STRATEGIC DEVELOPMENT PLAN - MELKSHAM

Our network serving communities across Wiltshire, Somerset and Test Valley

Final Publication

February 2026

Scottish & Southern Electricity Networks

CONTENTS

1. EXECUTIVE SUMMARY

SSEN is taking a strategic approach in the development of its distribution networks. This will help to enable the net zero transition at a local level to the homes, businesses, and communities we serve. Our Strategic Development Plans (SDPs) take the feedback we have received from stakeholders on their future energy needs from today out to 2050 and translate these requirements into strategic spatial plans of distribution network needs. This helps us transparently present our future conceptual plans and facilitate discussion with local authorities and other stakeholders. The overall methodology and how it fits into our wider strategic planning process is presented in the Strategic Development Plan methodology. The focus area of this SDP is the area that is supplied by Melksham Grid Supply Point (GSP), shown below in Figure 1.

This report documents the stakeholder led plans that are driving net zero and growth in the local area, the resulting electricity demands, and the network needs arising from this. Plans across Basingstoke and Dean Borough, Bath and Northeast Somerset Council, Test Valley, Cotswold, Wiltshire and Winchester and Hampshire County Council have been considered in preparation for this plan. Some reinforcement work has been triggered in this area through the Distribution Network Options Assessment (DNOA) process.

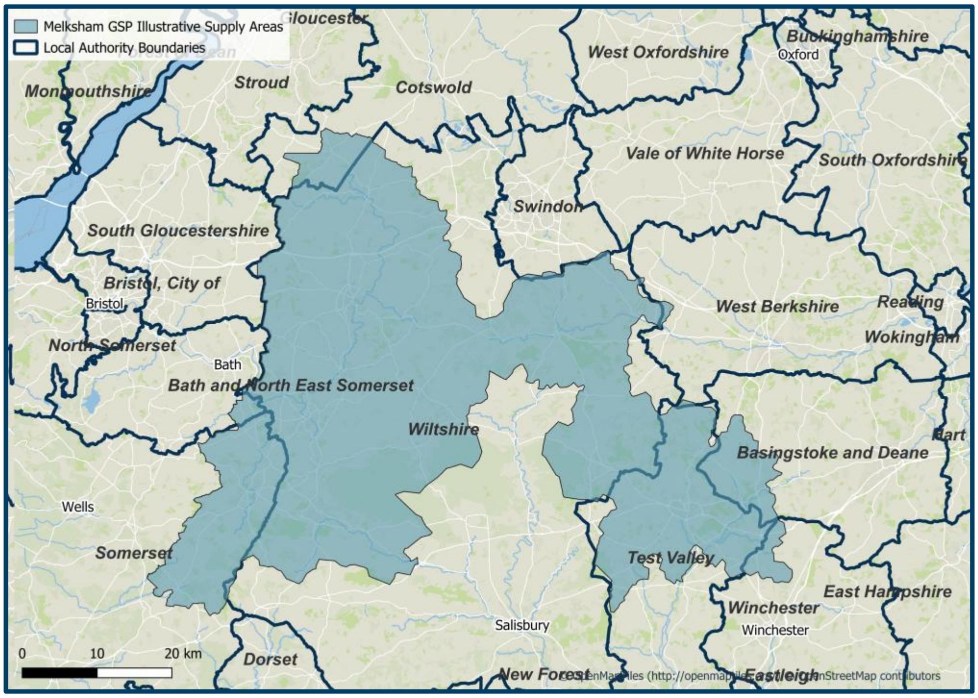

Figure 1: Area of focus for this SDP

This SDP utilises the Distribution Future Energy Scenarios (DFES) to understand the pathways to a 2050 network that can support net zero and growth in the local economy. Recommendations from this report outline the initial steps that we believe should be taken on that pathway to develop the network in an efficient and stakeholder-led way.

2. INTRODUCTION

The aim of this report is to demonstrate how local, regional, and national targets align with stakeholder ambitions in the area to provide a robust evidence base for load growth out to 2050 across the area served by Melksham Grid Supply Point (GSP). A GSP is an interface point with the national transmission system where SSEN Distribution then takes power to local homes and businesses within a geographic area. Context for the area this represents is shown above in Figure 1.

To identify the future requirements of the electricity network, SSEN commissions Regen to produce the annual Distribution Future Energy Scenarios (DFES). The DFES analysis is based on the National Energy System Operator (NESO) Future Energy Scenarios (FES), while incorporating more granular stakeholder insights from agencies such as local authorities and new demand and generation connection applications. The DFES provides a forward-looking view of how demand and generation may evolve under different scenarios as we move towards the national 2050 net zero target. These scenarios are summarised in Figure 2. SSEN uses Holistic Transition as the central case scenario, reviewing this position annually. Any more recent unforeseen demand changes, for example customer connection requests, are also considered in our forecasts to ensure that the projected load more accurately reflects what we expect to see in the future.

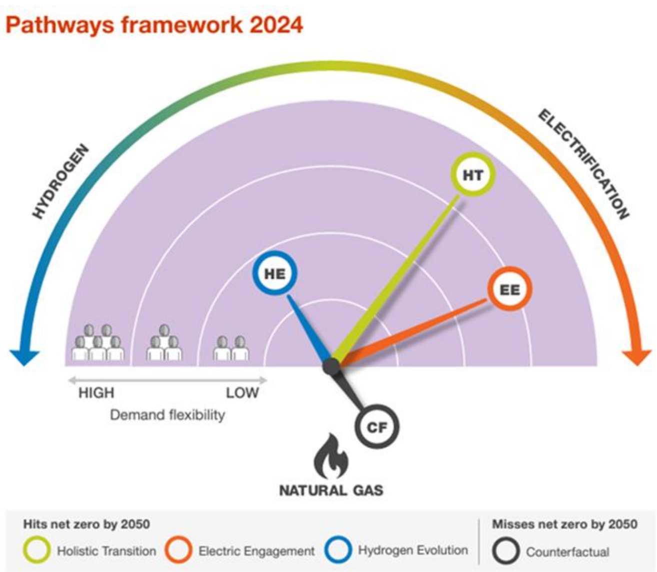

Figure 2: The FES Scenario framework (source: NESO)

Using the DFES, power system analysis has been carried out to identify the future system needs of the electricity network. These needs are summarised by highlighting the year the need is identified under each of the scenarios, and the projected 2050 load. System needs are identified through power system analysis. We also model across the other scenarios to understand when these needs arise and what network capacity should be planned for in the event each scenario is realised.

The DNOA process will provide more detailed optioneering for each of these system needs, improving stakeholder visibility of the strategic planning process. Opportunities for the procurement of flexibility will also be highlighted in the DNOA to cultivate the flexibility markets and align with SSEN's flexibility-first approach.

Further information on the FES framework can be found in the DFES 2024 introductory report.

3. STAKEHOLDER ENGAGEMENT AND WHOLE SYSTEM CONSIDERATIONS

3.1. Local Authorities and Local Area Energy Planning

The main local authorities that are supplied by Melksham GSP are Basingstoke and Deane Borough Council Bath and Northeast Somerset Council, Cotswold, Mendip, South Somerset, Test Valley and Wiltshire as shown in Figure 3. The development plans for these local authorities will have a significant impact on the potential future electricity load growth on SSEN's distribution network. As such, it is vital for SSEN to engage with these plans when carrying out strategic network investment.

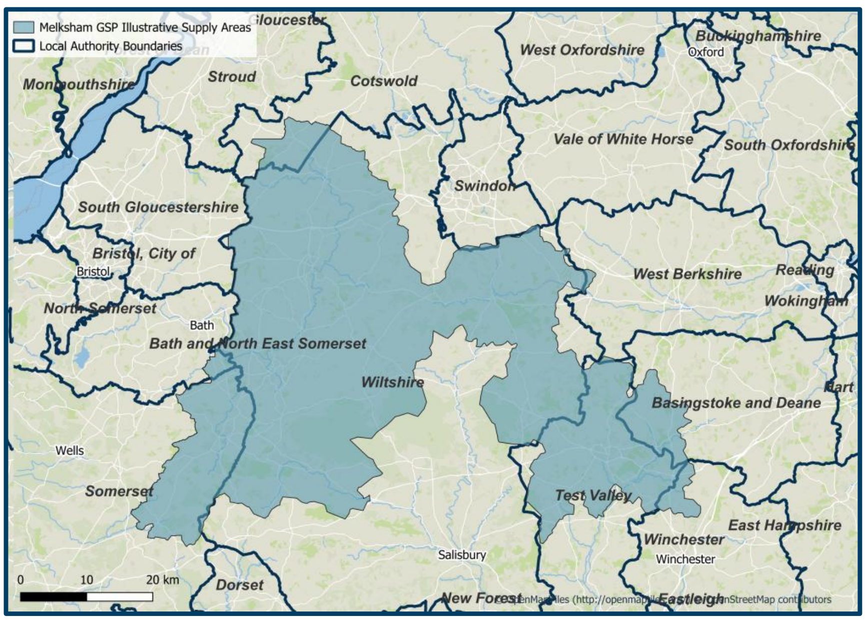

Figure 3: Melksham GSP supply area and relevant local authority boundaries

3.1.1. Basingstoke and Deane Borough Council

In 2025, Basingstoke and Deane updated its Climate Change and Air Quality Strategy which explores possible pathways to Net Zero and the strategy sets out its aim to be a net zero borough by 2045. To help guide actions to reach this target, a new net zero steering committee is being established in the borough with key local stakeholders involved.

The Council has recently adopted its EV Charging Strategy and has been rolling out chargers in car parks, with a proposal for a facility to be operated by Gridserve on Council land. The Council is also working with the County Council for delivery of on-street chargers and is doing a phased electrification of their vehicle fleet and working with public transport operators to look at the longer-term electrification of their fleets.

The Council has undertaken sustainability audits of their building assets and are rolling out decarbonisation plans. This included commissioning a Solar Panel Study of PV potential for all non-domestic rooftops larger than 30 m^2. They are also carrying out domestic energy surveys and signposting support for retrofit1. There are three community energy companies in the borough who have received grant funding to help get projects off the ground, and the council has been rolling out Solar Together schemes.

The Council is in the process of developing their new Local Plan for the period out to 2042 which identifies a number of strategic development locations across the borough. Due to changes in the National Planning Policy Framework, the borough has had a significant increase in its local housing requirements. As such, the Council went out to consultation on the location of new housing and employment land set out in the Local Plan Draft Spatial Strategy. As part of the draft plan, they have included a policy to support the installation of renewable energy and are in the process of identifying the areas that may be suitable for renewables. The draft local plan also sets a requirement for all new homes to have a 'net zero' operational energy balance, which means that they are required to generate as much energy as they would use to achieve a 'net zero' balance. The new Local Plan is due for adoption in 2027.

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3.1.2. Bath and Northeast Somerset Council

In 2019, the council declared a Climate Emergency, committing to a transformative vision for the entire region, including the World Heritage Site of Bath. This ambitious goal requires collaboration across all sectors - residents, communities, businesses, and organisations.

To lead this change, the council developed a Climate Emergency Strategy outlining key priorities and guiding policies. Since the declaration, several significant actions have been taken:

- Established a dedicated Climate Emergency cabinet role and scrutiny panel.
- Made climate and ecological action a core policy, embedded in the Corporate Strategy and budget planning.
- Formed a Public Services Climate Emergency workgroup with key local institutions.
- Created a toolkit to support Parish Councils, many of which have declared their own emergencies.
- Launched the B&NES Schools' Climate Emergency Network.
- Partnered with the University of Bath for citizen engagement research.
- Joined the global Carbon Disclosure Project for environmental data reporting.
- Published the Climate Emergency Strategy and hosted two Climate and Biodiversity Festivals (2021–2022).
- Became the first council in England to adopt an energy-based net zero housing policy in its local plan.

The council continues to lead and support climate action across the district, aiming for a sustainable and resilient future.

1 Climate change and what we are doing

3.1.3. Cotswold District Council

Cotswold District Council has seen population growth of 9.6% from around 82,900 in 2011 to around 90,800 in 2021[2]. To meet the expected growth in population a target of building 836 additional new homes between 2022-2031 has been set[3]. Gloucestershire County Council aims for the county to reach net zero by 2045[4], a number of schemes are being run across the county and district level to support this. Gloucestershire council with 10 key areas highlighted to support this, such as plans to install 1,000 electric vehicle charge points by 2025 and support residential electrification of heat through a home upgrade grant[5] running until March 2025 for off-gas, low-income homes throughout Gloucestershire. In April 2022, Cotswold District Council launched a Climate Investment Programme that raised £500,000 to roll out electric vehicle charge points and install solar PV, along with other initiatives[6].

To support delivery, the council has launched targeted investment programmes such as the Climate Investment Programme, which raised £500,000 in April 2022 to accelerate deployment of EV charge points, rooftop solar PV and other local decarbonisation initiatives. These sit alongside wider strategic commitments set out in Cotswold District Council's Climate Emergency declaration (2019) and Climate Emergency Strategy 2020–2030, which outline the council's net-zero objectives and actions across housing, transport, energy and land use. The ongoing Local Plan update seeks to embed these commitments by delivering net-zero-ready homes and enabling low-carbon transport, forming a coordinated framework to reduce emissions and support essential energy-infrastructure improvements across the district.

Commented [AK2]: Added on request from local authority

3.1.4. Somerset Council

Somerset's Climate Emergency Strategy was co-developed by the county's five former local authorities in collaboration with sector specialists and external partners, following a public consultation in January 2020. It was officially adopted by all five councils in November 2020.The strategy's core objective is to cut carbon emissions across Somerset and strengthen the county's resilience to the unavoidable impacts of climate change.

It outlines the causes and consequences of climate change, identifies sources of carbon emissions at global, national, and local levels, and explains how these issues are expected to affect Somerset specifically. The strategy sets out a bold vision for Somerset to become carbon neutral by 2030 and details the actions Somerset Council - building on the work of the former councils - plans to take in response to the Climate and Ecological Emergency.

Although led by local government, the strategy's success depends on collective action. The strategy follows the 'One Planet Living Principles' taking a holistic view of sustainability - emphasising wellbeing, community development, sustainable consumption, ethical procurement, and a shift toward a circular economy. The strategy

2 Census 2021, January 2023, How life has changed in Cotswold: Census 2021.

3 Annex A - draft Cotswold Housing Strategy - Technical consultation document.pdf

4 We will | Gloucestershire County Council

5 Home Upgrade Grant | Warm and Well

6 Cotswold Climate Investment - Cotswold District Council

reaffirms Somerset's alignment with the UK Government's 2050 net-zero target for greenhouse gas emissions and supports the UK's commitment under the 2015 Paris Agreement to limit global temperature rise to below 2°C by mid-century.

Building on this strategic foundation, the Somerset Energy Investment Plan provides an evidence-based pathway for delivering the county's net-zero ambitions. It identifies significant potential for new solar, onshore wind and battery storage development, alongside the grid-infrastructure upgrades needed to unlock future capacity. The plan highlights priority investment areas that will enable Somerset to scale renewable generation, enhance energy resilience and support long-term system decarbonisation.

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3.1.5. Test Valley Council

Test Valley Borough Council declared a climate emergency and committed to investigate clear and effective options to become a carbon neutral organisation. The Council was awarded funds through the UK Shared Prosperity Fund to support decarbonisation projects in partnership with Community Energy South and part of this is set to be used for a Net Zero Business Service to support rural businesses to decarbonise[7]. Additionally, the Council has secured funding through the Public Sector Decarbonisation Scheme to decarbonise heating in council-owned buildings[8].

The Council are developing their new local plan with development for the most part split between the Andover area in the North and the Romsey area in the South[9]. They anticipate the largest site allocation to be approximately 1,100 dwellings. They have also received funding to progress feasibility studies for a heat network in Andover town centre and are looking at the possibility of a wider heat network zone[10].

3.1.6. Wiltshire Council

In 2022, Wiltshire Council introduced a series of delivery plans to support the implementation of its Climate Strategy. These included the Carbon Neutral Council Plan 2022–24 and the Climate Strategy Delivery Plan 2022–24. Both plans underwent a review in 2024 to assess progress in reducing carbon emissions, adapting to climate impacts, and delivering on the council's stated actions.

7 Council unlocks £1M to deliver major projects across borough | Test Valley Borough Council

8 TVBC secures funding to further commitment to making council-owned buildings carbon neutral | Test Valley Borough Council

9 Local Plan | Test Valley Borough Council

10 Cabinet report

The updated plan outlines the council's climate priorities for 2025. While it focuses on short-term objectives, it also incorporates medium- and long-term actions necessary to stay aligned with Wiltshire's broader climate ambitions, including the pathway to achieving net zero emissions by 2050.

The Climate Strategy identifies the following objectives for becoming a carbon-neutral council:

- Achieving organisational carbon neutrality by 2030;
- Providing leadership at both local and national levels by reducing direct emissions (Scope 1 and 2); and
- Addressing indirect emissions (Scope 3) through the evaluation of outsourced services and procurement practices.

3.1.7. Winchester Council

Winchester City Council set aims for the district to be carbon neutral by 2030, and to make the Council's own corporate estate net zero by the end of 2024. It has a Carbon Neutrality Action Plan that sets out a number of interventions to reduce carbon emissions.

Winchester City Council set aims for the district to be carbon neutral by 2030[11], and to make the Council's own corporate estate net zero by the end of 2024. It has a Carbon Neutrality Action Plan that sets out a number of interventions to reduce carbon emissions[12].

Transport interventions include working with local businesses and procurement teams to decarbonise freight fleets and investing in EV charge points to decarbonise private cars. The EV strategy proposes locations for 46 charge points in council car parks, and so far, 35 have been installed[13]. The Council has also recently launched its first electric waste vehicle. Instavolt also launched the UK's largest rapid-only EV charging Super Hub off the A34 in Winchester in March 2025[14]. It will be powered by on-site PV and energy storage.

The Council has also committed to developing a local area energy plan (LAEP) as a priority action and is in the process of creating the first digital LAEP in collaboration with SSEN Distribution and Advanced Infrastructure Technology Limited, using the Local Net Zero Accelerator (LENZA) tool[15]. Part of this will include the development of a renewable energy generation plan. The Carbon Neutrality Action Plan sets an objective to develop an additional 203MW of renewable energy across the Winchester district.

3.1.8. Hampshire County Council

Hampshire County Council has two targets: to be carbon neutral by 2050 and to build resilience to a two-degree rise in temperatures. The Council has published a strategy, action plan and strategic framework for action to achieve its carbon neutral aims and details numerous steps it has planned to electrify various sectors of the local economy.

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11 Climate Emergency - Winchester City Council

12 Carbon Neutrality Action Plan - Winchester City Council

13 Electric vehicle charging - Winchester City Council

14 InstaVolt EV Charging Station | Winchester Super Hub - InstaVolt

15 Planning for Winchester's future energy needs - Winchester City Council

The council is undergoing a major governance shift through the UK Government's Devolution Priority Programme. On 17 July 2025, it was confirmed that Hampshire's first mayoral election will take place in May 2026[16]. Alongside Portsmouth, Southampton, and the Isle of Wight, the council is working to establish a Mayoral Combined County Authority (MCCA) for the Hampshire and Solent region. Under the new governance model, a directly elected mayor will be responsible for strategic regional leadership and the coordination of public services.

In terms of its own estates, the Council aims to transition to fossil-fuel-free heating, install solar PV on depot buildings, and has identified a retrofit programme for privately owned residential properties. Hampshire has also secured £6.66 million through the LEVI fund to expand EV charging infrastructure[17].

3.2 Whole System Considerations

3.2.1 Distributed Energy Resources

Wiltshire, Winchester and Hampshire have emerged as key areas for renewable energy development, particularly in ground-mounted and rooftop solar installations. The recent reforms introduced by OFGEM and National Energy System Operator (NESO) aim to expediate the connection process for viable projects by shifting from a 'first-come first served' model to a 'first-ready, first-connected' model, projects that are prepared and secured planning consent can expect faster integration into the grid[18]. The changes are expected to alleviate some of the bottlenecks and constraints enabling more efficient deployment of renewable energy projects in the region.

National Grid Electricity Transmission (NGET) has also committed to fast tracking up to 10GW of BESS projects, which could lead to connection dates which are four years earlier than previously scheduled. Wiltshire has a significant number of solar and battery generation, some of which make use of active network management (ANM) schemes. These systems help manage grid constraints by dynamically adjusting the output of generators, allowing more renewable energy to be connected without costly infrastructure upgrades[19].

3.2.2 Large Industrial Customers

In addition to collaboration with local authorities, engagement also extends to major industrial energy users. The Wiltshire region hosts a diverse range of sectors, including advanced manufacturing, construction, digital technology, and logistics and distribution. Both small and medium sized enterprises (SMEs) and large businesses such as Dyson, Apetito, Great Western Railways and Siemens contribute to the regional energy profile[20]. The Andover region in Test Valley is home to numerous manufacturing companies and industrial estates, mainly around the Portway Business Park and Walworth Business Park[21]. The Cotswold region is home

16 Devolution | About the Council | Hampshire County Council

17 Electric Vehicle Charging Infrastructure Strategy-2024-10-24-EMH2050 Decision Day

18 Connections Reform | National Energy System Operator

19 Integration of energy storage to improve utilisation of distribution networks with active network management schemes | CIRED

20 https://www.swindon.gov.uk/info/20017/business_and_investment/1051/redundancy_support_for_individuals_and_businesses/2

21 Andover Business Parks

to several limestone quarries which are used for building and construction projects[22]. In addition to this, this region also contains several military facilities including MOD Lyneham, MOD Corsham, MOD Boscombe Down, and MOD Porton Down.

Wiltshire region is also a key transport corridor with the M4 and particularly the junctions 16 and 17, which facilitate east west connectivity across Southern England. Supporting the anticipate growth in EV uptake and charging infrastructure along these transport corridors will enable decarbonisation efforts across logistics and mobility sectors tied to the M4 corridor.

3.2.3 Transmission interactions

SSEN regularly engages with both NGET and the National Energy System Operator (NESO) to understand the interactions between the distribution and transmission networks in the area. Currently SSEN is working together with NGET to release capacity at Melksham GSP through regular meetings and working groups, with triggered works estimated for completion in 2036/37.

A fifth super grid transformer (SGT) has been proposed, alongside plans for a new GSP. However, the estimated completion date for the new GSP is 2037, and the site location is yet to be confirmed. The 132kV busbar at Melksham is owned by NGET, while SSEN retains ownership of the 132kV circuit breakers. These breakers are scheduled for upgrade to accommodate higher fault level requirements. The existing Melksham GSP is space-constrained, limiting future expansion and reinforcing the need for a new GSP. It should be noted that these projects may be subject to change due to the impact of connections reform and Clean Power 2030.

3.3. Flexibility Considerations

SSEN procures Flexibility Services from owners, operators, or aggregators of Distributed Energy Resources (DERs) or Consumer Energy Resources (CERs), which can be generators, storage, or demand assets. These services are needed in areas of the network which have capacity constraints at particular times or under certain circumstances. SSEN purchases Flexibility Services from all types of providers (e.g. domestic or commercial). Information on the process for procurement and how to participate are published on the Flexibility Services website and information on real time decision making on which providers are dispatched can be found in the Operational Decision-Making document.[23,24]

SSEN regularly recruits new Flexibility Services providers and increases the procured Flexibility Services with the latest bidding round for long term requirements held in May 2025 and recruitment through the Mini-Competition process most recently opening in mid-July 2025.[2]

Areas across Melksham GSP where flexibility has been procured is shown below in Figure 4. This map shows all Flexibility Services procured, which covers requirements beyond those identified for managing the deferral of reinforcement.

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22 Geology of the Cotswolds - Cotswolds National Landscape

23 SSEN, Flexibility Services Procurement (Flexibility Services Procurement - SSEN)

24 SSEN, 02/2024, Operational Decision Making (ODM), SSEN Operational Decision Making ODM

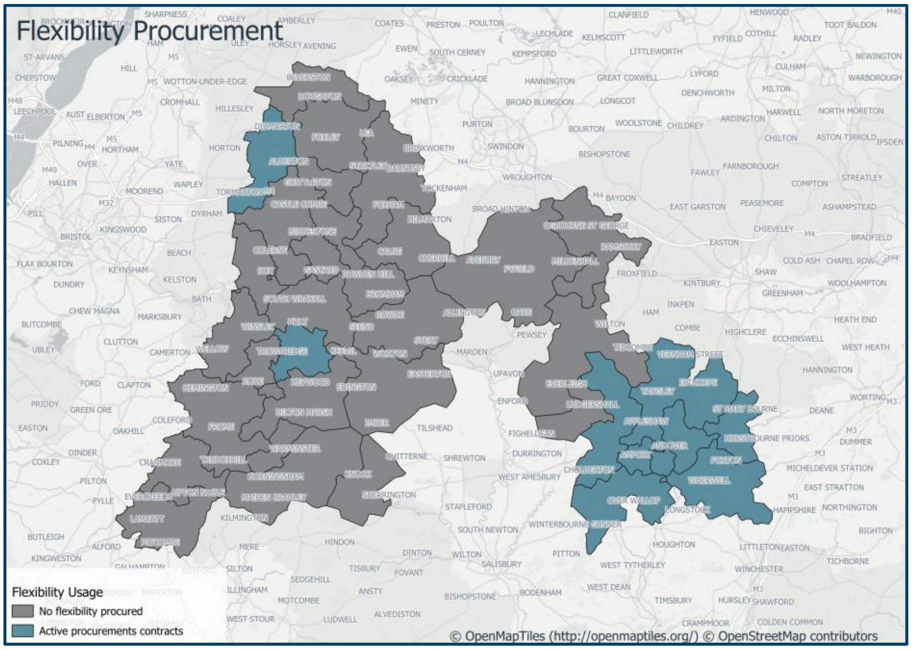


Figure 4: Flexibility procurement areas across Melksham GSP

4 . EXISTING NETWORK INFRASTRUCTURE

4.1 Melksham Grid Supply Point Context

The Melksham GSP Network is made up of 132kV, 33kV, 11kV, and LV circuits. The Melksham Grid Supply Point is located in Southwest England, in Wiltshire, and serves a broad area across central southern England. It contains a mix of built-up urban and semi-rural regions in Wiltshire and Hampshire which includes key market towns such as Chippenham, Andover and Frome. This region also contains rural villages such as Enford and West Grafton with lower population densities. The GSP currently supplies 231,108 customers with the breakdown for each GSP and BSP shown in Table 1.

Information for Primary substations can be found in Appendix A.

Substation Name	Site Type	Number of Customers Served	2023/2024 Substation Peak MVA (Season)
Melksham	Grid Supply Point	214,857	335.90 (Spring/Autumn)
Chippenham	Bulk Supply Point	47,034	74.28 (Winter)
Andover	Bulk Supply Point	35,187	80.26 (Spring/Autumn)
Norrington	Bulk Supply Point	72,075	132.87 (Winter)
Frome	Bulk Supply Point	42,659	78.0616941 (Winter)
West Grafton	Bulk Supply Point	17,902	26.51764723 (Winter)

Table 1: Customer counts and 2023/24 peak demand readings for substations across Melksham GSP

4.2 Current Network Topology

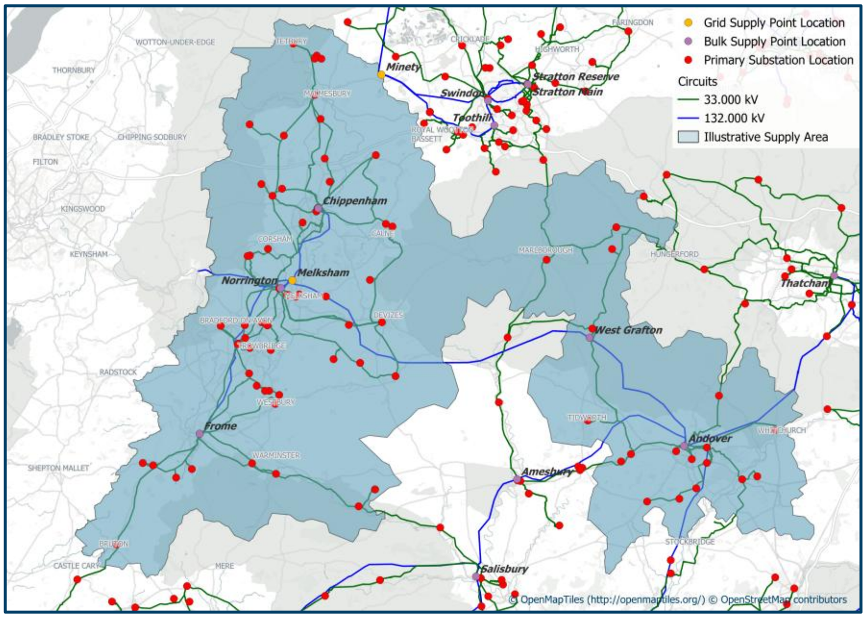


Figure 5: Current network topology of Melksham GSP.

4.3 Current Network Schematic

The existing 132kV network at Melksham GSP is shown below in Figure 6. Additional schematics for the network fed by other BSPs can be found in Appendix A.

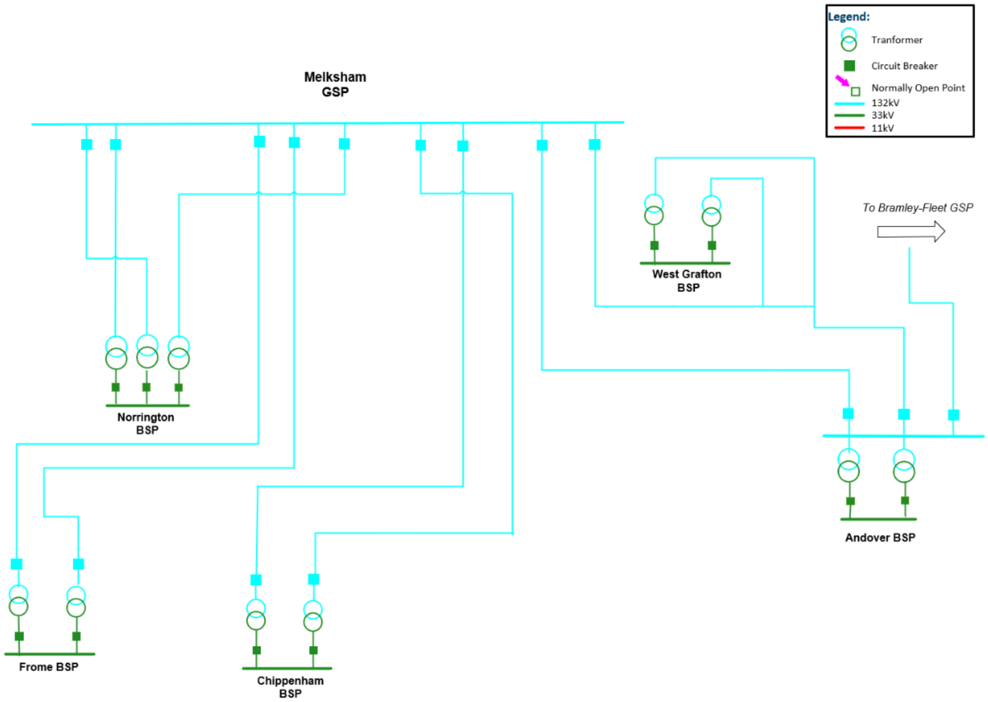


Figure 2: Existing network supplied by Melksham GSP.

5. FUTURE ELECTRICITY LOAD AT MELKSHAM GSP

The following section details load growth across the technologies projected in the Distribution Future Energy Scenarios. There are important notes on the values presented here:

- This SDP and the analysis conducted has been completed ahead of any changes arising from Clean Power 2030.
- These projections relate to the GSP supply area highlighted in Figure 3 and are not directly aligned to a particular local authority.
- Where MW values are presented in this section, they represent total installed capacity. When conducting network studies these values are appropriately diversified to reflect the likely peak demand experienced on the network. Diversifying load values accounts for the fact that not all demand load connected to the network peaks at the same time and so provides a more realistic total expected peak power.
- For projections specific to individual primary substations or local authorities, please refer to our online dashboard.[25]

5.1. Generation and Storage

DFES Scenario	Generation capacity (MW)				Electricity storage capacity (MW)			
	Baseline	2030	2040	2050	Baseline	2030	2040	2050
Holistic Transition	596MW	1522MW	2046MW	2345MW	11MW	336MW	501MW	517MW
Electric Engagement		1460MW	1811MW	2079MW		653MW	746MW	798MW
Hydrogen Evolution		1297MW	1645MW	1899MW		500MW	698MW	737MW
Counterfactual		1047MW	1254MW	1372MW		336MW	501MW	517MW

Table 2: Projected electricity generation and storage capacity across the Melksham GSP area.

25 SSEN DFES Technology Projections - Microsoft Power BI

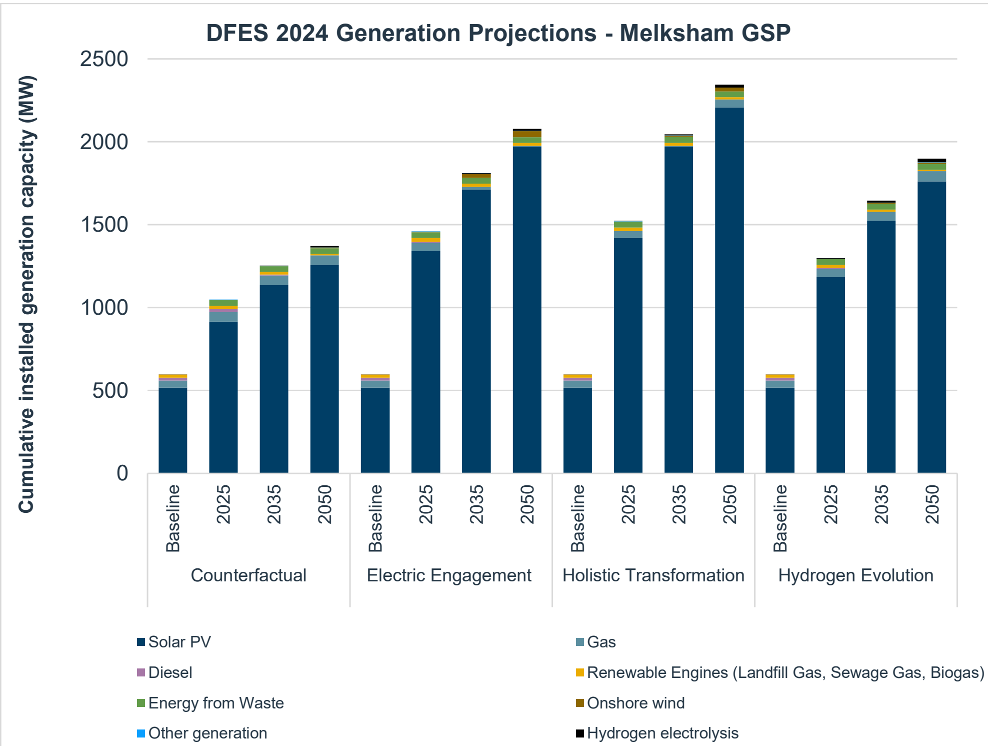


Figure 7: Projected cumulative distributed generation capacity across Melksham GSP (MW). *Source: SSEN DFES 2024*

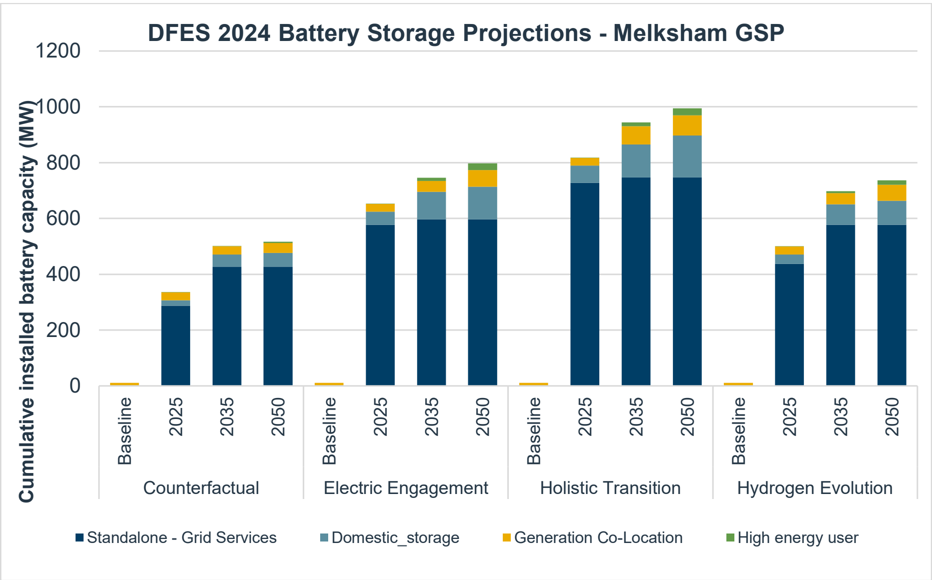


Figure 8: Projected battery storage capacity across Melksham GSP. *Source: SSEN DFES 2024*

5.2 Transport Electrification

DFES Scenario	Domestic EV chargers – off-street (number of units)				Non-domestic EV chargers & domestic on-street EV chargers (MW)			
	Baseline	**2030**	**2040**	**2050**	**Baseline**	**2030**	**2040**	**2050**
Holistic Transition	8,675	52,093	165,941	174,192	0 MW	7MW	47MW	57MW
Electric Engagement		87,307	164,880	172,025		17MW	50MW	57MW
Hydrogen Evolution		51,780	164,359	171,512		5MW	32MW	34MW
Counterfactual		41,297	156,497	169,692		1MW	26MW	41MW

Table 3 Projected electric vehicle chargers for domestic off-street installations (units) and nondomestic and domestic on street installations (MW)

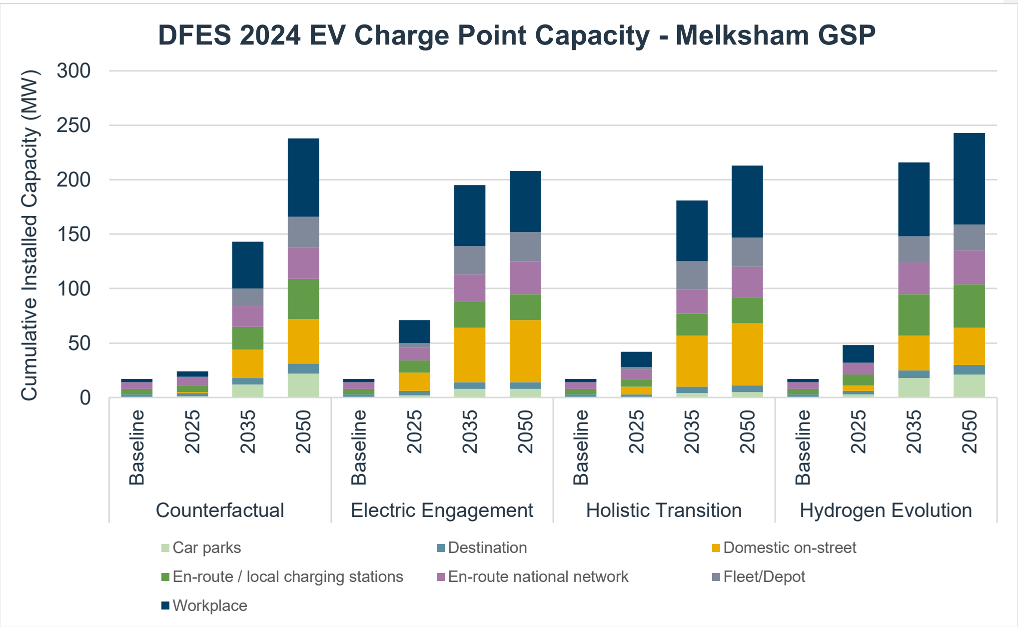


Figure 9: Projected EV charge point capacity across Melksham GSP. *Source: SSEN DFES 2024.*

5.3 Electrification of heat

DFES Scenario	Non-domestic heat pumps and resistive electric heating (m² of floorspace)				Domestic heat pumps (number of units)			
	Baseline	2030	2040	2050	Baseline	2030	2040	2050
Holistic Transition	564,977	1,438,358	2,660,204	3,119,265	4,529	38,673	153,800	211,420
Electric Engagement		1,297,160	2,735,937	3,263,701		36,203	151,578	209,791
Hydrogen Evolution		1,309,532	2,213,091	2,552,310		36,260	141,296	191,164
Counterfactual		1,063,604	1,630,557	2,013,489		19,775	70,262	149,954

Table 4: Projected non-domestic heat pumps and resistive electric heating floorspace and number of domestic heat pumps across Melksham GSP. Source: SSEN DFES 2024

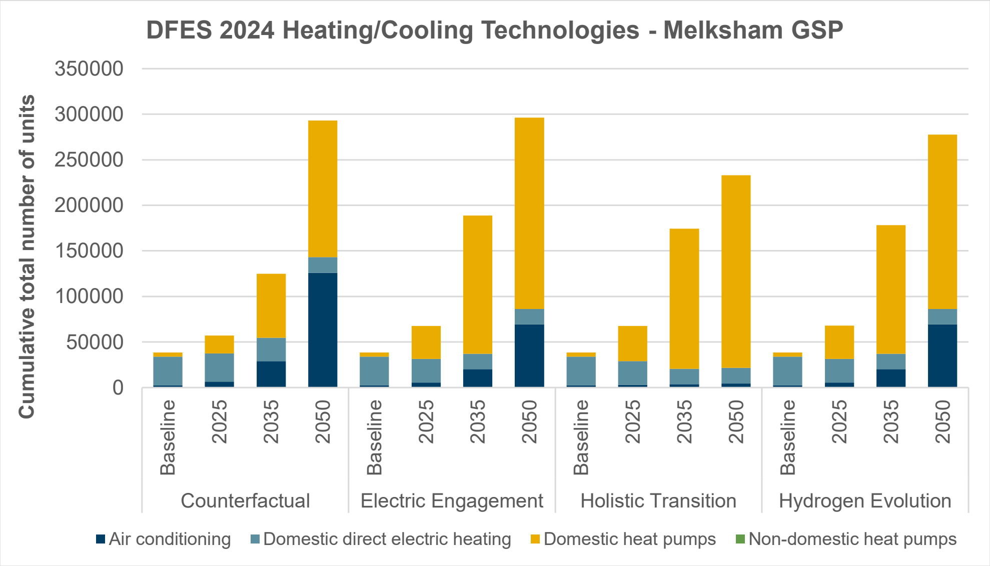


Figure 10: Projected number of heating/cooling technologies across Melksham GSP. *Source: SSEN DFES 2024.*

5.4 New building developments

Through engagement with local authorities, we have developed an understanding of new development across our license areas. This has allowed us to gauge an insight into future electricity demand for new developments ahead of a formal connection application. Below we investigate the developments across the study area for this SDP.

DFES Scenario	New domestic development (number of homes)			New non-domestic development (m^2)		
	2030	2040	2050	2030	2040	2050
Holistic Transition	11,076	28.734	41,859	271,604m^2	393,609m^2	394,009 m^2
Electric Engagement	10,018	27.113	38,457	286,786m^2	393,609m^2	394,009 m^2

Hydrogen Evolution	10,038	27,088	38.424	267,901m^2	393,609 m^2	394,009 m^2
Counterfactual	7,838	25,244	35,416	298.615m^2	389,034 m^2	394,009 m^2

Table 5: Projected number of new domestic developments and floorspace of non-domestic developments.

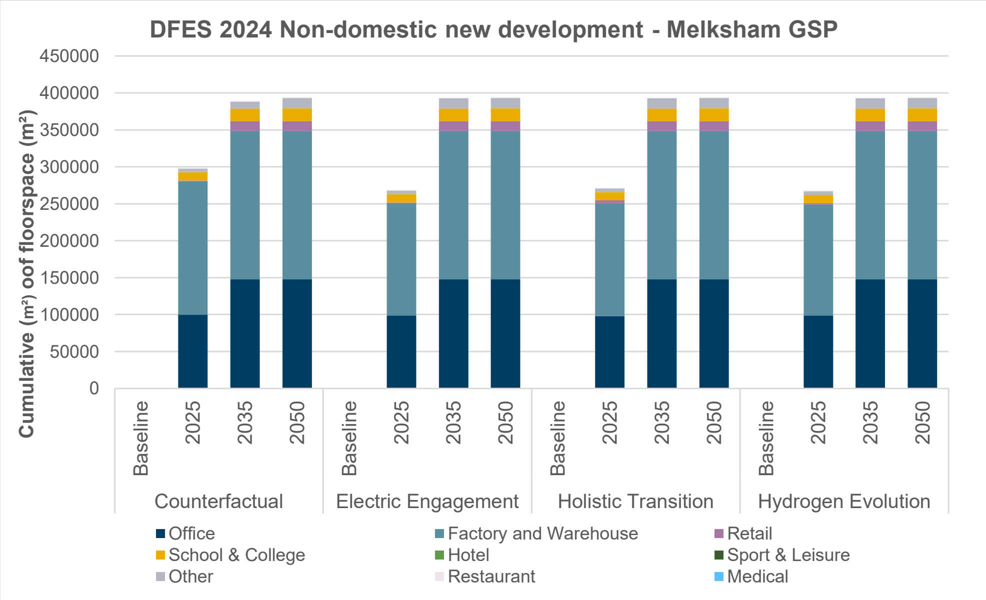


Figure 11: Projected new non-domestic development across Melksham GSP. *Source: SSEN DFES 2024*

5.5. Commercial and Industrial Electrification

Decarbonisation of the agricultural is an important consideration in this geographic area. SSEN leads the innovation project 'Future Agricultural Resilience Mapping' (FARM) which aims to understand the future energy requirements and means of decarbonising the domestic farming industry. This sector is currently still largely dependent on fossil fuels, and the project will support its investigations into the impact of food production on the electricity distribution system, to work out where reinforcement is needed. A data-driven tool to inform network planning will be devised and through this work, FARM will address the gap between the energy demands for food production and future network planning.

6 . WORKS IN PROGRESS

Network interventions can be caused by a variety of different drivers. Examples of common drivers are load-related growth, specific customer connections, and asset health. Across Melksham GSP these drivers have already triggered network interventions that have now progressed to detailed design and delivery. Most works in the Melksham area are triggered by customer connections. For this report, these works are assumed to be complete, with any resulting increase in capacity considered to be released. The network considered for long-term modelling is shown in Figure 12 and Appendix B. Where the driver of a project is listed as 'DNOA process' the relevant DNOA reports can be found in Appendix E. Summary of existing works shown below:

ID	Substation	Description	Driver	Forecast completion	Resolves future strategic needs to 2050?
Melksham GSP 132kV works					
1	Andover BSP	132kV GIS switch-room within the Andover 132kV switching compound. Installation of an additional 132/33kV transformer.	Connections	2027	
2	Frome BSP	Reinforcement of the Melksham–Frome 132 kV circuit, installation of a new 90 MVA 132/33 kV transformer at Frome BSP, and construction of a new 132 kV GIS at Frome.	Connections	2030	
3	Norrington BSP	Installation of a fourth BSP transformer and the addition of a fourth 132kV circuit between Melksham and Norrington BSP	Connections	2027	
4	Chippenham BSP	A new 132 kV busbar and a third 90 MVA 132/33 kV transformer at Chippenham	Connections	2028	
Andover BSP					
5	Whitchurch Barton-Stacey PSS	Reinforcement on primary transformers	DNOA Process	2035	

6	Whitchurch Barton-Stacey PSS	Reinforcement circuit between the Whitchurch primary and Barton Stacey primary. Addition of a 9.3 km UG cable with an upgraded rating.	DNOA Process	2031	
Frome BSP					
7	Frome PSS	11kV circuit breakers upgrade at Frome PSS.	Connections	2027	
8	Westbury PSS	Reinforcement works to the 33 kV Frome–Westbury circuit	Connection	2027	
9	Warminster PSS	Reinforcement works to the 33 kV Frome–Warminster line and sections of the 11 kV Warminster feeders.	Connection	2026	
Norrington BSP					
10	Devizes PSS	Reinforcement to replace both existing 33/11kV transformers at Devizes with higher-rated transformers	Connections	2026	
11	Norrington	33kV Circuit breaker reinforcement with a higher fault-rated circuit breaker at Norrington BSP	Connections	2027	
12	Ashton Park PSS	Re-utilise the redundant Norrington – Ashton Park 33kV circuit and re-connect the circuit to Norrington BSP	Connections	2027	
13	Ashton Park PSS	Addition of two new cable circuits between Norrington BSP and Ashton Park Primary, along with a new 33kV GIS board and a 15/30MVA 33/11kV transformer at Ashton Park PSS	Load	2032	
Chippenham BSP					

14	Chippenham BSP	Installation of a new 33kV GIS board at Chippenham BSP	DNOA Process	2028	
15	Sutton Benger PSS	New 33kV circuit from Chippenham to Sutton Benger PSS	Load	2031	
16	Rowden PSS	Addition of a third transformer, a new 33kV ID GIS busbar and new cable circuit from Chippenham to Rowden.	DNOA Process	2030	
17	Rowden PSS	Replacement of the entire 11kV switchboard to provide a new circuit breaker for the proposed HV cable reinforcement.	Connections	2026	
18	Chippenham to Yatton Keynell PSS	Reinforcement for the 33kV cable route from Chippenham to Yatton Keynell	Connections	2028	
19	Lyneham PSS	Replacement of 33/11 kV transformers at Lyneham substation	Connections	2027	
20	Rowden PSS	Reinforcement to uprate the existing cable sections of Chippenham – Rowden 33kV circuit and Chippenham – Rowden Tee 33kV circuit	Connections	2030	
21	Alderton PSS	New 33kV circuit between Alderton and Yatton Keynell PSS, along with the replacement of the Alderton 33/11kV transformer with a higher-rated one.	DNOA Process	2031	

Table 6: Triggered work across Melksham GSP

Where the above works are marked as not providing sufficient capacity for 2050 peak demands, it is important to note that this relates to the individual primary substation's firm capacity. When considering the further works identified in this report, the holistic plans aim to provide capacity across the GSP for 2050 based on current projections.

Alongside these asset solutions being deployed, flexibility solutions are also being used to release additional capacity.

6.1 Network Schematic (following completion of above works)

132kV Network Schematic shown here, please see Appendix C for 33kV network schematics for the current network.

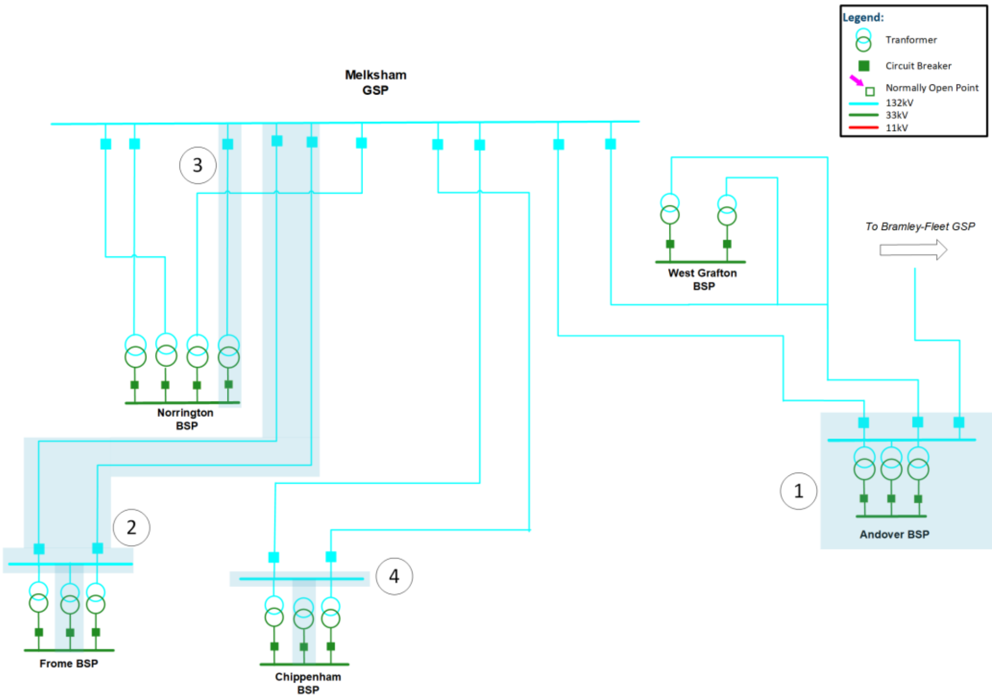


Figure 12 Melksham GSP 132kV Network - Following completion of triggered works.

7 . SPATIAL PLANS OF FUTURE NEEDS

7.1 Extra High Voltage / High Voltage spatial plans

The EHV/HV spatial plan shown below in Figure 13 shows the projected headroom or capacity shortfall due to demand increases at primary substations across the Melksham SDP study area. Darker shades indicate that there is a projected capacity shortfall whereas lighter blue shades indicate that there is headroom capacity based on current projections. EHV/HV spatial plans for the other DFES scenarios are presented in appendix D.

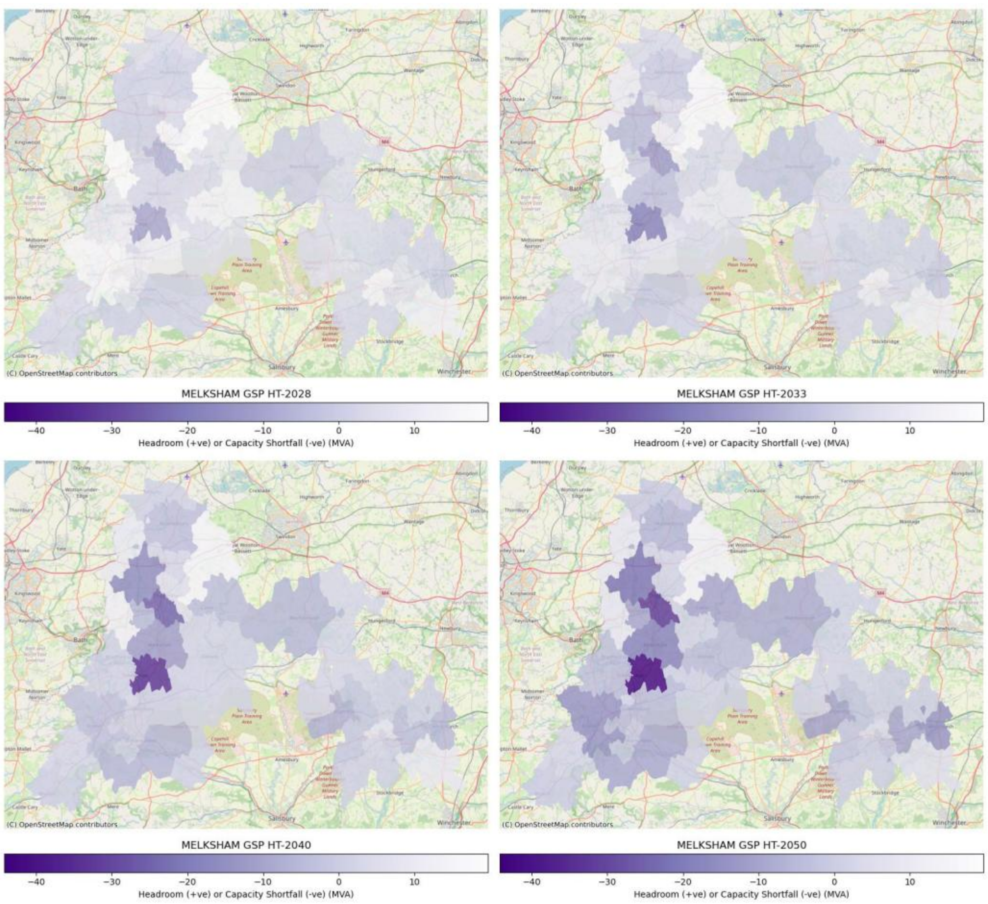


Figure13: Melksham GSP - EHV/HV Spatial Plan – Holistic Transition

7.2 High Voltage/Low Voltage spatial plans

The HV/LV spatial plans shown below in Figure 14 show the point locations of secondary transformers supplied by Melksham GSP. The data below is drawn from the DFES 2024. The points are colourised based on the projected percentage loading with red meaning higher percentage loading and green being lower percentage loading. The HV/LV spatial plans for the other DFES 2024 scenarios are available in Appendix E.

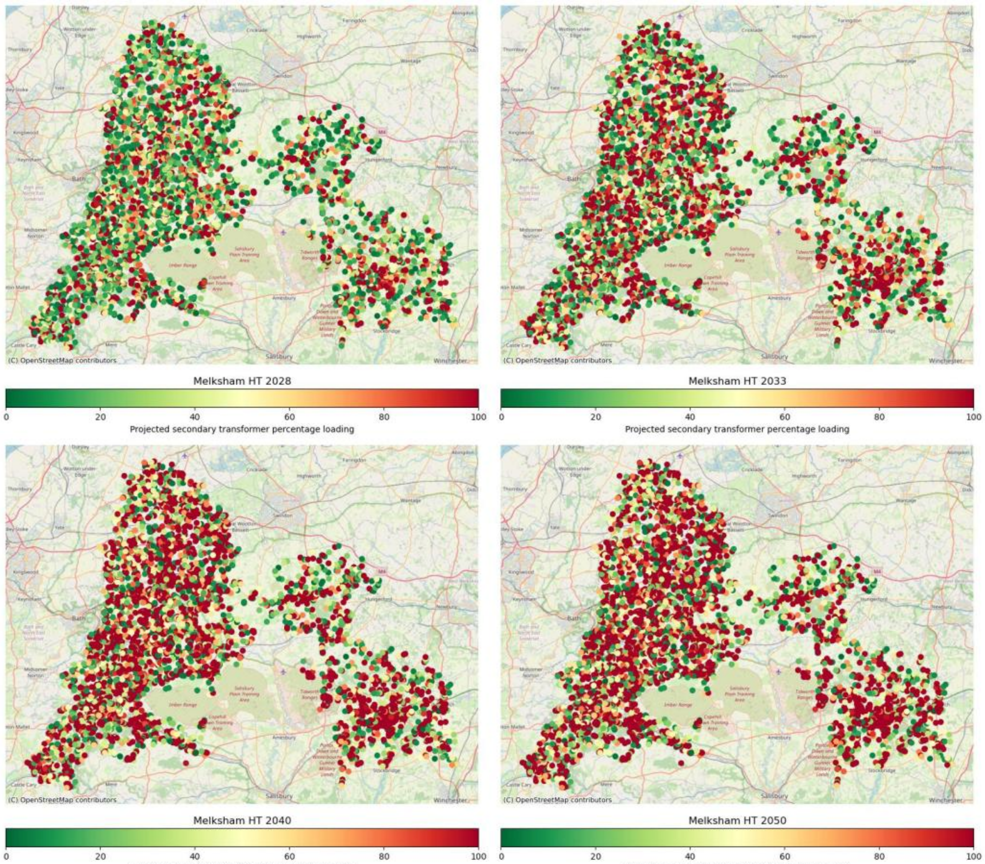


Figure 14: Melksham GSP - HV/LV Spatial Plans – Holistic Transition

8 . SPECIFIC SYSTEM NEEDS AND OPTIONS TO RESOLVE

In this section we summarise the more specific needs arising from our future spatial plans. We also propose some initial options to resolve. If required during the next ten years, these will be further developed through the DNOA process, where they will be considered alongside the potential for flexibility.
The section is split into three parts:

- Future EHV system needs to 2040 – these needs are more certain and therefore we have more clearly defined options to meet the requirements. For needs within the next seven years, we recommend that these are progressed through the DNOA process. In all cases we are proposing solutions that meet the projected requirements for 2050. We also provide a summary of more strategic elements that also need to be considered in these timeframes.

- Future EHV system needs to 2050 – there is a greater degree of uncertainty of outcomes in this time frame. This also provides more opportunity to work with stakeholders to develop strategic plans and our outline solutions reflect this initial phase of the work as we look to engage with interested parties.

- Future HV/LV system needs to 2050 – the future needs of the HV and LV networks are locationally specific but can be considered as an aggregated volume. In this section we provide information on our future forecasts for local HV and LV network needs.

8.1 Overall dependencies, risks, and mitigations

There are a number of overarching risks to the delivery of our strategic plan. Below we list these alongside proposed mitigating actions. We will work with stakeholders to develop these mitigating actions further.

Dependency: Some of the works proposed here are dependent on the completion of works carried out by National Grid Electricity Transmission (NGET).
Risks: Works delay potential interventions downstream and/or do not provide flexibility of future investment.
Mitigation: Continue productive engagement with NGET to enable planning and coordination of works to release capacity at the GSP efficiently.

Dependency**:** Connections reform process, which is taking place this year, is likely to change the number and composition of generation/storage projects currently in the connections queue.
Risks**:** The reinforcements currently planned, that have been triggered by generation connections, may not be necessary if the generation projects drop out of the connections queue.
Mitigation**:** Works triggered by generation projects that have a level of uncertainty have not been included in the works in the progress or the network modelling, meaning the worst-case demand scenario is accounted for. Network models will be reviewed in the up-to-date SDP.

Dependency: Growth of generation in the area may begin to cause reverse power flow on the network. It should be ensured that the assets currently on the network are able to handle the projected levels of reverse power flow and increased fault level.
Risks: Further reinforcement than identified here is required to enable connection of generation. Increasing fault levels leads to damaged distribution network assets.

Mitigation: We should further assess the near-term generation requirements to ensure that we're in a position to facilitate the Clean Power 2030 (CP2030) targets set by the Department for Energy Security and Net Zero (DESNZ).

Dependency: Procurement of flexibility services is required to optimise load related needs.
Risks: Insufficient flexibility in the relevant area to resolve system reinforcement.
Mitigation: Flexibility viability assessments are carried out as part of the DNOA process. Last build date identified to allow time for traditional reinforcement if procurement for flexibility services is not successful in procuring the required capacity.

8.2 Future EHV System Needs to 2040.

In this section, a detailed list of the constraints identified through network modelling is presented alongside potential options to meet forecasted demand – note that where asset sizing is given, this is indicative and subject to further analysis in the DNOA process. The interactions between possible options have been considered to identify potential synergies and efficiencies. As such, constraints have been grouped strategically to be considered alongside each other and any additional interactions between constraints referenced.

Location of proposed intervention	HT Year	HE Year	EE Year	CF Year	Network State (see glossary)	Proposed option(s) to resolve
132kV works						
Norrington BSP transformers.	2036 - 2040	2036 - 2040	2036 - 2040	2036 - 2040	N-1, Loss of one of the transformers feeding Norrington BSP	The transformers at Norrington BSP are expected to be overloaded in N-1 conditions. Sections of the 132kV network are also projected to be overloaded out to 2050 so interventions should be looked at together. • Add a fifth BSP transformer at Norrington BSP • Split Norrington BSP into two separate BSPs to mitigate fault level constraints. • Transfer load from Norrington BSP to Frome BSP. • Replace and uprate the existing transformers
Chippenham BSP- 132kV circuits	2030-2035	2030-2035	2030-2035	2030-2035	N-2, Loss of both existing 132 kV circuits at Chippenham.	After the loss of both existing 132kV circuits at Chippenham, the 33kV circuits experience P2 security of supply issues, under N-2. Potential options to resolve this constraint are: • New 132kV circuit from Melksham to Chippenham.

						• Reinforcement of the 33 kV circuits interconnecting Norrington and Chippenham BSPs
			33kV works			
Barton Stacey PSS transformers	2035-2040	2035-2040	2035-2040	2035-2040	N-1, Loss of one of the transformers feeding Barton Stacey PSS	Barton Stacey PSS consists of two transformers that are projected to both be constrained under N-1 conditions. Furthermore, the circuits from Andover BSP are also projected to be overloaded in the 2031 – 2035 period. Potential options to resolve this constraint are: • Reinforce the existing transformers and circuits feeding Barton Stacey PSS with those of a higher rating.
Andover East PSS transformers	2038-2040	2039-2048	2039-2046	2045-2048	N-1, Loss of one of the transformers feeding Andover East PSS	Andover East PSS consists of two transformers of the same rating that are projected to both be constrained under N-1 conditions. The circuits from Andover BSP are also projected to be overloaded in the 2031 – 2035 period. Potential options to resolve this constraint are: • Reinforce the existing transformers and circuits feeding Andover East PSS with those of a higher rating. • Shift load on the 11kV network to Andover PSS. • As the circuits feeding Portway PSS from Andover BSP are also projected to be overloaded in 2030 – 2035, another option would be a primary could be constructed in the area.
Andover East PSS circuit connected Andover BSP	2030-2035	2030-2035	2030-2035	2030-2035	N-1, Loss of one of one of the circuits feeding Andover East PSS	
Portway PSS transformers	2031 - 2035	2031 - 2035	2025 - 2030	2031 - 2035	N-1, Loss of one of the transformers feeding Portway PSS	The two 33kV circuits between Andover BSP and Portway both two transformers at Portway PSS are expected to be overloaded in N-1 conditions. Potential options to resolve this constraint are: • Reinforce the existing circuits to Portway PSS, either by adding additional assets or uprating the existing ones. The transformer could be uprated or a new transformer to be proposed. • The construction of a new primary in the area to relieve load.
33kV circuits between Andover BSP and Portway PSS	2039-2042	2037-2040	2037-2040	2037-2042	N-1, Loss of one of the lines feeding Portway PSS	
Andover Town PSS transformers	2039	2041	2037	2040	N-1, Loss of one of the transformers and	Andover Town PSS consists of two transformers that are projected to be constrained under the N-1 outage of the circuits feeding it. There is also

33kV circuits between Andover BSP to Andover Town PSS	2037-2041	2037-2040	2037-2040	2041 - 2045	circuits feeding Andover Town PSS	projected to be constraints on the dual circuits feeding the primary. Potential options to resolve this constraint are: • Reinforce the existing circuits and transformers at Andover Town, either by adding additional assets or uprating the existing ones.
Thruxton PSS Transformers	2035-2040	2035-2040	2035-2040	2035-2040	N-1: Loss of one of the transformers	Options for Thruxton PSS: • Replace and uprate the existing transformers.
West Grafton BSP to West Grafton Village PSS circuits.	2031 - 2035	2035-2040	2035-2040	2040+	N-1, Loss of the one of the circuits feeding West Grafton Village	The two 33kV circuits between West Grafton BSP and West Grafton Village PSS are expected to be overloaded in N-1 conditions. The transformers at West Grafton Village PSS will experience overloading up 2050. Potential options to resolve this constraint are: • Reinforce the existing circuits and transformers at West Grafton Village PSS, either by adding additional assets or uprating the existing ones. • Shift load on the 11kV network to adjacent PSS.
Tidworth PSS transformers	2037 - 2040	2037 - 2040	2037 - 2040	2037 - 2040	N-1, Loss of one of the transformers at Tidworth PSS	Both circuits to Tidworth PSS are expected to be overloaded in N-1 conditions. The Tidworth PSS transformers are also projected to be overloaded in a similar time frame so works pertaining to the circuits and the transformers could be completed concurrently. This could be achieved through reinforcement of both the transformers and the associated existing 33kV circuits to Tidworth PSS either by adding additional assets or uprating the existing ones. To relieve constraints on the transformers, load could be shifted on the 11kV network to adjacent primary substations. This would be dependent on timelines for reinforcements on other primary substations in the area
West Grafton BSP to Tidworth PSS 33kV circuit	2038 - 2040	2039 - 2040	2039-2040	2040-2046	N-1, Loss of one of the circuits feeding Tidworth PSS	
Tidworth PSS 33kV circuit to Andover BSP	2038-2039	2039 - 2040	2039-2040	2040+	N-1, outage of West Grafton to Tidworth PSS circuits.	
Ramsbury PSS transformers	2035-2040	2035-2040	2035-2040	2035-2040	N-1, Loss of one of the transformers at Ramsbury PSS	The two 33kV circuits between West Grafton BSP and Ramsbury PSS and the transformers at Ramsbury PSS are expected to be overloaded in N-1 conditions out to 2040. Potential options to resolve this constraint are: • Reinforce the existing transformers at Ramsbury PSS, either by adding
West Grafton to Ramsbury 33kV circuits going to Marlborough	2035-2040	2038-2040	2037-2040	2043	N-1, outage of the West Grafton to Ramsbury PSS circuits	

Ramsbury PSS to Marlborough South PSS 33kV circuits (segment 1)	2035-2040	2038-2040	2037-2040	2043	N-1, Loss of the circuits from Ramsbury PSS to Marlborough South PSS	additional assets or uprating the existing ones and upgrading the associated circuits. • Shift load on the 11kV network • As the primaries in the region are projected to be overloaded under N-1 within the same period, a new primary in the area could be constructed.
Ramsbury PSS to West Grafton BSP 33kV circuits (segment 2)	2037-2040	2038-2040	NA	2037-2040	N-1, Loss of the circuits from Ramsbury PSS to Marlborough South PSS	
Marlborough South PSS transformers	2037-2040	2037-2040	2037-2040	2039-2040	N-1, Loss of one of the transformers feeding Marlborough South PSS	Potential options to resolve this constraint are: • Reinforce the existing transformers at Marlborough PSS, either by adding additional assets or uprating the existing ones. • Shift load on the 11kV network over to Ramsbury PSS
Yatton Keynell PSS transformers	2035-2040	2038-2040	2038-2041	2040+	N-1, Loss of the transformer	The transformers at Yatton Keynell PSS are projected to be overloaded in N-1 conditions. The associated circuits are already upgraded prior to the overloading. Potential options to resolve this constraint are: • Reinforce the existing transformers at Yatton Keynell PSS and the circuits between them, either by adding additional assets or uprating the existing ones. • Construction of a new primary in the area
Calne PSS transformers and 33kV circuits	2030-2035	2030 - 2035	2030-2035	2030 – 2035	N-1, Loss of one of the transformers and 33kV circuits at Calne PSS	The two 33kV circuits between Chippenham BSP and Calne PSS are expected to be overloaded in N-1 conditions. Potential options to resolve this constraint are: • Reinforce the existing circuits to Calne PSS, either by adding additional assets or uprating the existing ones. The transformer that is overloaded should be reinforced to the higher rated ones. • The construction of a new primary in the area to relieve load from both Devizes and Calne PSS to solve the 33kV circuit thermal constrains.
33kV circuits between Westbury Cement and Hawkeridge	2038-2044	2037-2041	2040+	2039+	N-1, Loss of one of the circuits between Westbury Cement and Hawkeridge PSS	The two 33kV circuits between Hawkeridge PSS and Westbury PSS are expected to be overloaded under N-1 conditions. Similarly, both transformers at Hawkridge PSS and the 33kV circuit between Westbury Cement and Hawkridge primaries are projected to be overloaded in N-1 scenarios. Since these constraints affect the same 33kV ring and are geographically close, it is proposed that they be addressed through a coordinated reinforcement scheme, Potential options to reinforce include:
33kV Circuits from Frome BSP to Hawkridge PSS	2035-2040	2035-2040	2035-2040	2035-2040	N-1, Loss of one of the circuits feeding Hawkridge PSS	

						• The construction of a new 33kV circuit from Frome BSP to Hawkridge PSS. Other potential options include: • Reinforcing the existing 33kV circuits to Hawkeridge PSS, either by adding new assets or uprating the existing infrastructure. • Shifting load from the 11kV network to Westbury PSS to reduce demand on the constrained circuits.
Hawkridge PSS transformers	2035-2040	2035-2040	2035-2040	2035-2040	N-1, Loss of one of the transformers	The two transformers at Hawkridge PSS are projected to be overloaded under N-1 conditions, alongside thermal constraints on the 33kV circuit between Westbury Cement and Hawkridge Inn primaries. The below targeted reinforcement would resolve the thermal limitations without requiring full replacement: • To address the transformer constraint, only the 7.5/15 MVA unit needs to be upgraded to match the 15/30 MVA rating of the second transformer.
Warminster PSS Transformers	2037-2040	2037-2040	2037-2040	2039-2040	N-1, Loss of one of the transformers at Warminster	The two 33kV circuits between Frome BSP and Warminster PSS and the two transformers at Warminster PSS are expected to be overloaded in N-1 conditions. Potential options to resolve this constraint are: • Reinforce the existing circuits to Warminster PSS, either by adding additional assets or uprating the existing ones. The transformer that is overloaded should be reinforced to the same rating as the second transformer. • The construction of a new primary in the area to relieve load.
Frome BSP to Warminster PSS 33kV circuits.	2037-2040	2037-2040	2037-2040	2037-2040	N-1, Loss of one of the circuits feeding Warminster PSS	
Cockerton PSS transformers	2037-2041	2037-2039	2037-2038	2037-2041	N-1, outage of a transformer	Crockerton PSS transformers are projected to be overloaded in N-1 conditions. The two transformers are both rated 14MVA. Within the adjacent 33kV circuits, Crockerton PSS and Warminster PSS transformers are constrained, therefore it is recommended to use reinforcement instead of load shifting. Proposed options to resolve: Installation of an additional transformer to provide security under N-1: • Reinforce the existing 33kV circuits and transformers, either by adding additional assets or uprating the existing ones. • At Crockerton PSS, replace both transformers with 15/30MVA transformers
Easterton PSS transformers	2039	2039	2039	2037	N-1, Loss of one of the transformers	There are transformers rated at 10MVA which are currently projected to overload under N-1 scenarios.

					feeding Easterton PSS	• Replace and uprate the existing transformers and circuits. • Add a third transformer from Norrington BSP.
33 kV circuits from Norrington to Devizes PSS	2028-2035	2028-2035	2028-2035	2035+	N-1, outage of one of the circuits feeding Devizes PSS	The 33kV two-line segments in Norrington to Devizes circuit are projected to overload in 2037 onwards in N-1 conditions. Considering the overloading on all circuits after 2037 is projected to exceed 100%, the options to resolve this are: • Add new circuits between Norrington and Devizes that feed directly from Norrington BSP. • The construction of a new primary in the area to relieve load from both Devizes and Calne PSS to solve the 33kV circuit thermal constraints.
Bromham PSS transformer	2037-2040	2037-2040	2040+	2040+	N-1, Loss of the transformer feeding Bromham PSS	Bromham primary transformer is part of the Norrington BSP, is projected to overload in N-1 conditions ahead of 2040 for both HT and HE. Potential options to resolve this constraint are: • Replace and uprate the transformer. • Add a second transformer
Corsham PSS transformers	2037-2038	2037-2038	2037-2038	2037-2038	N-1, Loss of one of the transformers feeding Corsham PSS	The transformers are expected to be overloaded in N-1 conditions. • Currently both are rated at 10MVA, both transformers could be uprated to 15/30MVA, to ensure suitability out to 2050. • Add a third transformer to Corsham PSS

Table 7: Summary of system needs identified in this strategy through to 2040 along with indicative solutions.

8.3 Future EHV System Needs to 2050.

Additional system needs have been identified here that the DFES 2023 signposts may need addressing ahead of 2050. These have been identified through thermal power system analysis. There is significant uncertainty with forecasts in this time period and works need to be considered alongside the strategies described in the previous section. As the likelihood of these demands being realised increases, the necessary mitigations through asset or flexible solutions should be deployed.

Location of proposed intervention	HT Year	HE Year	EE Year	CF Year	Network State (see glossary)	Proposed option(s) to resolve
132kV Network						
Melksham GSP to Norrington BSP 132kV circuits (section 1).	2036 - 2040	2036 - 2040	2036 - 2040	2036 - 2040	N-1, Loss of one of the circuits	The transformers at Melksham BSP are expected to be overloaded under N-1 conditions, with sections of the dual 132kV

					feeding Norrington BSP	circuits feeding Norrington BSP also forecasted to exceed capacity between 2036 and 2045. Given the proximity and interdependence of these constraints, it is recommended that reinforcement works be grouped into a single proposal. Options to resolve this constraint include: • Reinforcing the existing 132kV circuits and transformers at Melksham BSP or constructing a new 132kV circuit from Melksham to Norrington BSP. • Alternatively, partial load transfer on the 33kV network to West Grafton or Chippenham BSPs could be considered to alleviate some constraint short-term.
Melksham GSP to Norrington BSP 132kV circuits (section 2).	2036-2040	2036-2040	2036-2040	2046-2050	N-1, Loss of one of the circuits feeding Norrington BSP	
Melksham GSP to Norrington BSP 132kV circuits (section 3).	2041-2045	2041-2045	2041-2045	2050+	N-1, Loss of one of the circuits feeding Norrington BSP	
33kV Network						
West Grafton PSS Transformers	2048-2050	N/A	N/A	2048-2050	N-1, Loss of one of the transformers at West Grafton PSS	West Grafton PSS transformers consist of two transformers of the same rating which are projected to be overloaded under N-1 conditions. Potential options to reinforce include: • Reinforce the existing circuits to and transformers at West Grafton PSS, either by adding additional assets or uprating the existing ones.
Holwell PSS Transformers	2048-2049	N/A	2048-2049	N/A	N-1, Loss of one of the transformers at Holwell PSS.	The Holwell PSS transformers from Frome BSP are projected to be overloaded due to load growth. The current transformers are rated at 7.5/15MVA. Due to proximity, works should be coordinated concurrently with the 33kV circuits which are also projected to be overloaded. Potential options to resolve this constraint are: • At Holwell PSS, replace the two existing transformers with 15/30MVA transformers. • Add a third transformer of the same rating 7.5/15MVA.
Frome BSP to Holwell PSS 33kV line segment (1)	2043 - 2047	N/A	2046-2050	N/A	N-1, Loss of one of the circuits feeding Holwell PSS	The two 33kV circuits between Frome BSP and Holwell PSS are expected to be overloaded in N-1 conditions. Potential options to resolve this constraint are: • Reinforce the existing 33kV circuits to Holwell, either by adding additional assets from Frome BSP to Bruton PSS or uprating the existing ones.
Frome BSP to Holwell PSS 33kV line Segment (2)	2043 - 2047	N/A	2046 - 2047	N/A	N -1, Loss of one of the circuits feeding Holwell PSS	

						• The construction of a new primary in the area
33kV circuits between Barton Stacey PSS and Andover BSP	2045-2048	2044-2048	2044-2045	2048-2050	N-1, Loss of one of the circuits to Barton Stacey PSS	The 33kV circuit between Barton Stacey and Andover BSP is projected to be overloaded after 2045 across all four scenarios under N-1 conditions. Potential options to resolve this constraint are: • Reinforce the existing 33kV circuits either by adding additional assets or uprating the existing ones. • Add new circuits feeding Barton Stacey
Westbury PSS transformers	2042-2045	2043-2045	2041-2045	2045-2048	N-1, Loss of one of the transformers feeding Westbury PSS	The transformers at Westbury PSS are expected to be overloaded under N-1 conditions, across all four scenarios. Westbury currently has two 30 MVA transformers. Potential options to resolve this constraint are: • Reinforce the overloaded transformers at Westbury PSS, by uprating both transformers, ensuring adequate capacity under N-1 conditions. • Shift load on the 11kV network to Crockerton PSS, although this site is also projected to be constrained and would require a new circuit to support the transfer. • Construct a new primary substation in the area to relieve load on Westbury PSS and support future demand growth.
Melksham Town PSS transformers	2041-2045	2041-2045	2041-2045	2050+	N-1, Loss of one of the transformers feeding Melksham Town PSS	Melksham Town PSS consists of two 20/40MVA transformers that are projected to both be overloaded under N-1 conditions from 2041. Potential options to resolve this constraint are: Reinforce the existing transformers by adding an additional 20/40MVA transformer.

Table 8: Future EHV system needs projected to arise between 2040 and 2050.

8.4 Future requirements of the High Voltage and Low Voltage Networks

Our HV/LV spatial plans have shown that there while there overloading of the secondary network is mostly apparent around areas of high population density, within these areas there is no clear trend. We are therefore planning on a forecast volume basis, and this section provides further context on this work for both the Melksham high voltage and low voltage network needs to 2050.

8.4.1 High Voltage Networks

As well as the EHV system needs identified in the previous section, increased penetration of low carbon technologies (LCTs) connecting to the distribution network will result in system needs on the High Voltage (HV) and Low Voltage (LV) networks. To provide a view on the impact of these technologies on the distribution network here we have used the load model that is produced by SSEN's Data and Analytics team.[26]

The load model is a machine learning product which estimates a half-hourly annual demand profile for each household based on a series of demographic, geographic and heating type factors. This enables us to estimate capacity on the electricity network while protecting individual customers data privacy by using modelled data. These views are then aggregated up the network hierarchy based on the combinations of customers associated with each asset. This view is supplemented with the DFES to highlight the projected impact of LCTs on the network.

For all of the primary substations supplied by Melksham GSP, the percentage of secondary substations where projected peak loading exceeds the nameplate rating of the secondary transformer was taken from the load model data. Figure 15 demonstrates how this percentage changes under each DFES scenario from now to 2050.

To satisfy these requirements a variety of solutions will need to be investigated. It is likely that a combination of flexibility and asset replacement will be employed to resolve the projected HV system needs. It is important to note that for HV needs, flexibility is likely to be provided through Distributed Energy Resources (DER), Consumer Energy Resources (CER), and domestic/commercial Demand Side Response (DSR). One of the challenges associated with procuring flexibility to High Voltage and Low Voltage system needs is that only a small number of customers can provide a flexible service due to the requirement to be supplied by a specific secondary transformer. As the role of aggregators develops, we may see a shift in the potential for flexibility in an area. Where the magnitude of an overload is too large for flexibility to be feasible, addition of new assets or asset replacement will be necessary.

26 SSEN Open Data Portal, 2023, SSEN Secondary Transformer – Asset Capacity and Low Carbon Technology Growth.

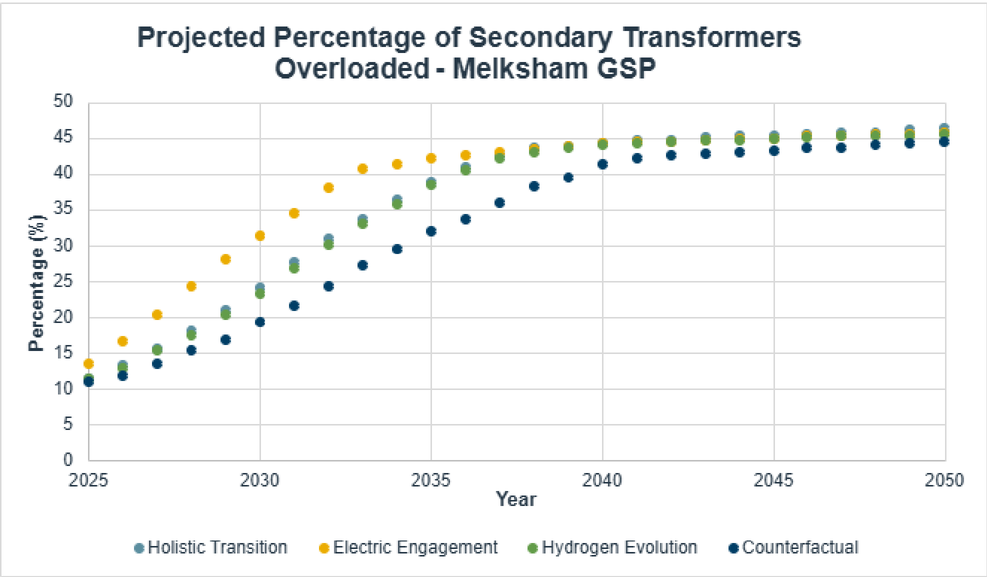


Figure 3: Melksham GSP projected secondary transformer overloading. *Source: SSEN Load Model*.

Considering the Just Transition in HV development

SSEN are building on the findings from the Vulnerability Future Energy Scenarios (VFES). This innovation project investigated how the use of new foresighting techniques, along with data analytics and expert validation could be used to identify and forecast consumers in vulnerable situations as we move toward net zero. Use of the outputs from the VFES enable SSEN to develop the network in a way that truly accounts for the levels of vulnerability their customers in different locations face. Inclusion of the use of the VFES also acts as an example of how this data can be used more broadly by SSEN as well as other organisations for spatial planning. For example, it can help us identify areas where energy efficiency mechanisms could help reduce the need for network investment.

One of the outputs from this innovation project was the report produced by the Smith Institute.[27] This work groups LSOAs[28] that share similar drivers of vulnerability. The groupings were informed by mathematical analysis of demographic data and of SSEN's priority service register, using machine learning to model the complex relationships that exist between the two. The resulting group numbers and descriptions are shown in Table 9.

27 VFES Machine Learning Discovery of Vulnerability Signatures Report, Smith Institute, 08/11/2022, (NIA SSEN 0063: VFES – Vulnerability Future Energy Scenarios | SSEN Innovation)

28 Lower layer Super Output Areas (LSOAs) (Statistical geographies - Office for National Statistics)

Group Number & Level of Vulnerability	Description of Group
1 – Very high	Driven up by higher levels of poor health and disability/mental health benefit claimants, reduced by smaller household sizes.
2 – High	Driven up by larger household sizes, reduced by lower elderly population levels.
3 – High	Driven up by larger elderly population levels, reduced by lower levels of disability and mental health benefit claimants.
4 – Slightly higher than average	Driven up by larger elder population levels and moderately higher provision of care, reduced by smaller household sizes.
5 – Slightly lower than average	Driven down by lower elderly population levels and larger levels of ethnic diversity, increased by higher household sizes and greater provision of care.
6 – Low	Driven down by lower level of bad health and disability/mental health benefit claimants, increased by moderate elderly population levels and household sizes.
7 – Very low	Driven down by substantially lower elderly population levels, less provision of care and a higher level of households in private rented dwellings.

Table 9: VFES Groupings

To understand the vulnerability groupings across Melksham GSP supply area we have visualised the LSOA categorisation for the study area. By overlaying secondary transformers that are projected to be overloaded by 2028 (under the Consumer Transformation scenario), we begin to understand the crossover between network capacity needs and areas categorised as high vulnerability through the VFES work. This is shown below in Figure 16.

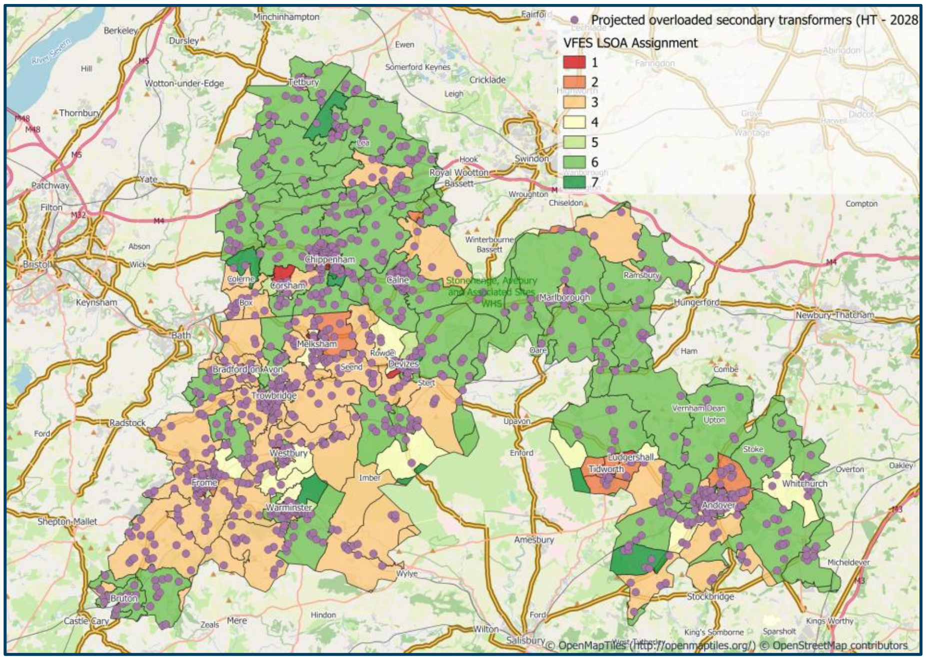


Figure 4: Melksham GSP VFES Output with secondary transformer overlay.

We can see that most of the area falls within group 6 – low levels of vulnerability. This low level of vulnerability is driven down by lower level of bad health and disability/mental health benefit claimants, increased by moderate elderly population levels and household sizes. However, in the GSP area there are several LSOAs that fall into the higher categories of vulnerability (2, and 3), particularly in the southwest area. We also see three LSOA area falling into the group 1 – very high vulnerability. This high vulnerability classification is driven up by higher levels of poor health and disability/mental health benefit claimants, reduced by smaller household sizes.

By overlaying the point locations of secondary transformers projected to be overloaded (in 2028 under the Consumer Transformation scenario) we identify areas that are categorised as more vulnerable and also may have capacity shortfalls at the secondary network level.
More vulnerable groups may have lower level of adoption of LCTs and therefore provide less ability to manage overloads through flexibility services. Further they may point towards areas of social housing where there could be a more sudden rollout of LCTs such as heat pumps in the future.
We will use these insights to prioritise heavily loaded areas of our network ensuring the network remains secure, stable, and resilient in the areas where vulnerable customers would be most disadvantaged by outages.

8.4.2 Low Voltage Networks

Drivers for interventions in low voltage networks may be either capacity related or be driven by voltage requirements. We are progressing options to resolve both drivers. From a network perspective the solution typically involves upgrading the number of LV feeders to split/balance the load and improve voltage or to install another substation at the remote end of the LV network to balance load and improve voltage. In both instances, flexibility at a local level, especially voltage management products linked to battery export and embedded generation such as solar is likely to be required alongside traditional reinforcement.

We are leveraging recent innovation work through Project LEO (Local Energy Oxfordshire) and My Electric Avenue to inform this strategy. Enhanced network visibility through smart meter data analytics and low-cost substation feeder monitoring is also necessary to enable appropriate dispatch of services and network reconfiguration.

Capacity driven needs – Thermal constraints tend to materialise in the sections of cable leading to the substation (transformer) where multiple customer loads join together. We are modelling requirements out to 2050 leveraging low voltage monitoring and metering equipment combined with analytical techniques. This will demonstrate how the magnitude of the system need of the LV network across Botley Wood changes across scenarios and years out to 2050.

Voltage driven needs – Generally, connection of Low Carbon Technology and large loads such as heat pumps is limited by voltage constraints before thermal constraints when located more than around 150m from the local secondary transformer. Increased loading on our low voltage networks can reduce the voltages to consumer premises. This is a non-linear relationship and as such requires more complex analysis. We are currently undertaking analysis to better understand the extent of this future need.

Initial analysis indicates that across Melksham GSP, 31.8% of low voltage feeders may need intervention by 2035 and 42.6% by 2050 under the HT scenario as shown in Figure 17. The need is unlikely to be triggered until 2028 onwards. However, due to the timeline to grow workforce, with jointing skills taking typically 4 years to be fully competent, it is necessary to start recruitment and initiate programmes ahead of need to be able to deliver the required volumes from 2028 onwards.

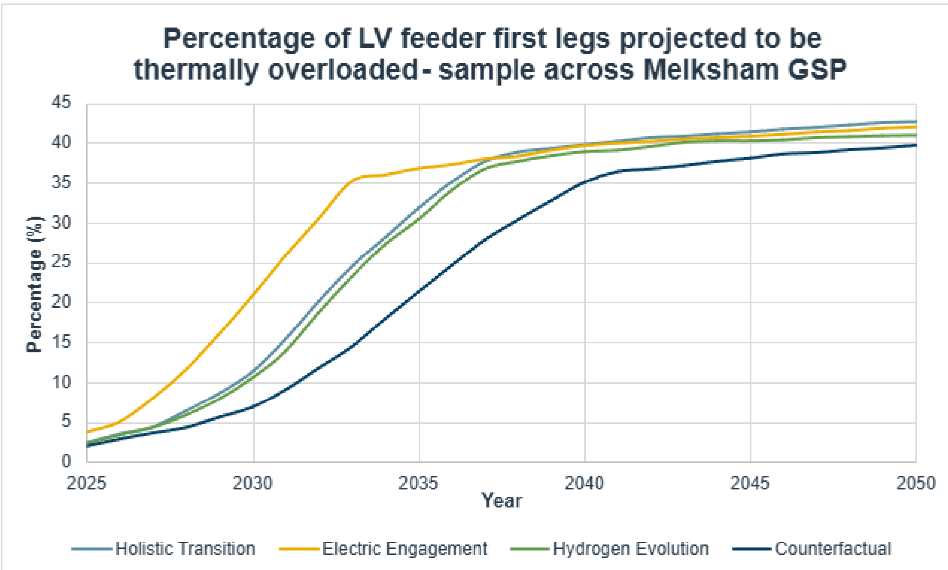


Figure 5: Percentage of LV feeder first legs projected to be overloaded that are supplied from Melksham GSP.

9 . RECOMMENDATIONS

The review of stakeholder engagement and the SSEN 2024 DFES analysis provides a robust evidence base for load growth across Melksham GSP group in both the near and longer term. Drivers for load growth across Melksham GSP arise from multiple sectors and technologies. These drivers impact not only our EHV network but will drive system needs across all voltage levels. We have already had close engagement with multiple industrial energy users to understand how we can plan strategically to enable decarbonisation of industry across the study area.

Across Melksham GSP, a number of works have already been triggered through the DNOA process and published in the DNOA Outcomes Reports. These are driven by customer connections and system needs that will arise this decade but are being developed to meet 2050 needs.

The findings from this report have provided evidence for five key recommendations:

1. System needs that have been identified at earlier timescales (ahead of 2035) should be studied in more detail and these should be progressed through the DNOA process. This relates to the assets tabulated in section 8.2.

   It is possible that some of the above constraints may not have a near term system need based on actual load growth and therefore will not initially result in an DNOA outcome. Annual reassessment will enable us to confirm whether these system needs are likely to arise. When carrying out this annual reassessment the delivery timelines of the work should be considered alongside the potential for flexibility services to manage network capacity.

2. Continue to work with large scale demand users to understand capacity requirements to decarbonise industrial processes and consider these requirements in plans for our future network plans. By doing so we are enabling both commercial/industrial and domestic decarbonisation while also supporting growth in the local economy. Furthermore, an increasing number of flexible assets on the network may help increase capacity for large scale demand users.

3. Engagement with NGET should be proactive so that alongside delivery of any future developments at Grid Supply Points we can plan the distribution network in parallel. This will enable efficient capacity release at both Transmission and Distribution level.

4. While electrification of road travel is captured in DFES building blocks, engagement should take place to better understand the impact of further fleet electrification in the Melksham GSP area.

5. Considering the significant growth in DERs expected across Melksham GSP supply area, engagement with NGET and NESO should be proactive creating a long-term plan for the area which incorporates the outputs of CP2030 and connections reform.

Actioning these recommendations will allow SSEN to develop an electricity network that supports local net zero ambitions and enables growth in the local economy.

10 APPENDICIES

Appendix A Primary substation existing network

Substation Name	Site Type	Number of Customers Served	2023/2024 Substation Maximum MVA (Season)
ALDERTON	Primary Substation	1,747	2.73
ANDOVER	Primary Substation	5,688	7.26
ANDOVER EAST	Primary Substation	8,817	16.44
ANDOVER TOWN	Primary Substation	5,744	7.60
ASHTON PARK	Primary Substation	13,649	18.22
BARTON STACEY	Primary Substation	2,263	6.23
BOSCOMBE DOWN	Primary Substation	3,280	6.30
BRADFORD-ON-AVON	Primary Substation	8,642	10.94
BROMHAM	Primary Substation	1,634	2.94
BRUTON	Primary Substation	2,290	4.80
CALNE	Primary Substation	10053	10.43
COCKLEBURY	Primary Substation	8,641	15.29
CODFORD	Primary Substation	1,051	3.68
CORSHAM	Primary Substation	5,987	8.60
CROCKERTON	Primary Substation	7,261	11.26
DEVIZES	Primary Substation	11,878	20.20
EASTERTON	Primary Substation	3,946	7.67
ENFORD	Primary Substation	1,529	23.93
FROME	Primary Substation	16577	23.98
HAWKERIDGE	Primary Substation	590	11.38
HOLWELL	Primary Substation	1,273	10.34
HURSTBOURNE TARRANT	Primary Substation	1,867	3.83
LYNEHAM	Primary Substation	3,920	8.10

MALMESBURY	Primary Substation	5,264	10.11
MARLBOROUGH SOUTH	Primary Substation	6,511	11.43
MELKSHAM TOWN	Primary Substation	12,897	19.57
MIDDLE WALLOP	Primary Substation	1,668	4.58
PARK HOUSE	Primary Substation	1,000	3.31
PEWSEY	Primary Substation	4,062	14.02
PORTWAY	Primary Substation	4,409	12.82
RAMSBURY	Primary Substation	2,137	3.48
RATFYN	Primary Substation	6,380	3.85
ROWDEN	Primary Substation	9,856	13.99
SPRING QUARRY WEST	Primary Substation	3,578	7.87
SUTTON BENGER	Primary Substation	1,459	4.72
TETBURY	Primary Substation	4,020	4.30
THRUXTON	Primary Substation	2,022	4.38
TIDWORTH	Primary Substation	6,706	8.37
TROWBRIDGE TOWN	Primary Substation	9,864	15.32
WARMINSTER	Primary Substation	3,931	7.91
WEST GRAFTON VILLAGE	Primary Substation	2,548	5.25
WESTBURY	Primary Substation	9,686	13.99
WHITCHURCH	Primary Substation	2,709	5.20
YATTON KEYNALL	Primary Substation	2,074	4.85

Table 10 Melksham GSP primary substations, customer counts, and peak demand 2023/24.

Appendix B 33kV existing network schematics

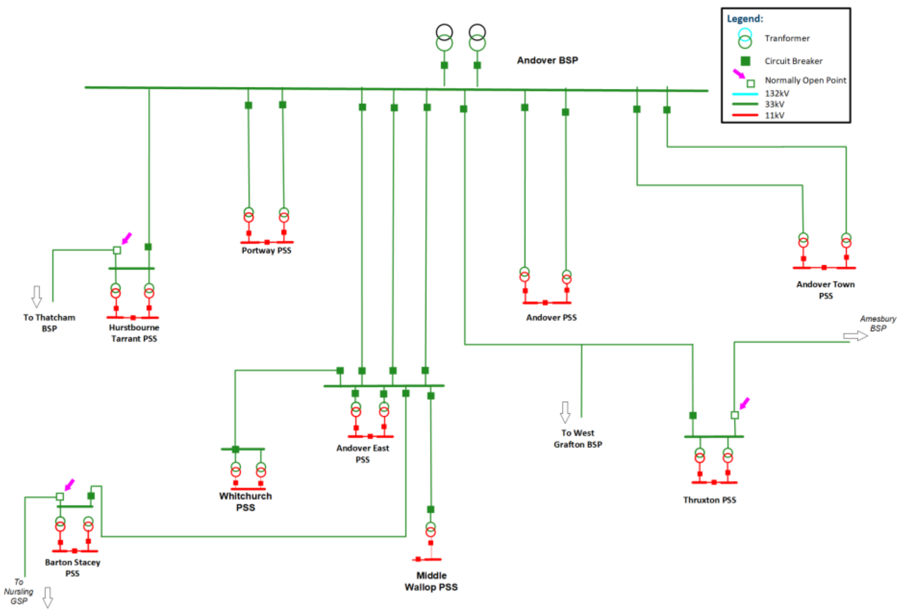


Figure 18: Andover BSP - Existing network schematic

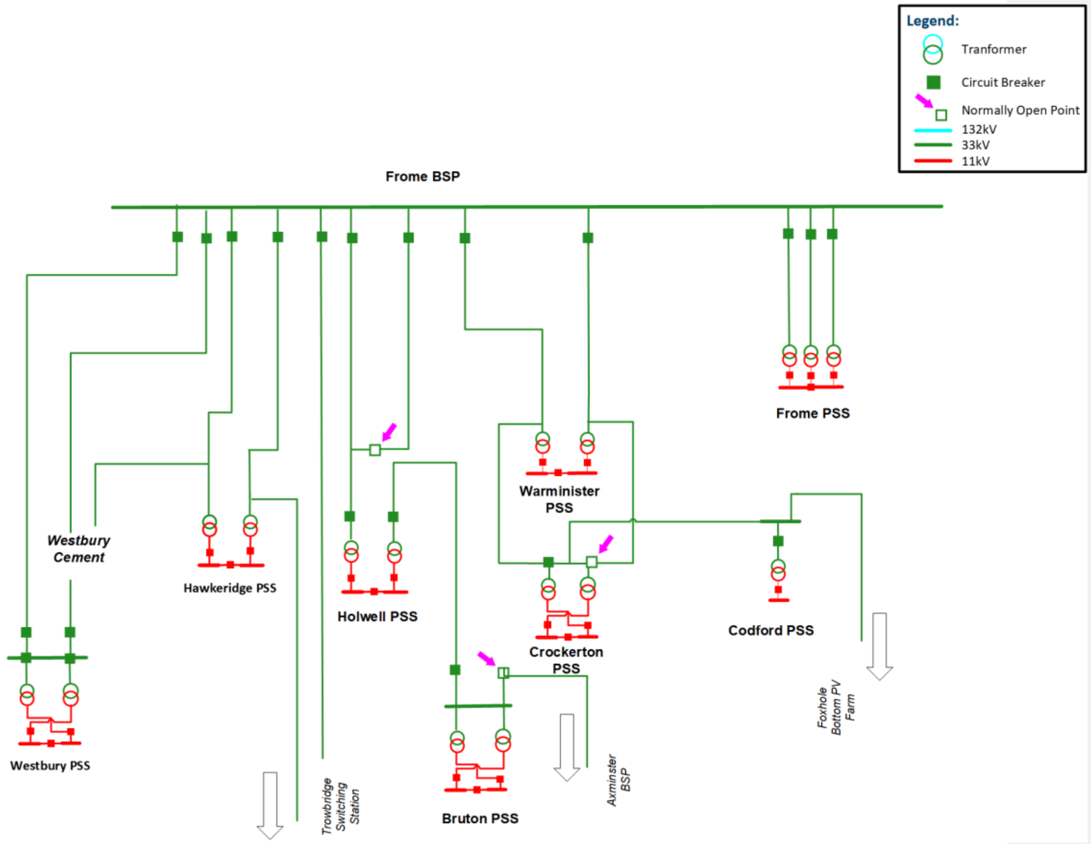


Figure 19: Frome BSP - Existing network schematic

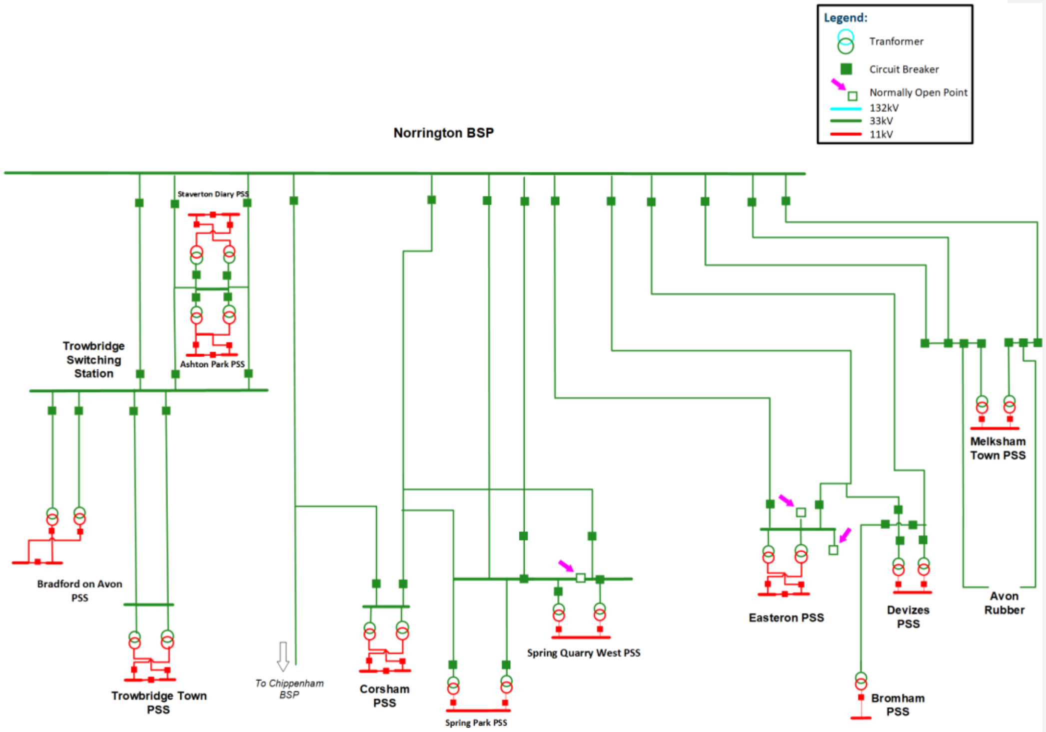


Figure 20: Norrington BSP - Existing network schematics

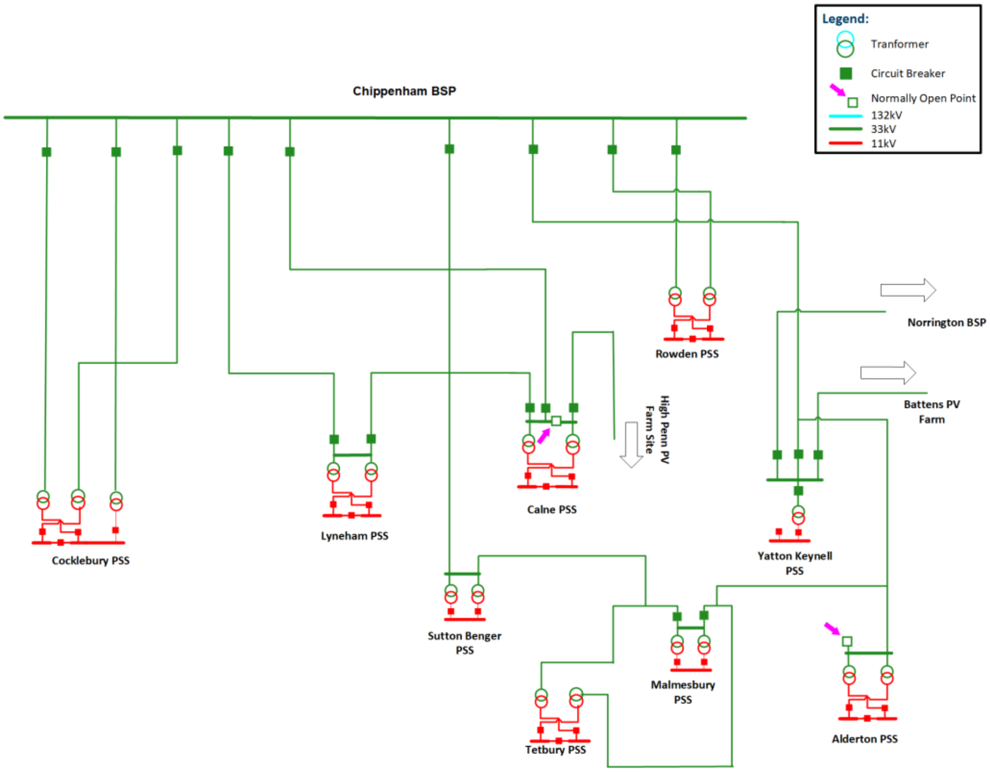


Figure 21: Chippenham BSP - Existing network schematic

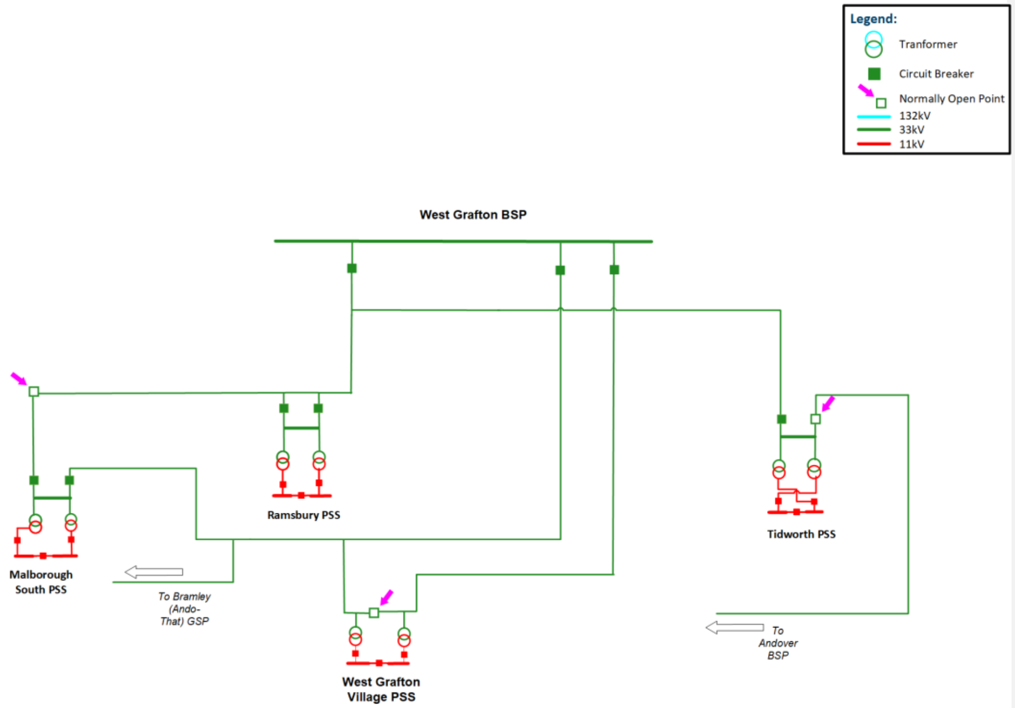


Figure 22: West Grafton BSP - Existing network schematic

Appendix C 33kV works in progress network schematics

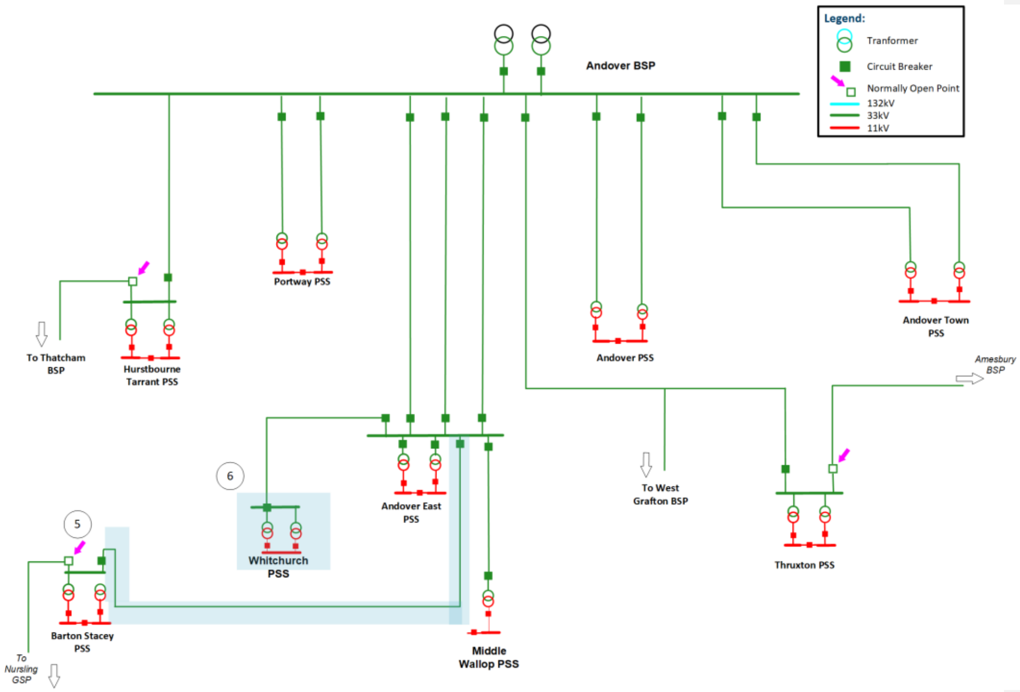


Figure 23: Andover BSP - Following completion of triggered works.

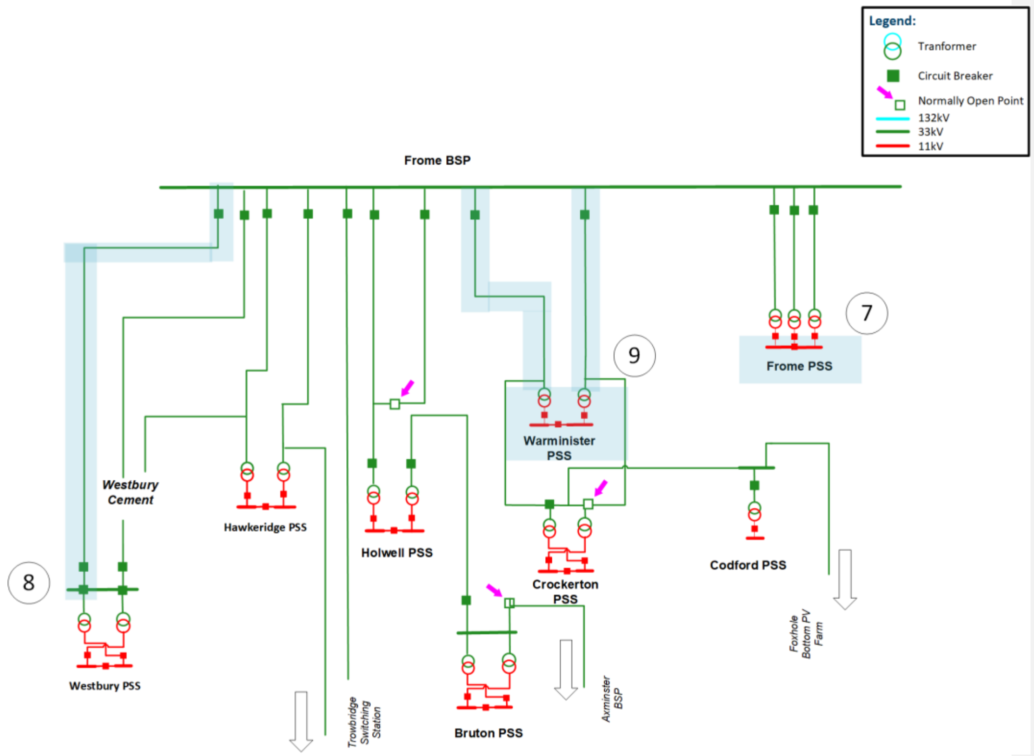


Figure 24: Frome BSP - Following completion of triggered works

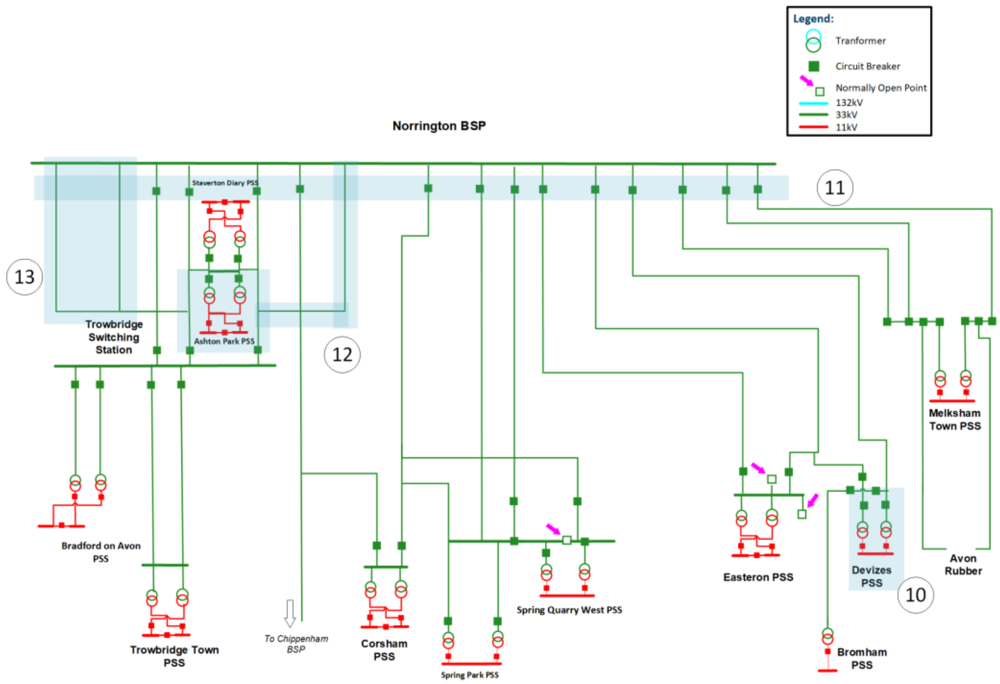


Figure 25: Norrington BSP - Following completion of triggered works

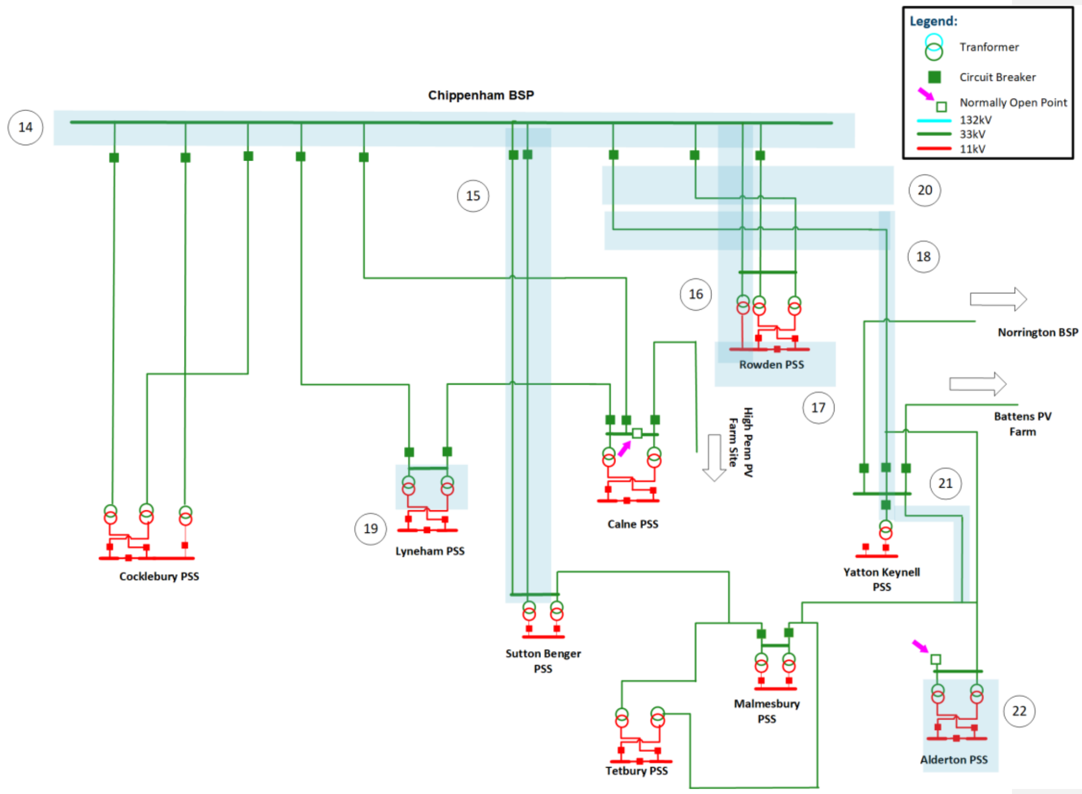


Figure 26: Chippenham BSP - Following completion of triggered works.

Appendix D Additional EHV/HV plans for other DFES scenarios

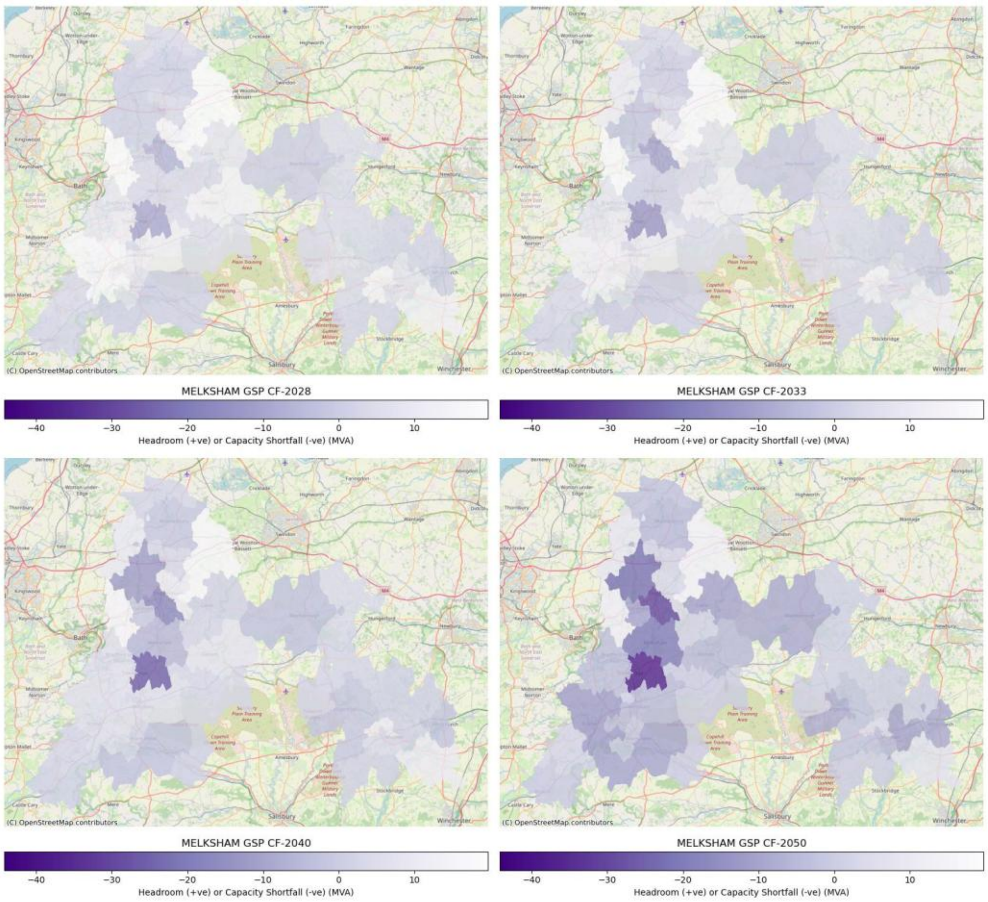


Figure 27: Melksham GSP - EHV/HV Spatial Plan - Counterfactual

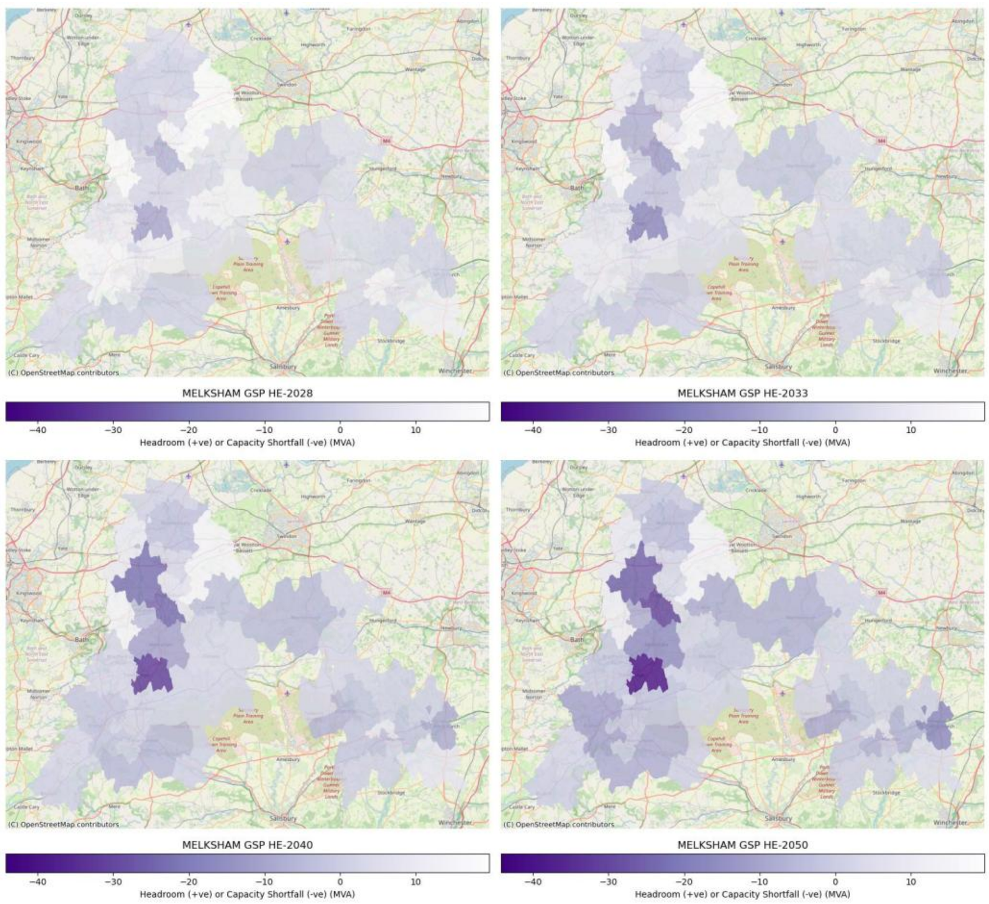


Figure 28: Melksham GSP - EHV/HV Spatial Plan – Hydrogen Evolution

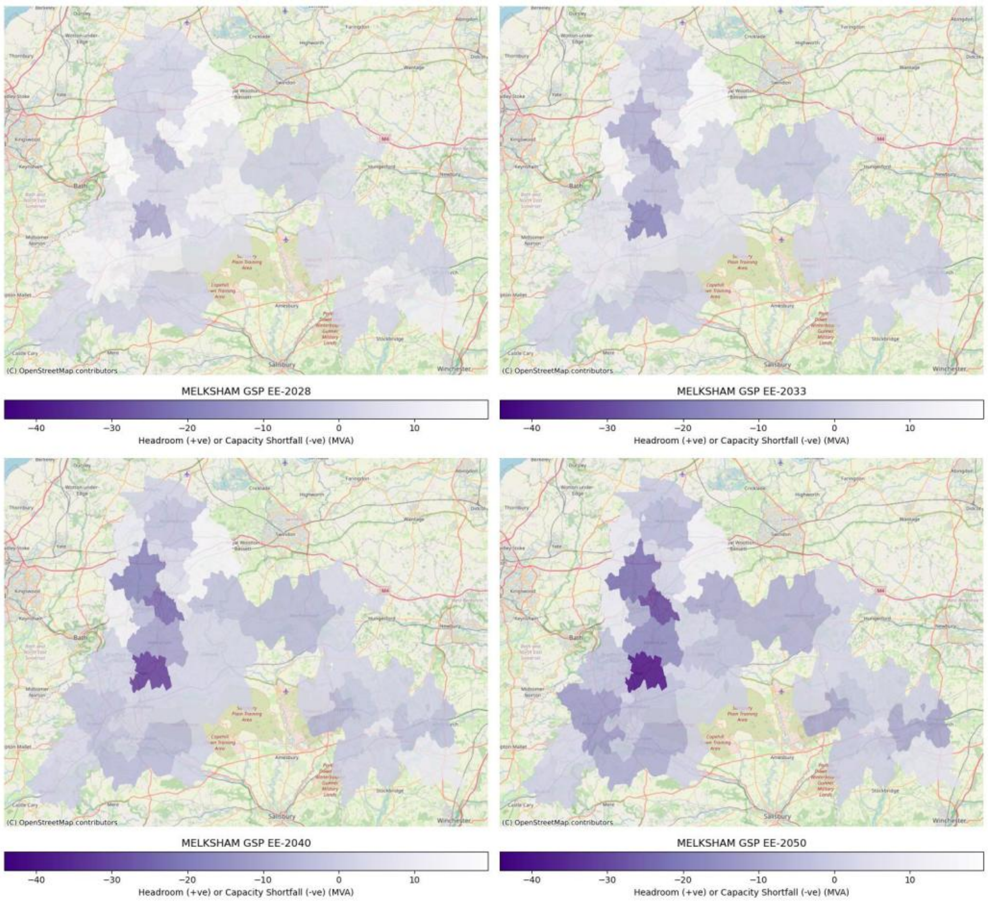


Figure 29: Melksham GSP - EHV/HV Spatial Plan – Electric Engagement

Appendix E Additional HV/LV plans for other DFES scenarios

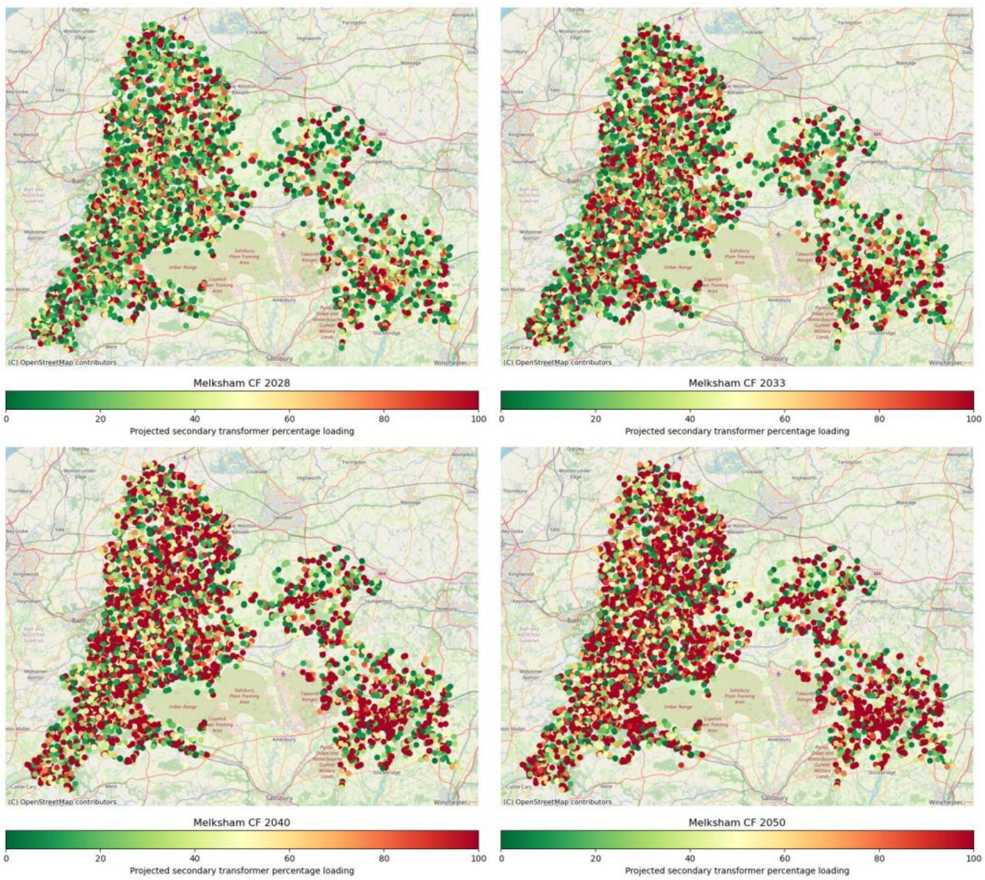


Figure 30: Melksham GSP - HV/LV Spatial Plan - Counterfactual

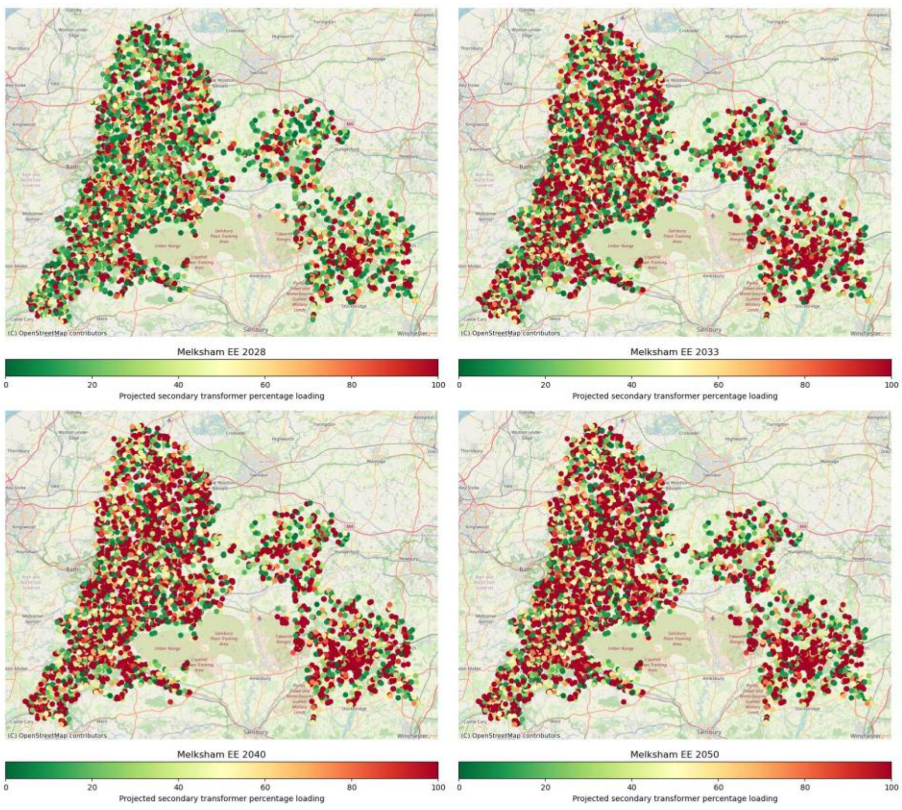


Figure 31: Melksham GSP - HV/LV Spatial Plan – Electric Engagement

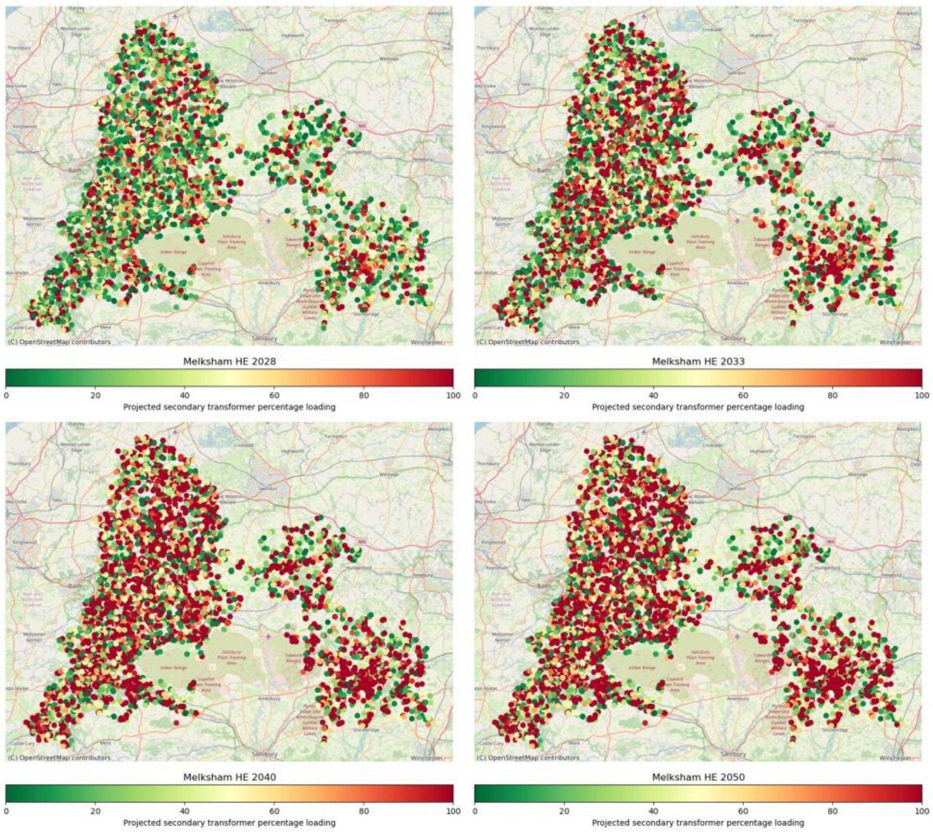


Figure 32: Melksham GSP - HV/LV Spatial Plan – Hydrogen Evolution

Appendix F Relevant DNOA outcome reports

Chippenham (Chippenham BSP)

DNOA Outcome Report
Related SDP: Melksham

DNOA outcome: Asset solution

Scheme description

- The reinforcement of the Chippenham BSP will increase capacity in the Chippenham area. Postcode(s): SN4, SN11, SN13-16, GL8.
- Local authority: Wiltshire
- Load related – substation fault level issues during intact conditions due to forecasted generation growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

Proposed option

- Asset Solution: New gas insulated switchboard at Chippenham BSP.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted fault level and land constraint related issues at Chippenham BSP out to 2050.

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Estimated peak MW outside firm network capacity under each scenario

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
CT	-	-	-	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-	-	-	-

Constraint management timeline

Malmesbury (Chippenham BSP 33kV ring network)

DNOA Outcome Report
Related SDP: Melksham

DNOA outcome: Asset solution

Scheme description

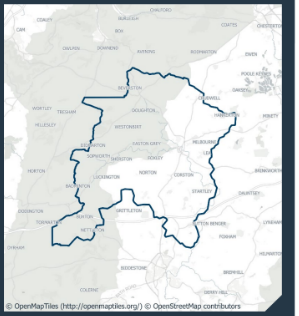
- The reinforcement of the 33kV circuits supplying the Alderton ring will increase capacity in the Malmesbury area. Postcode(s): GL8, SN14, SN15, SN16.
- Local authority: Cotswold, Wiltshire
- Load related – Security of supply restoration issues during FCO conditions and voltage issues due to forecasted demand growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

Proposed option

- Asset Solution: Build two new circuits, the first between Yatton Keynell PSS and Alderton PSS to resolve the security of supply issue. The second between Chippenham BSP and Sutton Benger PSS to resolve voltage issues under an FCO condition.
- Flexibility was unable to be utilised as it is not suitable for the constraint type.
- This option addresses the forecasted security of supply issues at Chippenham BSP out to 2050.
- Capacity released: 57.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

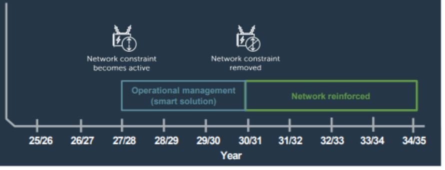
DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Estimated peak MW outside firm network capacity under each scenario

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
CT	-	-	-	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-	-	-	-

Constraint management timeline



South Chippenham (Rowden PSS)

DNOA Outcome Report
Related SDP: Melksham

DNOA outcome: Flexibility services followed by asset solution

Scheme description

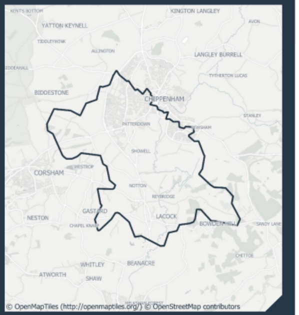
- The reinforcement of the Rowden PSS will increase capacity in the Chippenham area. Postcode(s): BA13, SN8, SN13, SN14, SN15.
- Local authority: Wiltshire
- Load related – substation and circuit thermal overload during FCO conditions due to forecasted demand growth.

Indicative flexibility price (if available)

Availability price: £ 150 /MW/h Utilisation price : £ 200 /MWh

Proposed option

- Flexibility/Asset Solution: Flexibility solution used for two years. Installation of a GIS 33kV busbar at Rowden PSS to enable installation of an additional 33/11kV transformer at Rowden PSS, and an additional 33kV circuit from Chippenham BSP to Rowden PSS.
- This option addresses the forecasted thermal overload at Rowden PSS out to 2050.
- Capacity released: 23 MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

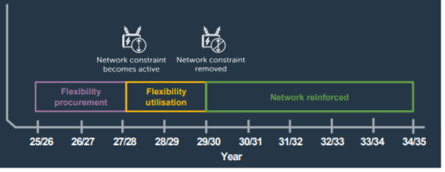
DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Estimated peak MW outside firm network capacity under each scenario

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
CT	-	-	0.83	1.75	(2.76)	(3.96)	(5.73)	(7.44)	(8.93)	(10.54)
ST	-	-	-	-	(0.29)	(0.79)	(1.36)	(1.99)	(2.66)	(3.41)
LTW	-	0.13	2.14	3.24	(4.56)	(5.98)	(7.57)	(9.20)	(10.86)	(12.09)
FS	-	-	-	-	-	(0.34)	(0.89)	(1.47)	(2.12)	(2.75)

Constraint management timeline



Whitchurch (33kV circuits feeding Whitchurch PSS)

DNOA Outcome Report
Related SDP: Melksham

DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Whitchurch PSS will increase capacity in the Whitchurch area. Postcode(s): RG28, SP11.
- Local authority: Basingstoke and Deane
- Load related – Circuit thermal overload during FCO conditions and voltage issues during both intact and FCO conditions due to forecasted demand growth.

Proposed option

- Smart solution / Asset solution: New 33kV circuit from Barton Stacey PSS to Whitchurch PSS to resolve security of supply and voltage issues.
- Flexibility was not technically suitable to resolve the security of supply or the voltage issue.
- This option addresses the supply security and voltage issues of the 33kV network supplying Whitchurch and Barton Stacey PSS. Overall solution addresses overloading issues of this circuit up to 2041.
- Capacity released: 27.1 MVA

Indicative flexibility price (if available)
Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

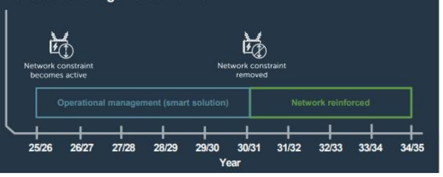
DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Estimated peak MW outside firm network capacity under each scenario

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
CT	1.20	1.37	1.56	1.73	1.91	(2.14)	(2.49)	(2.83)	(3.12)	(3.45)
ST	1.36	1.57	1.81	2.02	2.28	(2.55)	(2.87)	(3.20)	(3.55)	(3.78)
LTW	1.04	1.15	1.27	1.34	1.43	(1.53)	(1.63)	(1.75)	(1.89)	(2.05)
FS	1.03	1.09	1.17	1.23	1.30	(1.38)	(1.48)	(1.59)	(1.71)	(1.84)

Constraint management timeline



Whitchurch (Whitchurch PSS)

DNOA Outcome Report
Related SDP: Melksham

DNOA outcome: Flexibility followed by asset solution.

Scheme description

- The reinforcement of the Whitchurch PSS will increase capacity in the Whitchurch area. Postcode(s): RG28, SP11.
- Local authority: Basingstoke and Deane
- Load related – Substation thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility/Asset Solution: Flexibility used to defer reinforcement for the thermal overload issue by 2 years. Followed by an asset solution: reinforcement of one of the existing primary transformers.
- This option addresses overloading issues at Whitchurch PSS up to 2041.
- Capacity released: 8.5 MVA

Indicative flexibility price (if available)
Availability price: £ 150 /MW/h Utilisation price : £ 200 /MWh

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

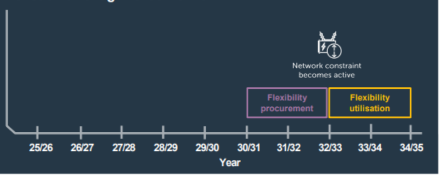
DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Estimated peak MW outside firm network capacity under each scenario

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
CT	-	-	-	-	-	-	-	0.33	0.62	(0.95)
ST	-	-	-	-	-	0.05	0.37	0.70	1.05	(1.28)
LTW	-	-	-	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-	-	-	-

Constraint management timeline



Appendix G Appendix H: Summary of consultation feedback

Following the consultation for this document, several changes have been made to the document to reflect the feedback received from our stakeholders. Feedback from other SDPs which also applies to Minety SDP has also been taken into account.
A summary of the changes made based on the Minety SDP consultation is tabulated below; in some cases multiple actions have been taken.

Feedback theme	Action taken	Section (page number)
Basingstoke and Dean Borough Council summary edited to reflect updates to local plan	Additional detail added to the council overview.	Section 3.1.1
Updated to incorporate Cotswold District Council climate-emergency and net-zero housing/transport policies	Additional detail added to the council overview.	Section 3.1.1
Added reference to the Somerset Energy Investment Plan	Additional detail added to the council overview.	Section 3.1.1

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Glossary

Acronym	Definition
AIS	Air Insulated Switchgear
ANM	Active Network Management
ARC	Advanced Research Computing
BAU	Business as Usual
BSP	Bulk Supply Point
CB	Circuit Breaker
CBA	Cost Benefit Analysis
CER	Consumer Energy Resources
CMZ	Constraint Managed Zone
CT	Consumer Transformation
DER	Distributed Energy Resources
DESNZ	Department for Energy Security and Net Zero
DFES	Distribution Future Energy Scenarios
DNO	Distribution Network Operator
DNOA	Distribution Network Options Assessment
DSO	Distribution System Operation
DSR	Demand Side Response
EHV	Extra High Voltage
EJP	Engineering Justification Paper
ER P2	Engineering Recommendation P2
NESO	National Energy System Operator
NGET	National Grid Electricity Transmission
ENA	Electricity Networks Association
EV	Electric Vehicle
FES	Future Energy Scenarios

FS	Falling Short
GIS	Gas Insulated Switchgear
GSPs	Grid Supply Point
HV	High Voltage
kV	Kilovolt
LAEP	Local Area Energy Planning
LCT	Low Carbon Technology
LENZA	Local Energy Net Zero Accelerator
LEO	Local Energy Oxfordshire
LV	Low Voltage
LW	Leading the Way
OHL	Overhead Line
PSS	Primary Substation
PV	Photovoltaic
NSHR	Network Scenario Headroom Report (part of the Network Development Plan)
MW	Megawatt
MVA	Mega Volt Ampere
ODM	Operational Decision Making
RESOP	Regional Energy System Operation Planning
RIIO-ED1/2	Revenue = Incentives + Innovation + Outputs, Electricity Distribution 1 / 2 (regulatory price control periods)
SDP	Strategic Development Plan
SEPD	Southern Electric Power Distribution
SLC	Standard Licence Condition
SSEN	Scottish and Southern Electricity Network
ST	System Transformation
UKPN	UK Power Networks
UM	Uncertainty mechanism

VFES	Vulnerability Future Energy Scenarios
WSC	Worst Served Customers