allocates the maximum amount of capacity to customers in that area. These systems operate in real-time and monitor inputs, outputs, network flows and voltages to key points within the controlled zone. If the network is approaching limits, the ANM controller instructs actions to be taken to mitigate any risks.

Constraint Management Zone (CMZ) – CMZs are areas of network we have an automated control system to coordinate and dispatch different operational solutions.

Customer – means anyone connected to our network and who depends on us for an electricity supply. This includes demand, generation, and storage sites, and IDNO networks.

Decarbonisation – the process to reduce the amount of carbon dioxide (CO2) and other greenhouse gas emissions by introducing new low carbon alternatives and technologies. Much of the UK's decarbonisation strategy is based on switching carbon energy vectors (e.g. petrol/diesel for transport, and natural gas and oil for heating) to electricity and powering them with renewable generation.

Decentralisation – this reflects the extent to which generation is sited closer to demand consumption (or is even undertaken by consumers themselves) via the use of smaller-scale technologies such as solar PV and local energy storage. A less decentralised system would be characterised by fewer, larger-scale generators sited further from where the electricity is ultimately consumed (demand); a more decentralised system would be characterised by more smaller-scale generators sited closer to demand.

Distribution Future Energy Scenarios (DFES) – detailed forecasts we publish annually for our two distribution networks. We work with an external party to determine and produce them. They cover a range of demand and generation metrics (e.g. EVs, heat pumps, different generation technologies) out to 2050. https://www.spenergynetworks.co.uk/pages/distribution_future_energy_scenarios.aspx

Distributed Generation (DG) – generation connected to the distribution network, as opposed to the transmission network.

Distribution network – in England and Wales this consists of overhead lines, underground cables and other network infrastructure that operate at 132kV and below; in Scotland this is the infrastructure that operates at 33kV and below. Nearly all demand in GB is connected to the distribution network; only very large demand users (e.g. the rail network) are connected to the transmission network. Nearly all medium-scale and smaller scale generation in GB is connected to the distribution network; typically only large fossil fuel power stations, offshore generation, and large onshore generation are connected to the transmission network.

Electricity System Operator (ESO) – the company responsible for operating the GB transmission network. They have two main operational functions: balancing the total demand and generation on the system to maintain system frequency at 50Hz, and ensuring transmission power flows remain within transmission network capability and statutory limits.

Extra high voltage (EHV) – all distribution voltages greater than 22kV.

Flexibility – the ability of a consumer or generator to change their operation (i.e. their generation/consumption levels) in response to an external signal. With the push towards the electrification of heat and transport, being able to flexibly utilise demand and generation will help minimise the amount of additional network capacity required, balance the system, and provide system stability – these can all help reduce customer electricity bills.

Grid Supply Point (GSP) – the interface substations between the transmission and distribution network.

GW – equal to 1,000 MW.

High voltage (HV) – all voltages above 1kV up to and including 22kV.

Low carbon technologies (LCTs) – means the range of customer technologies that are needed to deliver decarbonisation. For example, EVs, heat pumps, storage, and renewable generation.

Low voltage (LV) – all voltages up to and including 1kV.

MVAr – mega volt amps (reactive) is a unit of reactive power. It can be useful to help manage network voltage levels. It can describe both the amount of reactive power that a user is importing (e.g. this generator is importing 1MVAr of reactive power"), and the amount of reactive power that a user is exporting (e.g. "this generator is exporting 1MVAr of reactive power").

MW – megawatt is a unit of power (not energy). It can describe both the amount of power that a demand user is consuming (e.g. "this town's peak demand has increased by 3MW due to an increase in EVs and heat pumps"), and the amount of power that a generator is producing (e.g. "3MW of solar PV generation has been installed in this area").

Minimum demand – the point in the year, typically during the summer months, when our distribution network as a whole sees the lowest demand. It is an important study condition (along with peak demand) as a network with low demand can experience voltage control issues.

Net Zero – means the legislated target of reducing greenhouse gas emissions to net zero. For the UK, there are three Net Zero targets:

i. The UK Government has introduced the Climate Change Act 2008 (2050 Target Amendment) Order 2019. This legislation introduces a legally binding target for the UK to have net zero greenhouse gas emissions by 2050. The legislation is available at: http://www.legislation.gov.uk/ukpga/2008/27/contents

ii. The Scottish Government has introduced the Scottish Climate Change (Emissions Reduction Targets) Act 2019. This legislation introduces a legally binding target for Scotland to have net zero greenhouse gas emissions by 2045. The legislation is available at: http://www.legislation.gov.uk/asp/2019/15/contents/enacted

iii. The Welsh Government has introduced The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021. This introduces a legally binding target for Wales to have net zero greenhouse gas emissions by 2050. The legislation is available at: https://www.legislation.gov.uk/anaw/2016/3/contents

Open Networks – this is a pan-industry project involving transmission and distribution network companies, the ESO, the Department for Business, Energy, and Industrial Strategy (BEIS), Ofgem, and other stakeholders. It has done much work developing DSO models, the customer experience, whole electricity system planning and distribution to transmission data exchange, and flexibility services.

Peak demand – the point in the year, typically during the winter months, when our distribution network as a whole sees the highest demand. It is an important study condition (along with minimum demand) as it places the greatest need on network capacity – our network must be able to accommodate peak demand.

Primary substation – see 'Substation'.

RIIO-ED2 – means the distribution network price control period which runs from 1st April 2023 to 31st March 2028. Before this period starts, we will agree with Ofgem the outputs we will deliver during this period, and the funding, incentives, and penalties for delivering those outputs.

Services (aka DER services or flexibility services) – DER can change its import/export position in a controlled manner in response to a signal. This capability can be utilised for the benefit of the network or wider system (e.g. a DER reducing their import to reduce the overall level of demand the network must supply). Where we utilise this capability, the DER is providing us with a 'service'. See also 'Flexibility' and 'Distribution energy resources'.

SP Transmission (SPT) – the Transmission Network Owner for Central and Southern Scotland, that owns the transmission network at 132kV, 275kV and 400kV.

SP Distribution (SPD) – the Distribution network Operator for Central and Southern Scotland, that owns the distribution network at 33kV, 11kV and LV up to customers' meters.

SP Manweb (SPM) – the Distribution Network Operator for Merseyside, Cheshire, North Shropshire, and North Wales, that owns the distribution network at 132kV, 33kV, 11kV and LV up to customers' meters.

Substation – a building or outdoor compound which contains one or more transformers and switchgear protection. The primary purpose of a substation is to change the network power flow from one voltage level to another. In a primary substation the highest voltage is EHV (primary substations are typically 33kV/11kV); in a secondary substation the highest voltage is HV (secondary substations are typically 11kV/LV).

Transmission Network – the high voltage electricity network used for the bulk transfer of electrical energy across large distances. The transmission network takes electricity from large generators (e.g. coal, gas, nuclear and offshore wind) to supply large industrial customers and the distribution network.