

2026 Distribution Future Energy Scenarios (DFES)

2026 Outlook for UK Power Networks'
licence areas

PREPARED FOR AND WITH



UK Power Networks: Distribution
System Operator (UK Power Networks
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EXECUTIVE SUMMARY

The 2026 Distribution Future Energy Scenarios (DFES) provide a comprehensive outlook for UK Power Networks' licence areas as the UK transitions towards Net Zero by 2050, building upon a strong foundation of collaboration between local and national stakeholders.

The 2026 DFES leverages the latest data, including alignment with the National Energy System Operator's (NESO) transitional Regional Energy Strategic Plans (tRESP). The 2026 DFES set out a detailed, spatial forecast of future demand and generation driven primarily by consumer led technologies, informed by Local Area Energy Plans (LAEPs) and national planning frameworks. In addition, UK Power Networks has undertaken further investigation into emerging larger energy needs that support economic growth and rapid decarbonisation at a regional level and are set to shape future energy requirements. To support this, UK Power Networks has produced a dedicated report focused on the key energy sectors, offering in-depth analysis and evidence to guide strategic planning and investment for the evolving energy landscape. **The Regional Outlook: Sectors Shaping Future Energy Needs** complements this report by assessing a set of largescale, sector specific demand drivers, such as ports, rail, aviation, industry, hydrogen and data centres, that are not fully represented within 2026 DFES. Together, the two reports provide a more complete evidence base for network planning, ensuring both distributed demand growth and high impact regional developments are appropriately reflected in the longer-term investment decisions.

This report outlines the updates to the scenarios, methodologies, and assumptions that underpin the forecasted energy landscape for 2025 to 2050 with a focus on changes and updates from the 2025 DFES.

HIGHLIGHTS

Scenario Framework: The 2026 DFES has undergone a thorough review against the most recent NESO 2025 Future Energy Scenarios (FES 2025), which sets out local interpretations of three strategic scenarios to Net Zero: Electric Engagement, Hydrogen Evolution and Holistic Transition, as well as the Falling Behind scenario where Net Zero is not achieved. UK Power Networks conducted a comprehensive analysis to ensure continued alignment with FES 2025, including the refinement of the previous Counterfactual scenario world, which is renamed as the Falling Behind scenario in FES 2025.

Each scenario is comprised of projections for the rate of deployment of technologies, both on the demand and supply-side, that will be key to the net zero transition. Many of these technologies will be connected to the electricity network in some form and will have significant impacts in terms of peak demands and the demand profile imposed on networks. The rates of adoption of these technologies differs across the scenarios, reflecting different assumptions for key factors that drive technology uptake, including technology costs and how these change in future, performance (for example factors such as electric vehicle range, or the efficiency of heating technologies), the strength and timing of policies and regulations that are brought in to support the uptake of these technologies, and so on. Table 1 below highlights, a number of the key technologies that are likely to be most impactful on distribution networks, some of key factors that have been considered that are expected to drive uptake, together with the deployment forecasts for each of the scenarios at a number of key points to 2050.

Table 1, Forecast uptake of key technologies for each DFES scenario and the key factors and assumptions driving uptake that are considered in scenario modelling.

Technology	Scenarios (From top: FB, EE, HT, HE)				Main modelling assumptions
	2025	2035	2042	2050	
Battery electric vehicles (Cars & Vans) <i>Units: Number ('000s)</i>	360	5,005	7,950	9,272	<ul style="list-style-type: none"> Near-term sales based on extrapolation of current sales growth, which is less aggressive than sales growth forecasts in prior DFES. 100% of new cars and vans are assumed to be BEV by 2035, in line with government targets.
	360	6,080	9,600	11,443	
	360	5,750	9,000	10,730	
	360	6,080	9,600	11,443	
Residential heat pumps <i>Units: Number ('000s)</i>	84	151	319	485	<ul style="list-style-type: none"> Future Homes Standard introduced in 2026 rules out fossil fuel heating in new homes. The Boiler Upgrade Scheme is considered as the key support for low carbon heating systems in domestic and small commercial buildings. New fossil fuel boilers assumed to be phased out of existing buildings from 2035 in net zero scenarios, although it is noted that a formal ban is no longer government policy.
	84	1,073	3,342	5,488	
	84	1,182	3,778	6,131	
	84	1,122	3,772	6,189	
Appliance energy efficiency <i>Units: % of 2025</i>	100%	76%	69%	67%	<ul style="list-style-type: none"> Key driver of appliance efficiency improvement is turnover of the existing appliance stock and replacement with high efficiency models. Note that in this DFES the tRESP energy efficiency projection has been adopted for all scenarios.
	100%	76%	69%	67%	
	100%	76%	69%	67%	
	100%	76%	69%	67%	

Solar PV (building-integrated and large-scale) <i>Units: MW</i>	3,438	5,797	7,996	11,146	<ul style="list-style-type: none"> Solar PV adoption is driven by reducing costs and improving economics of the technology. Increased deployment of rooftop solar PV in the new build sector is forecast due to the Future Homes Standard (expected to be adopted in 2026/27), which will require solar PV to be installed on the majority of new build homes. Large solar is supported by Contracts for Difference and the Capacity Market. Large-solar forecasts presented in this DFES are aligned with Connections Reform and CP2030.
	3,438	11,553	16,903	21,637	
	3,438	13,698	19,584	25,045	
	3,438	11,033	15,800	20,069	

Enhancing forecasts with local intelligence:

Local Area Energy Plan (LAEP) Integration:

Continuing on from last year, UK Power Networks’ DFES are strengthened by proactive engagement with Local Authorities. The DFES integrates local authority decarbonisation data (sometimes known as Local Area Energy Plans (LAEPs)) using UK Power Networks’ Distribution System Operator (DSO) LAEP Support Framework where the UK Power Networks DSO collaborates with councils ensuring minimum confidence standards are met before local authority data is used to adjust the DFES. LAEPs play a central role in validating and, where appropriate, accelerating UK Power Network’s view of future demand, ensuring regional decarbonisation ambitions are directly reflected in DFES and network investment planning.

Local Authority Common Ask:

UK Power Networks’ DSO has led a cross-sector industry initiative to take a major step towards a more consistent, joined up approach to planning the energy system, first established through collaboration between UK Power Networks DSO, Cadent and SGN and expanded through joint collaboration with National Grid Electricity Distribution (NGED) and Scottish and Southern Electricity Networks (SSEN). Consultancies ERM and Regen were also involved in its development. The “Local Authority Common Ask” enable councils can share their clean energy and growth data, and to share it “shared once” and then this data used by all local utilities making it easier and saving time. This could be scaled up to a national scale with other DSOs having expressed an interest in joining. Standardising how local authority outputs are share drives more consistent, higher-quality data to feed into key network planning and investment processes - such as the DFES and Distribution Network Options Assessments (DNOA).

Housing Data:

Recognising housing development as a key driver of future load growth, and the new national policy emphasis on accelerating home building under the Government's Plan for Change, UK Power Networks DSO developed an enhanced approach to housing data. This approach integrates local authority housing trajectories in addition to Office for National Statistics (ONS) housing projections, ensuring UK Power Network's forecasts better reflect local ambition, delivery constraints and pipeline maturity.

Enhanced Modelling:

UK Power Networks has enhanced the building stock modelling by incorporating local housing trajectories and major development clusters (500+ homes) to better reflect local housing delivery plans to ensure that scenario modelling and network planning are based on an accurate and current understanding of the region's residential landscape. The introduction of new legislation for new builds, the Future Homes and Buildings Standard, that is expected to become law from December 2026 has directly influenced the domestic solar PV and low-carbon heating deployment to new housing forecasts from 2028.

Large scale solar, wind, and battery storage technologies trajectories were adjusted following UK Power Networks Gate 2 connections reform decision and Clean Power 2030 (CP30) processes.

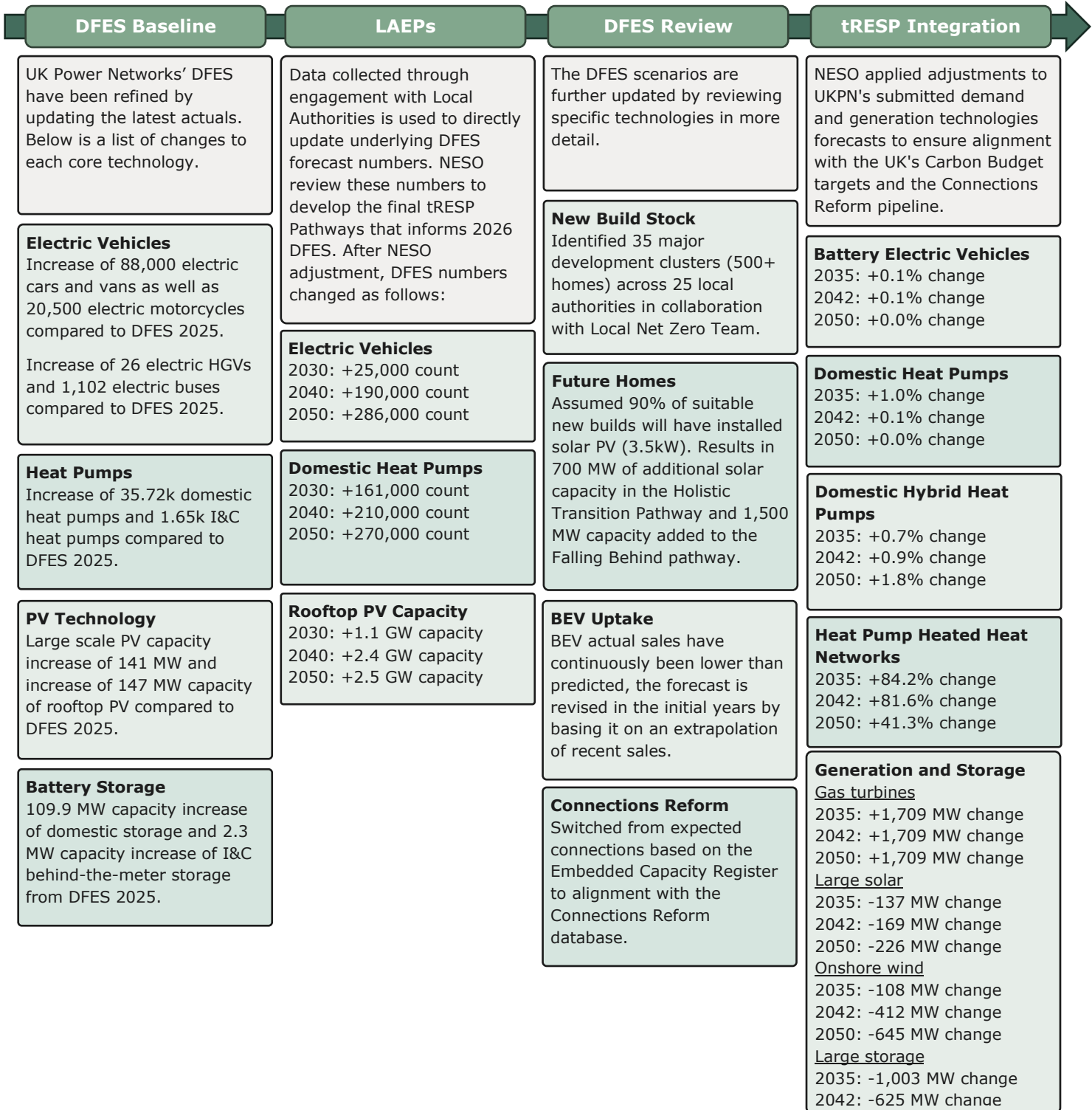
Alignment to tRESP:

UK Power Networks and the other Great Britain Distribution Network Operators (DNOs) collaborated closely with NESO throughout the development of the tRESP. This ongoing engagement enabled UK Power Networks to share local insights and highlight emerging trends from its licence areas, while also providing feedback on the feasibility and potential impacts of consistent planning assumptions at the distribution network level. This collaboration ensured that regional interpretations and the DFES underlying assumptions are accurately represented within the national tRESP framework.

In January 2026, NESO's tRESP provided a robust set of pathways for key technologies, informed by the regional data and insights UK Power Networks had provided. These final tRESP pathways included minor adjustments to UK Power Networks' DFES scenarios to ensure alignment with the UK's Carbon Budget targets.

To ensure the tRESP pathways are incorporated into UK Power Networks planning, the Holistic Transition (HT) scenario within this DFES has been aligned with the tRESP-HT scenario. Alongside the tRESP-HT scenario, UK Power Networks has chosen to retain its broader DFES scenario set (Electric Engagement, Hydrogen Evolution and Falling Behind) to capture a wider range of planning scenarios. The increased diversity in the scenarios that this provides will enable broader sensitivity testing of the impact of the energy transition on UK Power Networks' networks and inform assessment of investment options for ED3 and beyond. For all scenarios, including the tRESP Holistic Transition, this DFES and associated datasets provides a granular spatial view of how technologies are expected to be taken up across the UK Power Networks licence areas (for example down to LSOA level resolution). This granular view will not only enable detailed modelling of impacts at assets down to low voltage level in the networks, but also informs engagement with customers and stakeholders based on an understanding of how net zero is expected to impact different localities.

The figure below summaries the key factors shaping the 2026 DFES, illustrating how local data, national policy, and tRESP alignment drive projected changes in demand, generation, and low carbon technology uptake.



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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ASHP	Air Source Heat Pump
BEV	Battery electric vehicles
BUS	Boiler Upgrade Scheme
CCGT	Combined cycle gas turbine
DFES	Distribution Future Energy Scenarios
DNO	Distribution Network Operator
EE	Electric Engagement
EPN	Eastern Power Networks
EV	Electric vehicle
FES	(National Energy System Operator's) Future Energy Scenarios
FB	Falling Behind
GSP	Grid Supply Point
GW	Gigawatt
HE	Hydrogen Evolution
HGV	Heavy goods vehicle
HT	Holistic Transition
I&C	Industrial and commercial
LAEP	Local Area Energy Plan
LCT	Low carbon technology
LPN	London Power Networks
LSOA	Lower Layer Super Output Areas

MSOA	Middle Layer Super Output Areas
NESO	National Energy System Operator
OCGT	Open Cycle Gas Turbine
ONS	Office for National Statistics
PHEV	Plug-in hybrid electric vehicles
PHV	Private hire vehicle
PV	Photovoltaic
SFS	Strategic Forecasting System (UK Power Networks system)
SPN	South Eastern Power Networks
UKPN	UK Power Networks

1 INTRODUCTION

UK Power Networks serves 8.5 million customers, providing the electricity network that supplies power to the homes and workplaces of 19 million people across the East of England, London, and the South East of England. In addition to the day-to-day operation of the electricity grid, UK Power Networks is at the forefront of facilitating the UK's transition to a low-carbon future, integrating renewable energy sources, supporting the uptake of electric vehicles (EVs), and helping to deliver national targets for Net Zero emissions.

To achieve its commitment of facilitating the Net Zero transition at the lowest possible cost for its customers, UK Power Networks requires robust and well-justified energy plans. Distribution Future Energy Scenarios (DFES) forms an essential part of UK Power Networks' approach to make informed decisions in line with its commitments. DFES provide updated forecasts indicating where future electrical demand may arise across the network, and with the energy landscape throughout the UK continually evolving, so UK Power Networks' DFES must remain responsive to changes in energy generation and demand, taking into account shifts in investment and developments in regulation.

Through collaboration with National Energy System's Operator (NESO) and local authorities, UK Power Networks continually updates and improves its DFES scenarios to align with the most up-to-date energy forecasts for the UK. This report provides an overview of the process by which UK Power Networks generates its DFES.

1.1 GEOGRAPHIC SCOPE OF THE DFES FOR UK POWER NETWORKS

The UK Power Networks area is divided into three major regions, called licence areas:

- Eastern Power Networks (EPN),
- London Power Networks (LPN), and
- South Eastern Power Networks (SPN).

While these three licence areas are broadly similar in location to the Government Office Regions of East of England, London and the Southeast of England, their boundaries differ considerably from those Government Office Regions. Many of the scenario datasets are published at much higher geospatial resolution to allow stakeholders to consider only those areas of particular interest to them.

The upcoming Local Government Reorganisation will change current council boundaries, once these new boundaries are confirmed. UK Power Networks and ERM will ensure that all network modelling techniques are updated to reflect these changes.

To breakdown the scenarios into these smaller geographical regions the following Office for National Statistics (ONS) areas were used:

- Middle Layer Super Output Areas (MSOAs); and
- Lower Layer Super Output Areas (LSOAs).

UK Power Networks' region is made up of about 2,200 MSOAs which in turn are made up of around 11,000 LSOAs. The average dimensions of MSOAs and LSOAs across England are given in **Error! Reference source not found..** Outputs at LSOA and MSOA resolution, wherever possible, are being published on UK Power Networks' website alongside this report.

Table 2. Average dimensions of MSOA and LSOA across England¹

Geography	Minimum population	Maximum population	Minimum number of households	Maximum number of households
LSOA	1,000	3,000	400	1,200
MSOA	5,000	15,000	2,000	6,000

This DFES update uses the latest LSOA boundaries as published in the 2021 Census by the ONS. Error! Bookmark not defined. Where data inputs are still published by 2011 boundaries, these have been mapped to the 2021 boundaries using the connection counts in each LSOA².

1.2 STRUCTURE OF REPORT

This report provides an overview of the process of generating UK Power Networks' DFES.

- Section 2** First, the report outlines the frameworks that have come together to develop the 2026 DFES scenario framework and explains how individual scenarios are brought together to create three future scenarios to Net Zero and one counterfactual (Falling Behind).
- Section 3** Next, it details how future energy scenarios (FES) were developed for each of the drivers of demand and generation considered in this DFES, highlighting any key changes and improvements relative to the previous DFES. These drivers include, for example, the number of EVs, uptake of energy efficiency measures and number of solar photovoltaic (PV) installations.
- Section 4** Finally, the report presents the key conclusions drawn from this work.

This report was written by the ERM's Energy Networks Team on behalf of UK Power Networks' Distribution System Operator, with input from UK Power Networks.

¹ Office for National Statistics, [Census 2021 geographies, 2021](#)

² UK Power Networks note that Local Government Reorganisation (LGR) will change local council boundaries and influence LSOAs. LSOAs have remained unchanged at this time until final government decisions on LGR are published (expected summer 2026).

2 FRAMEWORKS

Scenarios for key drivers of demand and generation were developed for UK Power Networks' three licence areas and brought together to create four overarching scenario worlds that represent three different views of the evolution of the energy system out to 2050 and one counterfactual. As with UK Power Networks' previous DFES, the scenario worlds closely align with the narrative presented in NESO's FES³ as well as being shaped with input from local stakeholders with the integration of data from Local Area Energy Plans (LAEP).

New to this year's DFES, UK Power Networks collaborated and contributed to the development of NESO's transitional Regional Energy Strategic Plan (tRESP) throughout 2025, and further adjustments have been made to align UK Power Networks' DFES with this data.

The following subsections will address the DFES, tRESP, LAEP, and the integration methodology outlining how these frameworks collectively contribute to achieving the outcomes of the 2026 DFES.

2.1 DFES METHODOLOGY

NESO's most recent FES report, titled "Future Energy Scenarios 2025 (FES 2025)", has provided the basis for UK Power Networks' DFES modelling. NESO considers three Net Zero scenarios and a counterfactual 'Falling Behind' scenario, with scenarios largely varying in the level of electrification and demand flexibility, as demonstrated in Figure 1. FES 2025 pathways framework. Image taken from NESO FES 2025 report. Figure 1.

As part of the 2026 DFES update, UK Power Networks undertook a review of the FES 2025 pathways and ensured that the 2026 DFES is closely aligned with the overarching narrative and scenario framework presented in FES 2025, maintaining consistency.

³ National Energy System Operator, [Future Energy Scenarios \(FES\) 2024 and 2025](#)

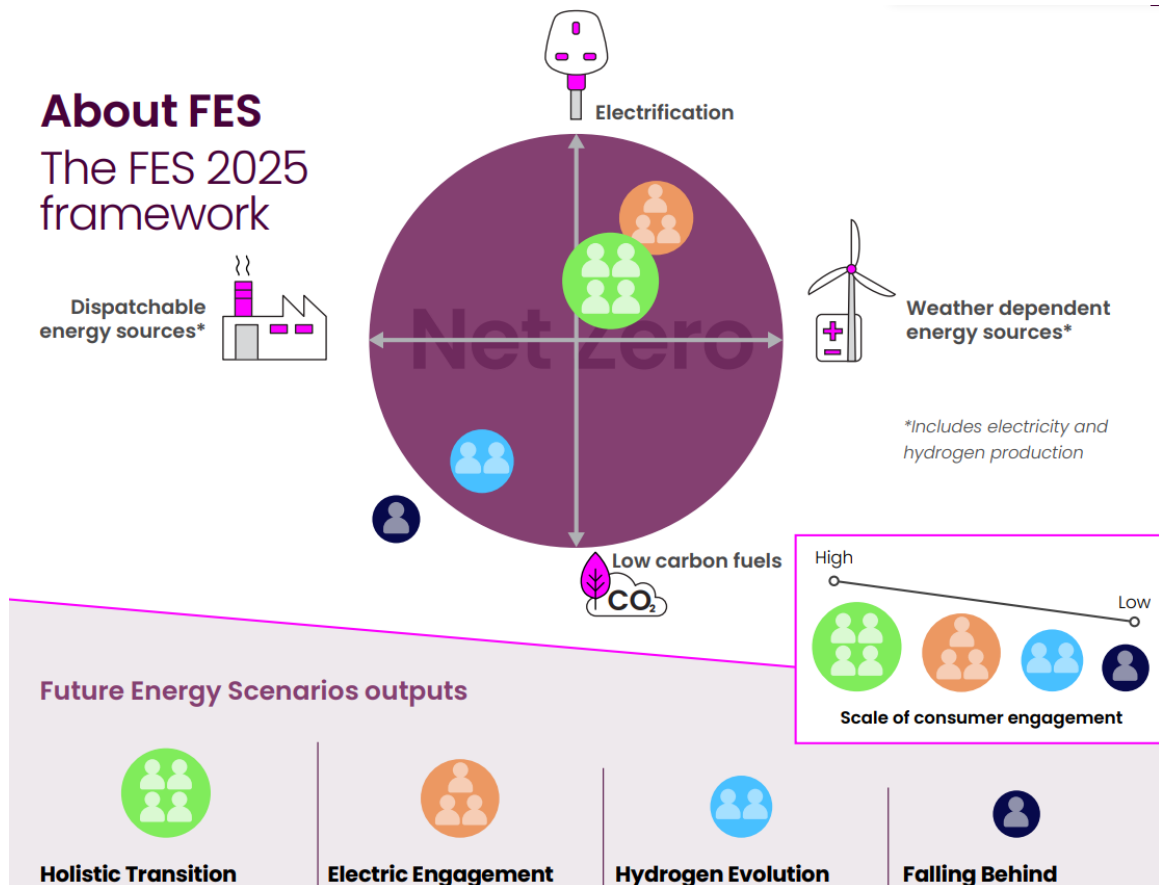


Figure 1. FES 2025 pathways framework. Image taken from NESO FES 2025 report.⁴

These pathways offer a strategic path towards Net Zero, and can broadly be described as follows:

1. **Holistic Transition (HT)** – Highest level of consumer engagement, high levels of electrification, and middling levels of hydrogen.
2. **Electric Engagement (EE)** – High level of consumer engagement, highest level of electrification, and lowest adoption of hydrogen.
3. **Hydrogen Evolution (HE)** – Lower levels of consumer engagement, highest levels of adoption of hydrogen, and lower levels of electrification.

FES 2025 considers these pathways alongside the counterfactual:

Falling Behind (FB) – Not considered in the core pathways; some progress towards decarbonisation is made, but net zero is not met. This pathway is similar to the ‘Counterfactual’ scenario in the FES 2024 framework.

⁴ [Future Energy Scenarios 2025: Pathways to Net Zero](#)

2.2 NESO TRANSITIONAL REGIONAL ENERGY STRATEGIC PLAN

Shared with network operators in late January 2026, NESO has issued the first transitional Regional Energy Strategic Plan (tRESP) to help inform the network investments and business plans of electricity DNOs as they prepare for next price control period between 2028-2033.⁵ The tRESP has been designed as a stepping stone between the current approach to energy distribution network planning and the full RESP approach due in 2027, and marks a significant move in NESO's expanded remit as the strategic energy planner for Great Britain.

UK Power Networks, along with all six DNOs, worked closely with NESO throughout the development of the tRESP to integrate and reflect the local knowledge into the pathways and planning assumptions, to ensure the outputs of the tRESP could be smoothly incorporated into their business plans. Throughout this process, UK Power Networks played an active role in scrutinising and challenging the tRESP numbers and assumptions, drawing upon network intelligence and detailed review, to help shape the figures and projections relevant to UK Power Networks' region and reflect the local context.

2.3 tRESP PATHWAYS

The tRESP Pathways are defined for each tRESP Grid Supply Point (GSP) feeding area and encompass 35 tRESP technology building blocks, organised by year and by pathway (a list of the building block technologies included in the tRESP is provided in the appendix).⁶

These pathways reflect electricity demand and generation connected to distribution networks. Within the scope, NESO focused on demand types for which a consistent, standardised approach to projections can be applied, typically involving large volumes of low-carbon technologies. For example, this included EV uptake to 2050, while data centres were excluded as they are typically captured through connection enquiries to DNOs for large, site-specific projects.⁷

For the development of the pathways, Ofgem asked NESO to create a single tRESP Short-Term Pathway for 2025 to 2035. This short-term pathway was informed by the DNO Holistic Transition pathway, adjusted by NESO for consistency to meet carbon budget targets in 2035 and 2042, and assumes high renewables and high consumer engagement. Ofgem has previously advised that the Holistic Transition pathway is the pathway that should be used for transmission network planning.

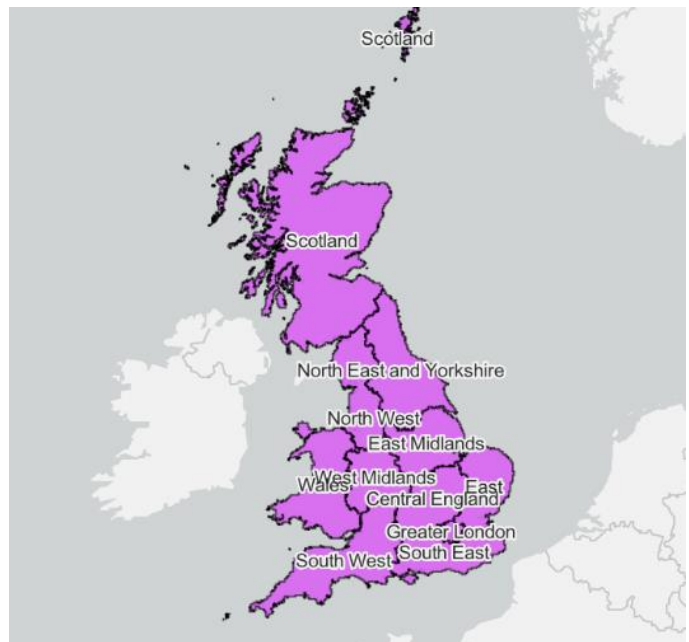


Figure 2, Geographic split between RESP nations and regions

⁵ transitional Regional Energy Strategic Plan (tRESP) | National Energy System Operator

⁶ Pathways

⁷ Pathways

From 2035, the short-term pathway splits into several long-term routes out to 2050, highlighting increased uncertainty and reflects the tRESP variations of Holistic Transition, Electric Engagement, and Hydrogen Evolution.

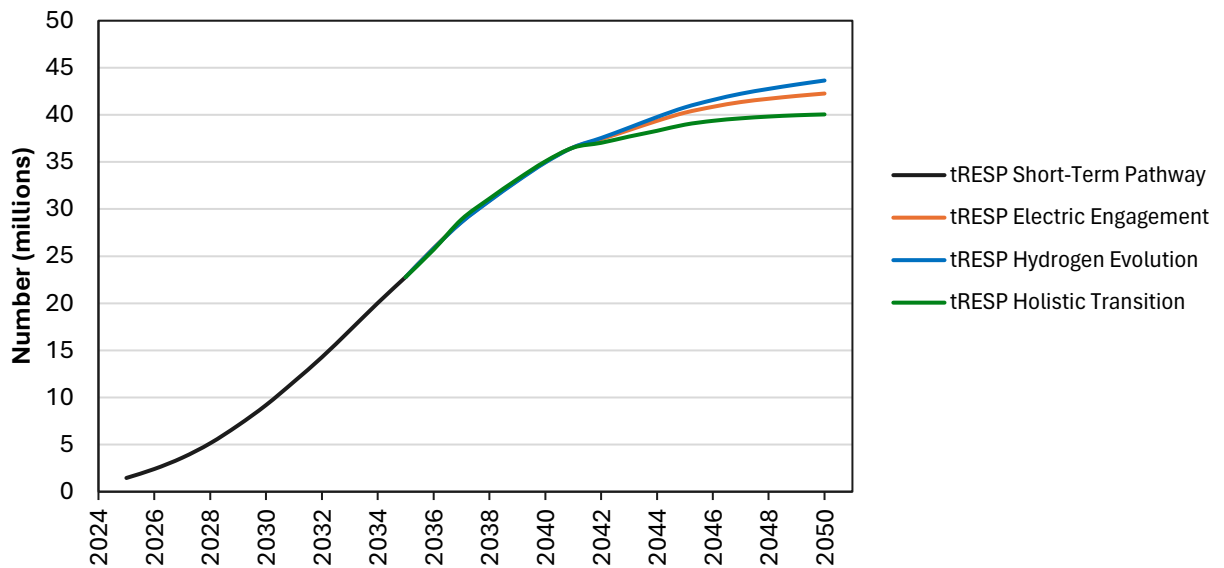


Figure 3. Demand technology per year per Pathway for electric vehicles in Great Britain

To illustrate the tRESP pathways, the example plot above demonstrates the pathways out to 2035 and the subsequent diversion out to 2050. By 2035, the tRESP short-term pathway projects EV demand to reach about 22.8 million units. After 2035, projections diverge: the tRESP Hydrogen Evolution pathway expects up to 43.6 million EVs in 2050, while the Holistic Transition pathway forecasts 40 million.

As discussed in more detail in Section 2.5, UK Power Networks has ensured alignment with the tRESP data for the best view scenario Holistic Transition, but has kept its original wider scenario ranges to ensure forecasting is kept with wide range of potential futures.

2.3.1 tRESP CONSISTENT PLANNING ASSUMPTIONS

Consistent Planning Assumptions (CPAs) are intended as national guidance for DNOs to ensure a uniform approach to demand forecasting. They propose key assumptions and modelling methodologies to calculate demand from residential heat pumps and electric vehicles (annual consumption and half-hourly profiles), including residential energy efficiency projections.

UK Power Networks, together with the other GB DNOs, worked with NESO during the CPA development of the tRESP, sharing local insights, providing feedback, and participating in workshops to ensure the CPAs reflected both national and local priorities. Following this collaboration, NESO issued a set of CPA values and guidance, which UK Power Networks has adopted in its demand modelling approach.

UK Power Networks' demand forecasts are modelled in their Strategic Forecasting System (SFS), which produces substation level forecasts of demand out to 2050 and takes the DFES scenarios as inputs, together with baseline demand data, technology specific demand profiles, future connections data and a range of other assumptions. The demand forecasts produced by the SFS are key to network planning and inform engagement with stakeholders, such as Ofgem, NESO and local

authorities. The calculation methodologies for residential heat pumps and electric vehicles in the SFS are similar to those proposed in the tRESP CPAs, but are not identical. Where possible, the CPAs have been integrated into the modelling, replacing existing assumptions. However, due to the methodological differences, it has not been possible to directly input all CPAs. The use of the CPAs in demand modelling is covered in more detail in Section 3.

2.4 LOCAL AREA ENERGY PLANS (LAEP)

This DFES is UK Power Networks’ most locally enhanced yet, with LAEPs covering 66 out of 133 local authority areas directly shaping this year’s forecast, up from 32 last year.

LAEPs provide geographically specific local intelligence on the expected uptake and spatial clustering of LCTs, including EVs, heat pumps, solar PV and district heating. Grounded in local authority economic growth and decarbonisation strategies, development pipelines and heat zoning ambitions, LAEPs bring local ambitions and deliverability to deployment assumptions that aggregate national scenarios overlook.

Led by local authorities, LAEPs brings together local stakeholders, such as Community Energy Groups, residents, and businesses, and collates local knowledge to propose a local decarbonisation pathway. Working with local authorities, UK Power Networks developed the LAEP Support Framework which sets out how UK Power Networks can use the wealth of information contained in LAEPs to inform the DFES, and assess credibility and confidence of these plans with local authorities, which underpins UK Power Networks’ forecasting process and subsequent network planning activities.

The LAEP Support Framework is increasingly important as the number of local authorities adopting decarbonisation plans increases. Since 2022, an additional 51 local authority areas have either completed, or are in the process of completing, a LAEP or similar.

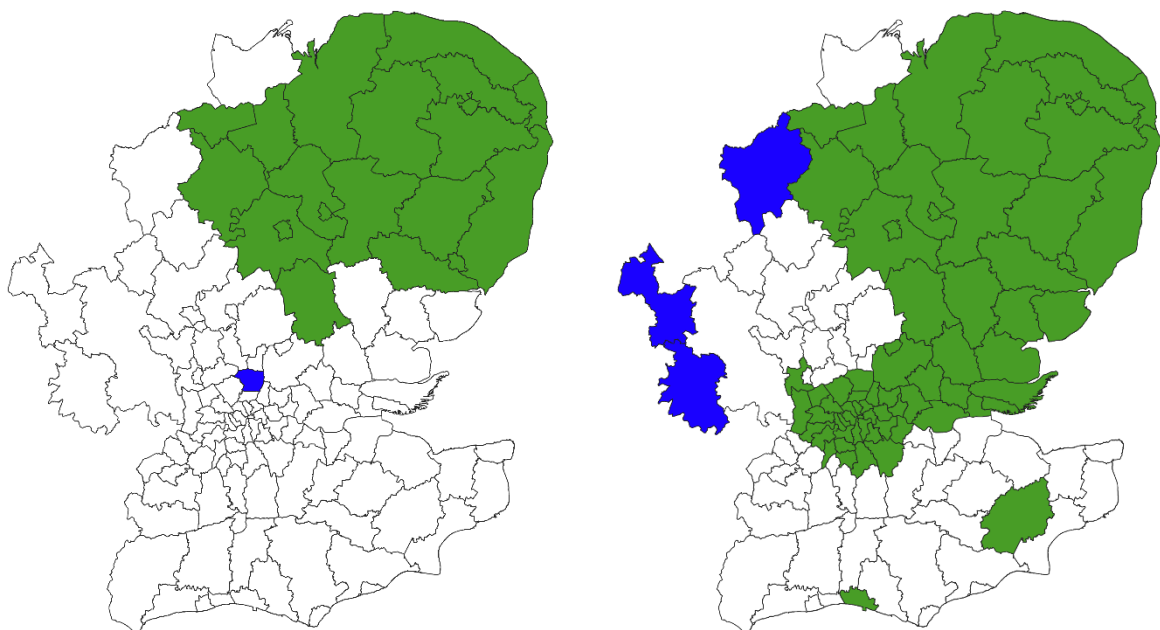


Figure 4. Local authority areas in UK Power Networks' licence areas that have adopted, or are in the progress of developing, LAEPs or similar.

2.4.1 INCLUSION OF LOCAL HOUSING DATA

UK Power Networks uses national housing datasets to shape its forecasts, using household growth projections from the ONS to define a medium household stock growth scenario for each local authority to model the growth in domestic building stock. Through close engagement with local authorities, they informed UK Power Networks that national housing datasets alone did not sufficiently capture the scale, timing, or confidence levels associated with local housing delivery plans.

In response, UK Power Networks developed an enhanced approach that integrates local housing trajectories into the ONS housing projections ensuring that forecasts better reflect local ambition alongside national ambitions.

As a result, UK Power Networks collected housing trajectory data from local authorities either directly or through their websites and identified 35 major development clusters (500+ homes) across 25 local authorities. These have been overlaid onto the ONS household growth projections to more accurately reflect local authority targets and plans.

2.4.2 SHARING LOCAL DATA

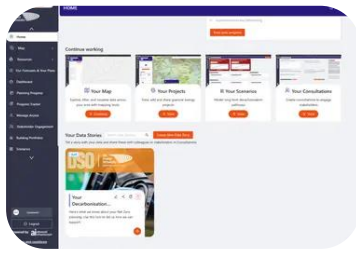
UK Power Networks' DSO Local Net Zero team⁸ proactively engages with local authorities on LAEPs.

UK Power Networks supports the development of LAEPs through its free data and digital tools and then integrates these plans into its forecasts and network investment activities.

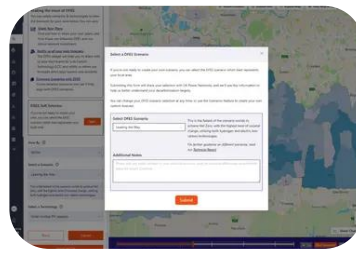
To ensure the Local Net Zero team's service is equitable, UK Power Networks have developed six different ways⁹ for local authorities to share their decarbonisation plans.

⁸ [Your Local Net Zero Hub](#)

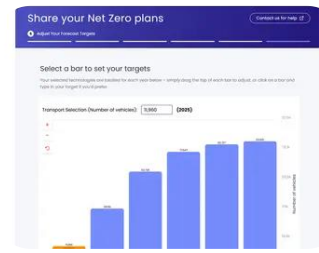
⁹ [Share your plans - Your Local Net Zero Hub](#)



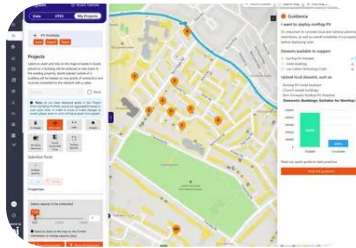
Your Decarbonisation Story: Easy to use personalised data summary



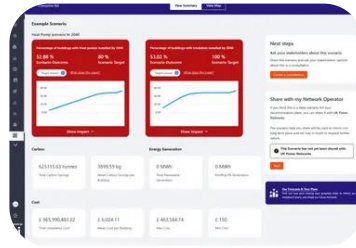
DFES Self-Selector: Choose the pathway which represents your area



DFES Widget: Tell us your high level deployment targets



LAEP+ Projects: Spatially map and share your projects



LAEP+ Scenarios: Create and share spatial forecasts



LA Common Ask: Share your detailed, spatially mapped forecasts

Figure 5. Six ways for local authorities to share their decarbonisation plans with UK Power Networks.

The UK Power Networks DSO team works closely with the local authority and their collaborators on the LAEP and collaborate on the LAEP data using the LAEP Support Framework that enables forecasting and planning assumptions to be enhanced with local data. UK Power Networks does this through two assessments:

Materiality: Which checks and compares to see if the LCT volumes in the LAEP are higher than the forecasting scenario that UK Power Networks uses to plan its network investment against, which is Holistic Transition

Confidence: If the LAEP forecast volumes are higher, UK Power Networks then in partnership with the local authority undertakes a confidence assessment which looks to understand and validate the assumptions and supporting evidence of the LAEP to understand the likelihood and credibility of the LCT volumes coming forward in that local area. This includes:

- **Quality of Analysis** - How robust and evidence-based is the data and methodology?
- **Governance** - Are there clear decision-making structures and evidence of local authority cabinet approval?
- **Deliverability** - Are the plans practical and supported by resources and timelines?

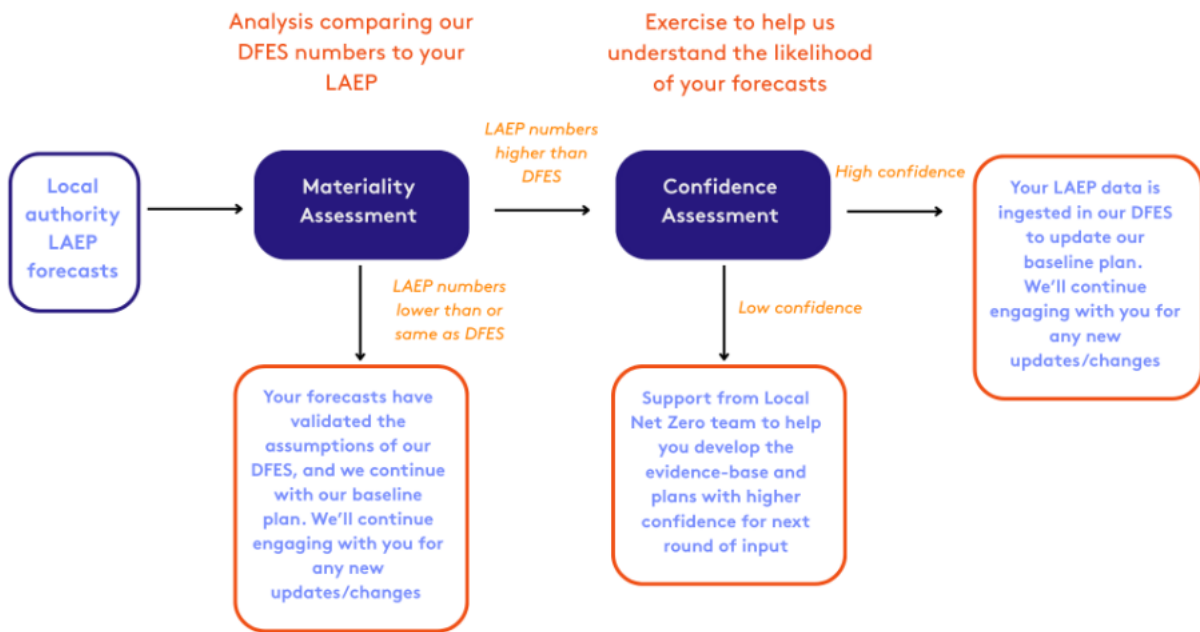


Figure 6. UK Power Networks' LAEP Support Framework.

2.5 COMBINED PATHWAYS - COHERENT PLANNING CHAIN

This sub-section outlines the integration of the various different frameworks and key input datasets described in the preceding sections, which have been combined to produce UK Power Networks' updated 2026 DFES scenario worlds. An overview of the process is shown in the schematic below.

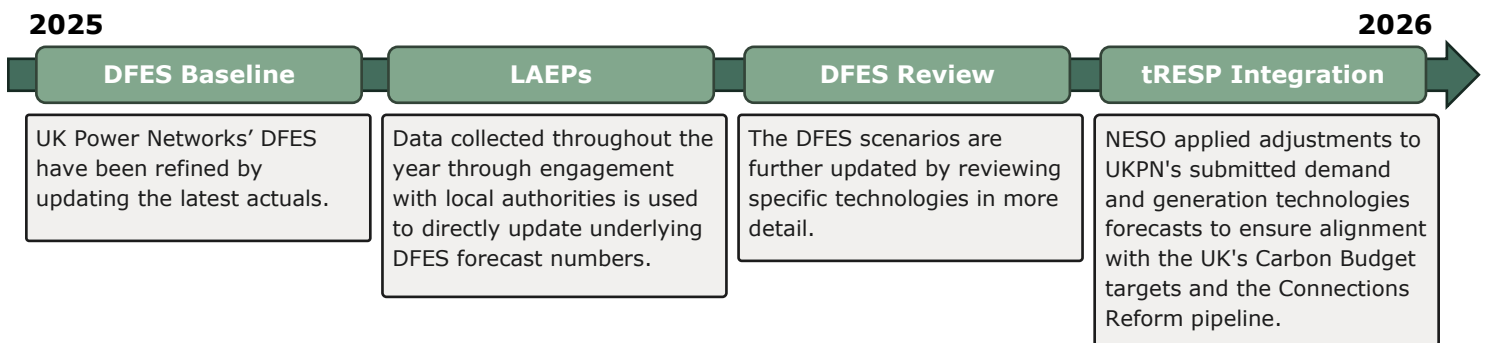


Figure 7. Overview of framework and dataset integration timeline

For 2026 DFES, UK Power Networks aligned its DFES Holistic Transition scenario world with tRESP's Holistic Transition pathway. This alignment is consistent with Ofgem's guidance for DNOs to consider tRESP pathways in their planning for ED3. At the same time, it remains beneficial and important to UK Power Networks to retain the remaining DFES scenarios (Electric Engagement, Hydrogen Evolution, and Falling Behind) in its original DFES structure. While the tRESP provides a single pathway for all scenarios over the period to 2035 (at which point the scenarios diverge), the DFES scenarios capture a deliberate span of uncertainty across electrification, consumer behaviour, hydrogen adoption, and wider policy ambition, reflecting variation that tRESP does not attempt to model in the pre-2035 period.

Preserving these alternative scenarios allows UK Power Networks to continue stress-testing system impacts across a wider scenario envelope, including extremes not represented in tRESP, enabling robust local system planning, sensitivity analysis, and assessment of long-term investment options for ED3 and beyond.

As an example, below is presented the tRESP pathways for EVs alongside the 2026 DFES scenarios. As expected, there is exact alignment between DFES and tRESP Holistic Transition scenarios, but in this case it can also be seen that there is a close match between the tRESP and the other net zero consistent DFES scenarios, particularly over the early years. Falling Behind provides a more distinct lower uptake scenario.

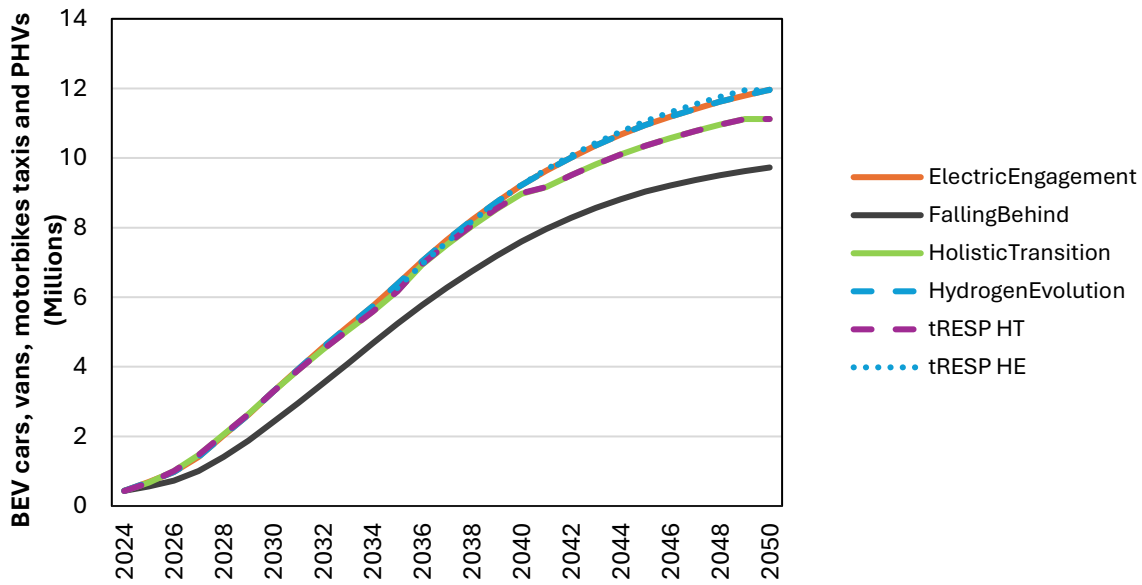


Figure 8. Uptake of LCT_BB001 (Battery electric vehicles (BEV) cars, vans, motorbikes, taxis and private hire vehicles (PHVs)) in the 2026 DFES scenarios and tRESP pathways.

Overall, the 2026 DFES methodology and modelling remains largely aligned with previous versions,¹⁰ incorporating updated data to account for advancements in technology and evolving policy frameworks. For the 2026 DFES, baseline figures have been revised and uptake projections updated where necessary,, for example to include of recent policy initiatives such as the Future Homes Standard (discussed in Section 3.3).

¹⁰ Distribution Future Energy Scenarios - UKPN DSO

3 DATA UPDATE PROCESS

3.1 CHANGES IN THE LAST YEAR – COMPARING TO DFES 2025 FORECASTS

As part of the DFES update process, the technology uptake scenarios have been rebased to the data on actual deployment (actuals) in the baseline year, which for the 2026 DFES is the actual deployment on 31st March 2025. In this section, UK Power Networks compare this baseline year actual data to the actuals from the last few years, in order to get a sense of the real rate of market development. UK Power Networks also compare the 31st March 2025 actuals to the forecast for March 31st 2025 from the prior DFES, to see how closely real deployment has matched the near-term forecast.

Table 3. Differences between the 31st March 2024 and 31st March 2025 acts, and the projected 31st March 2025 derived from the DFES 2025 forecast

Technology	31 st March 2024 (Actuals)	31 st March 2025 (Actuals)	% Change	31 st March 2025 (HT DFES 2025 Forecast)
Electric Cars and Vans	500k	588k	+18%	729k
Electric Motorcycles	6.0k	26.5k	+342%	42.0k
Electric HGVs	91	124	+36%	195
Electric Buses	1,851	2,953	+60%	2,565
Domestic Heat Pumps	48.0k	82.8k	+74%	81.56k
I&C Heat Pumps	2.12k	2.67k	+26%	5.29k
Large Scale PV	2,134 MW	2,202 MW	+3%	3,043 MW
Rooftop PV	1,089 MW	1,236 MW	+13%	1,218 MW
Domestic Storage	53.3 MW	163.2 MW	+208%	72.1 MW
I&C behind-the-meter storage	1.4 MW	3.7 MW	+166%	2.7 MW

3.1.1 ELECTRIC VEHICLES

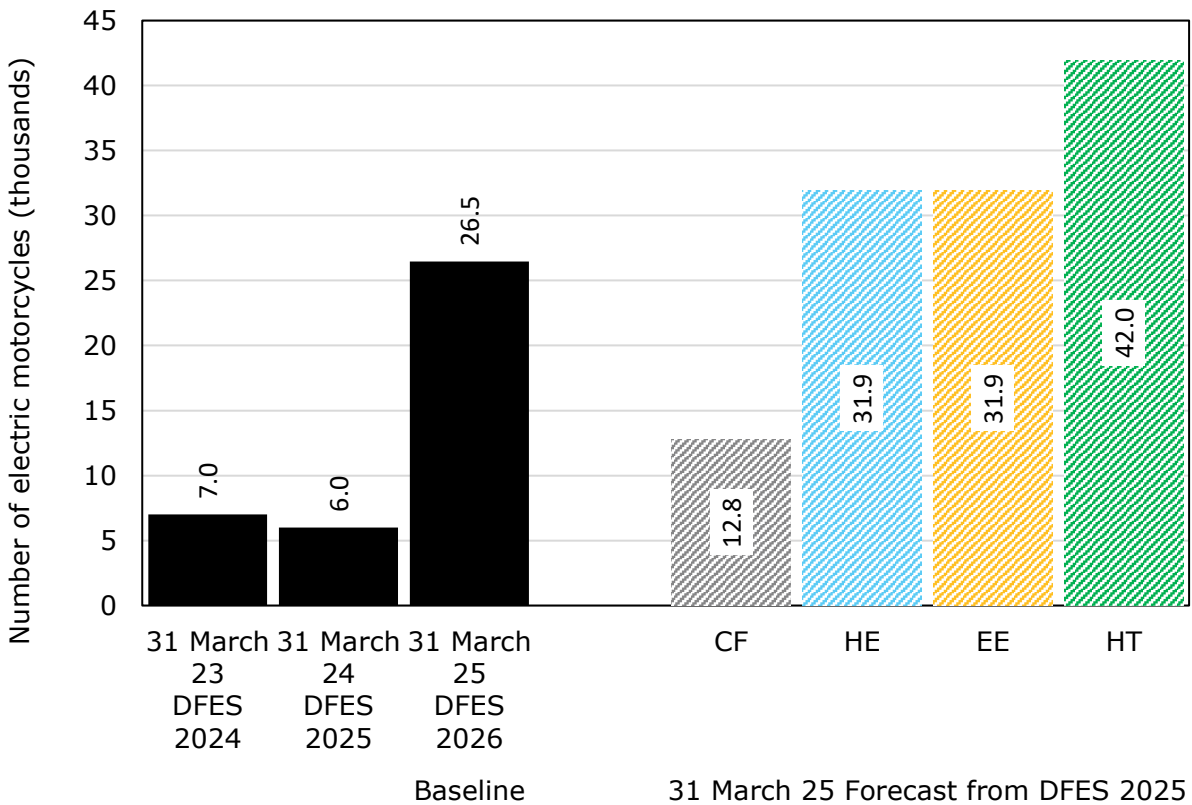
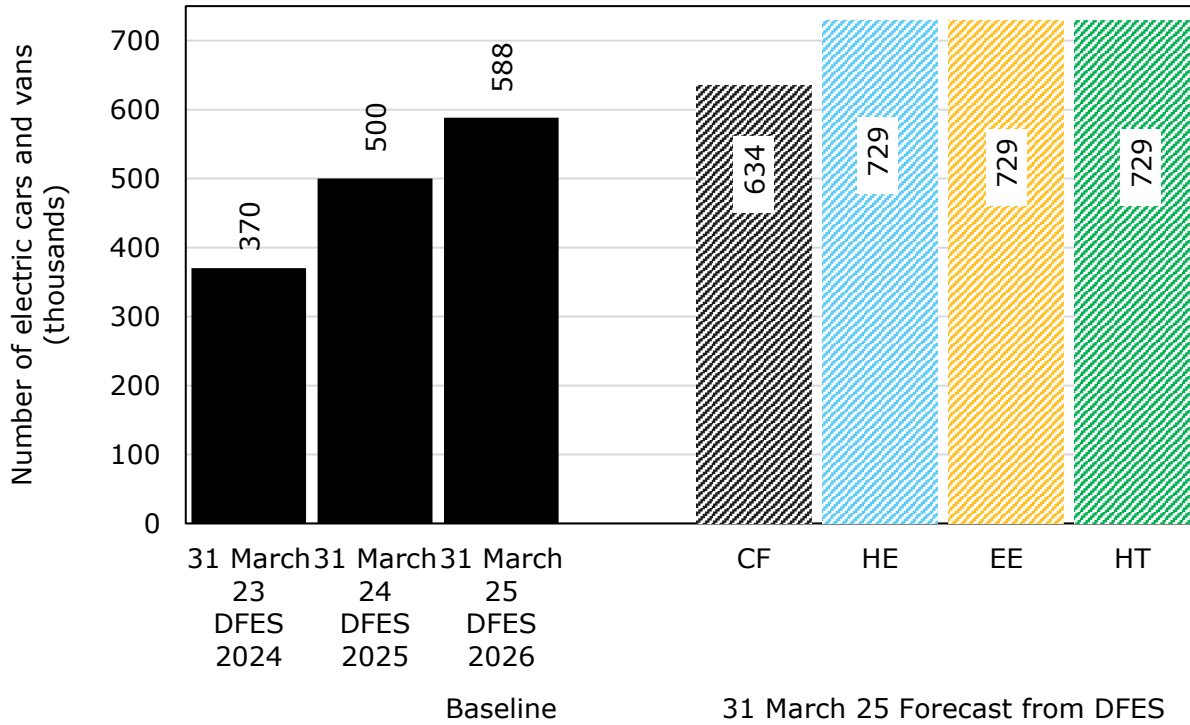
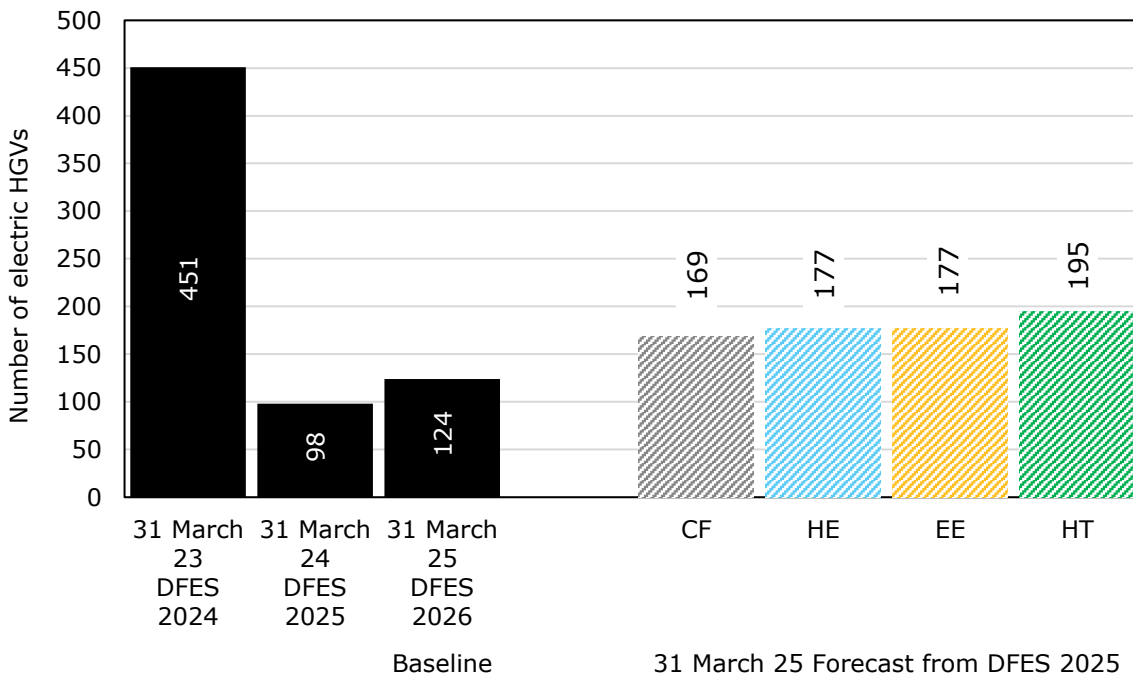
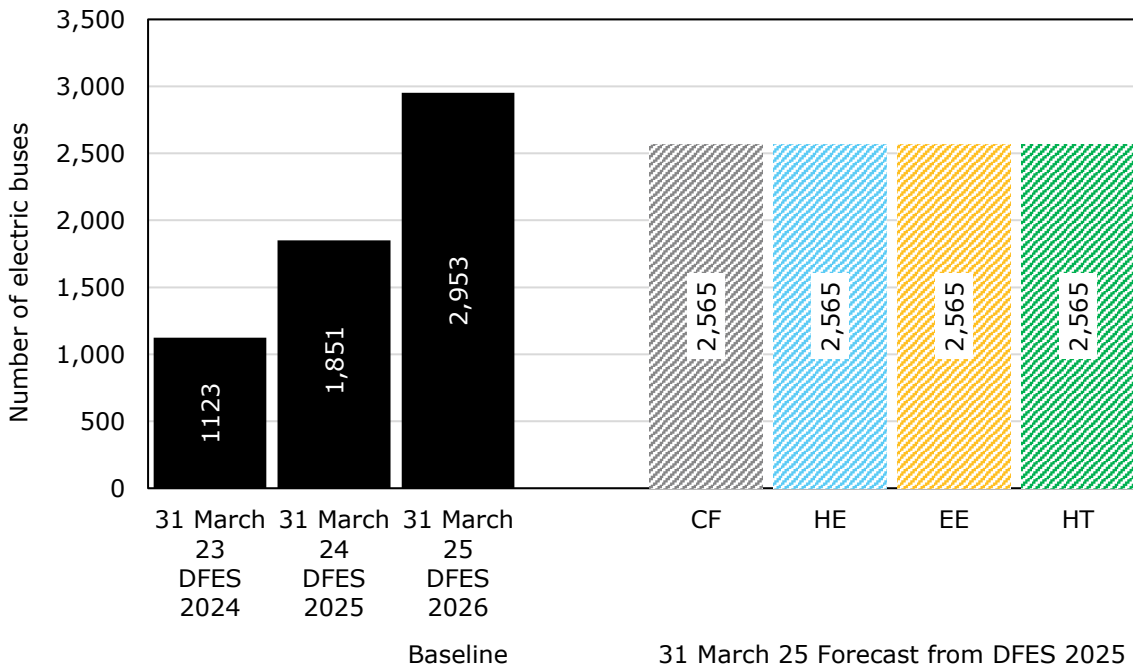


Figure 9. Number of electric cars and vans (top) and electric motorcycles (bottom): comparison of actual uptake in UK Power Networks licence areas with DFES 2025 forecast values

The increase of about 88,000 EVs (cars and vans) over the last year is only around 40% of the forecast for 31st March 2024 from last year's DFES.¹¹ Global uncertainty appears to still be limiting EV sales. To reflect this, ERM and UK Power Networks have decided to reflect the actual uptake trend to the near-term forecast for EV cars and vans uptake in 2026 DFES. This is discussed in 3.4.1.1 below.

The number of electric motorcycles increased over fourfold from 2024-2025, which aligns reasonably well with the medium uptake scenarios. It appears the stronger potential uptake forecasted by the Holistic Transition was not achieved, which might similarly be related to the global uncertainty.



¹¹ 2025 DFES Report

Figure 10. Number of electric heavy goods vehicles (HGVs) (top) and electric buses (bottom): comparison of actual uptake in UK Power Networks licence areas with DFES 2025 forecast values

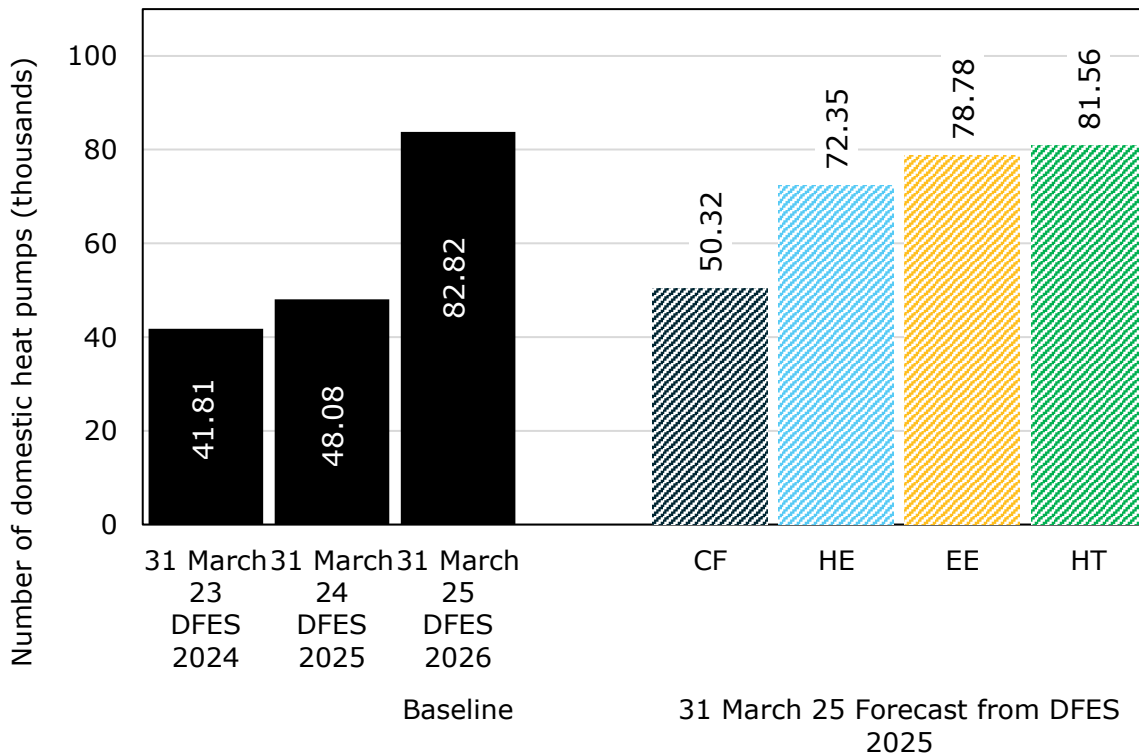
The number of electric heavy goods vehicles (HGVs) grew by 26 more HGVs between 2024 and 2025, which is over 25 but still below the Falling Behind pathway. As the counts of electric HGVs are so small, it makes it difficult to forecast as individual fleets can have an oversized impact on the total stock. All it would take is two medium-sized fleet operators or one large operator to have electrified their fleets and the pathways would have been surpassed.

The number of electric buses grew rapidly, increasing by nearly 60% from 1,851 to 2,953 and overshooting the 2025 DFES forecasts of 2,565 electric buses for all scenarios.

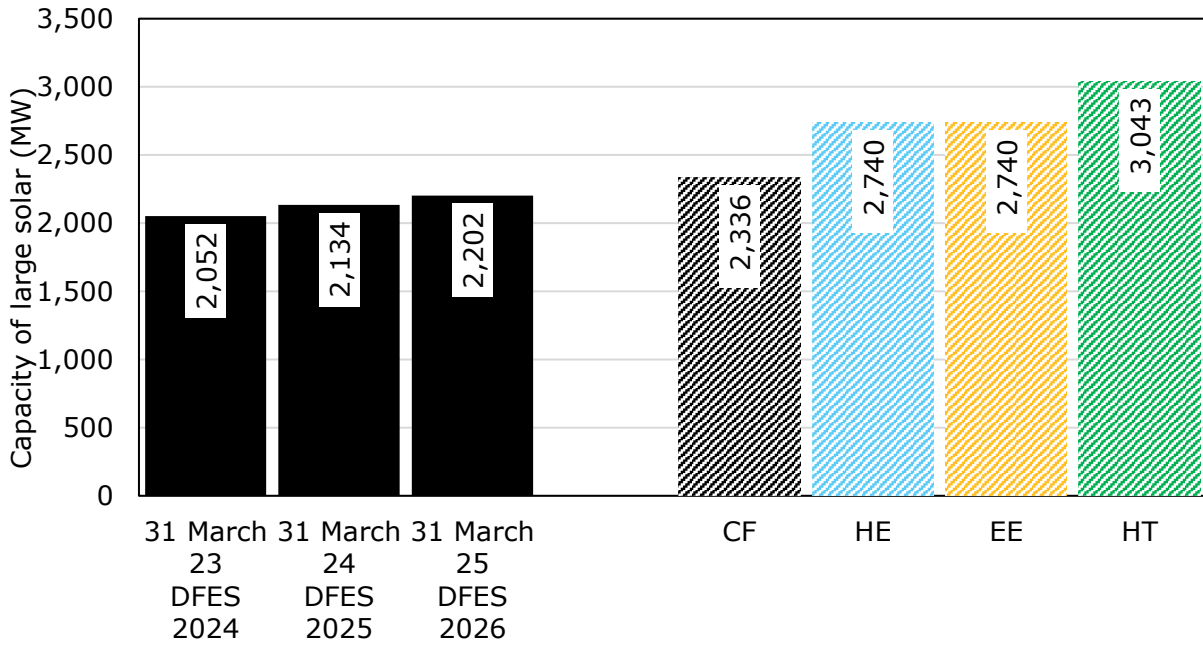
3.1.2 HEAT PUMPS

Domestic heat pump uptake in the past year has aligned quite well with the more ambitious Holistic Transition scenario, but it is worth noting that for all scenarios it is still the expectation that uptake remains limited until 2035.¹² Therefore, though uptake has been reasonably strong it still tracks with the constrained early uptake modelled.

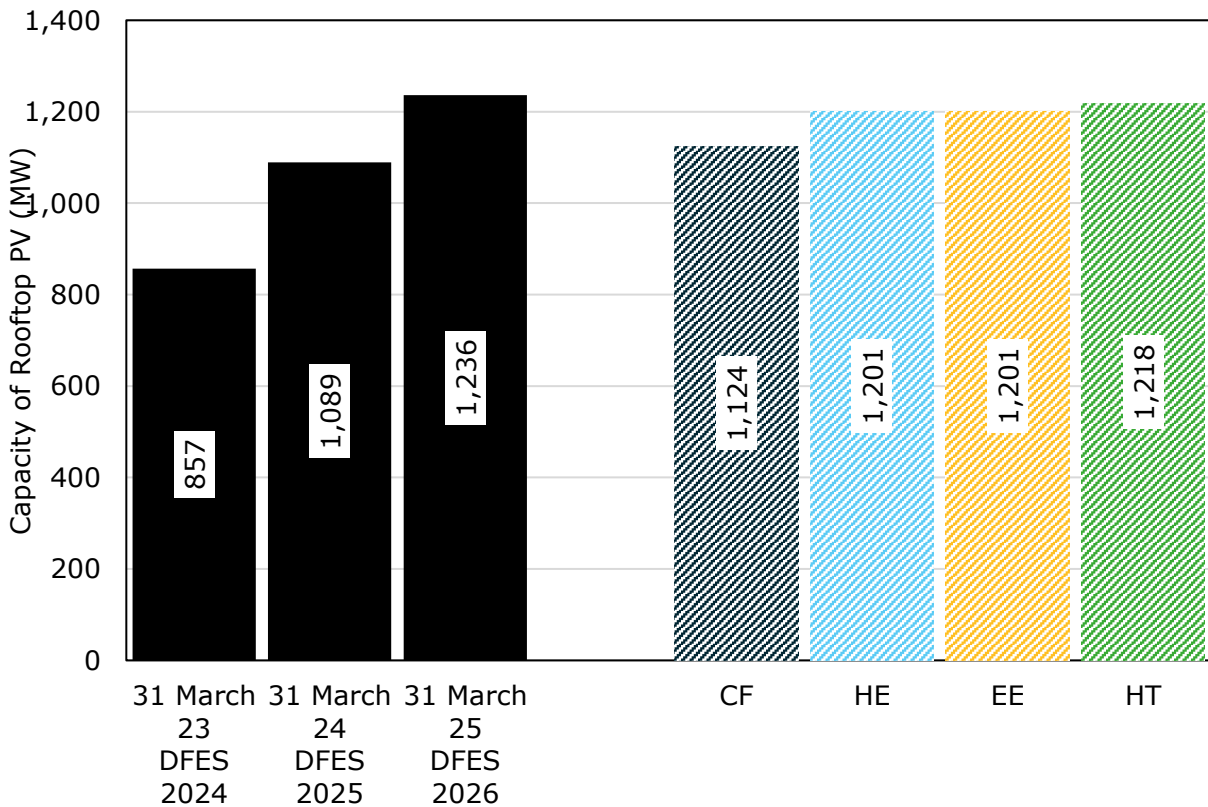
Non-domestic heat pump uptake remains limited and aligns more closely with the medium uptake scenarios.



¹² 2035 is the date that new gas boiler sales had been expected to be banned, which was expected to result in a sharp increase in heat pump uptake. Note that more recent government announcements have rowed back on the commitment to a gas boiler ban in 2035.



31 March 25 Forecast from DFES 2025



Baseline

31 March 25 Forecast from DFES 2025

Figure 12. Installed capacity of large scale (top) and rooftop (bottom) solar PV: comparison of actual uptake in UK Power Networks licence areas with DFES 2025 forecast values

Rooftop solar PV deployment marginally outpaced the DFES 2025 projection, while larger-scale solar deployment was consistent with the least ambitious Counterfactual scenario from DFES 2025. Installation of rooftop solar is expected to be boosted by the Future Homes Standard in the coming years, which will require solar PV to be installed in the majority of new build houses (described in more detail in section 3.3.1). In the case of large solar, forecasts have been updated to align with CP2030 data, which is also consistent with the tRESP pathways.

3.1.4 BATTERY STORAGE

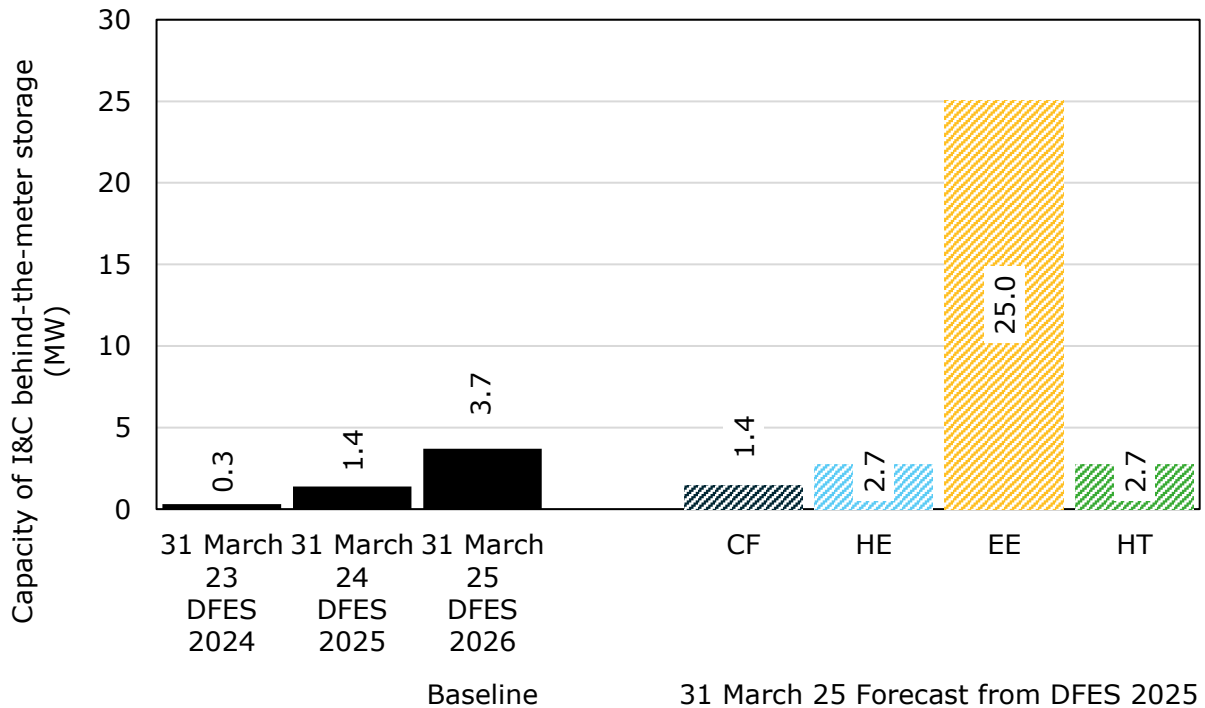
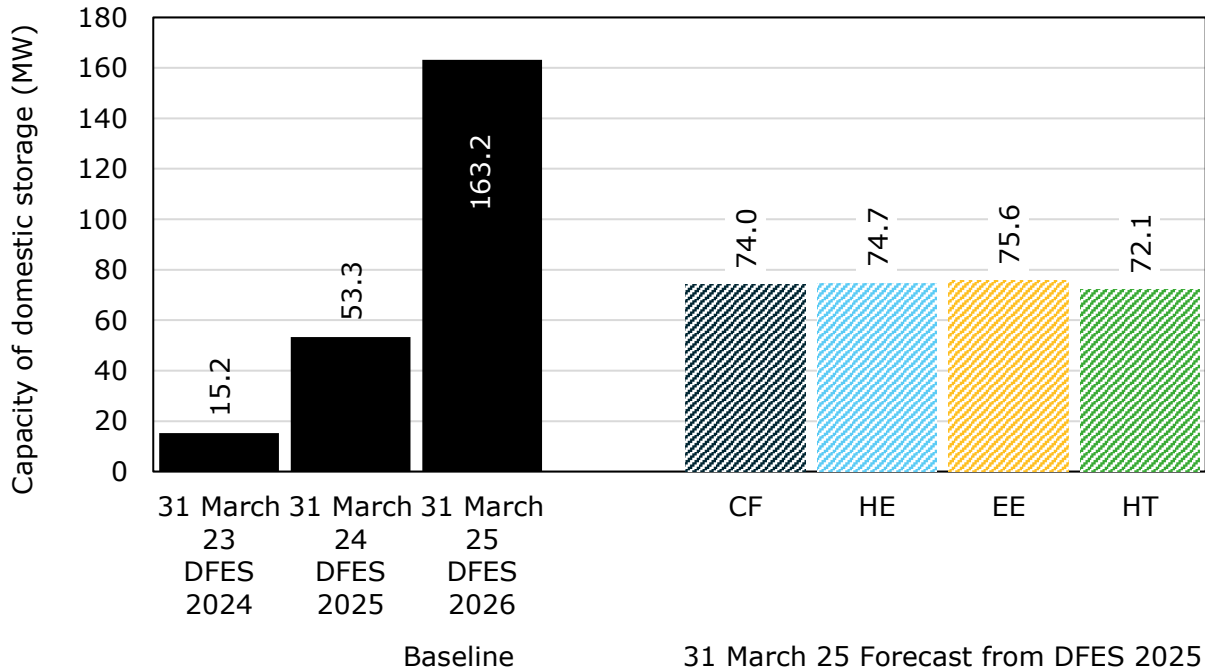


Figure 13. Installed capacity of domestic (top); industrial and commercial (bottom) battery storage: comparison of actual uptake in UK Power Networks licence areas with DFES 2025 forecast values

As observed in the previous year, the installed capacity of domestic battery storage is increasing significantly, outpacing all projections. This growth is likely attributable to the ongoing reduction in battery costs. The uptake of industrial and commercial (I&C) behind-the-meter storage continues to increase significantly between 2024 and 2025 from 1.4 MW to 3.7 MW. The Electric Engagement (EE) scenario world forecast more rapid growth of behind-the-meter I&C storage than the other scenarios, driven by more aggressive battery cost reductions and higher revenue streams assumed in this scenario.

3.2 PROACTIVE ENGAGEMENT TO ENHANCE FORECASTS WITH LOCAL INTELLIGENCE

3.2.1 LAEPS SHAPING UK POWER NETWORKS' FORECASTS

UK Power Networks receives LAEP data covering three main technology sectors: transport, heating, and rooftop PV generation. After the LAEP data has been processed through UK Power Networks' LAEP Support Framework, it is used to directly update UK Power Networks' underlying forecast numbers. As described above, these numbers are further transformed by NESO and shared back with UK Power Networks so that they can develop their final DFES.

The tables below show UK Power Networks' initial DFES forecasts (Holistic Transition scenario) and compare them to the final outputs UK Power Networks is using directly in network planning. These final outputs have been informed by both LAEPs and the tRESP pathways.

Table 4. Number of EVs

Forecast	Units	2030	2040	2050
Without LAEP data, before NESO adjustment	Number of EVs	3.9m	9.5m	11.1m
With LAEP data, after NESO adjustment	Number of EVs	3.9m	9.7m	11.3m

Table 5. Number of Domestic Heat Pumps (including Hybrid)

Forecast	Units	2030	2040	2050
Without LAEP data, before NESO adjustment	Number of heat pumps	0.35m	2.9m	5.9m
With LAEP data, after NESO adjustment	Number of heat pumps	0.51m	3.1m	6.1m

Table 6. GW of Rooftop PV capacity (domestic and I&C)

Forecast	Units	2030	2040	2050
Without LAEP data, before NESO adjustment	GW of rooftop PV	2.2	4.7	7.3
With LAEP data, after NESO adjustment	GW of rooftop PV	3.3	7.1	9.8

Table 7. Summary of additional LCTs added to UK Power Networks' forecasts informed by LAEP data.

Forecast	Units	2030	2040	2050
Additional EVs	Counts	25k	190k	286k
Additional heat pumps	Counts	161k	210k	270k
Additional rooftop PV capacity	GW	1.1	2.4	2.5

The tables above highlight the significant impact that integration of LAEP data has had on UK Power Networks' 2026 DFES forecasts. The integration of the local insights into DFES means UK Power Networks accounts for the LAEPs when making investment decisions in its network – ensuring that the network is fit for purpose to accommodate the Net Zero transition.

3.3 SCENARIO UPDATES – ADDITIONAL DFES CONSIDERATIONS AND POLICY REVIEWS

In addition to the processes described above, the DFES scenario worlds are constructed by combining uptake forecasts for all the individual drivers of demand and generation. A bottom-up approach is taken to the modelling, with the aim of understanding the types of customers across the network and thereby reflect the regional differences that may arise as part of the future transition.

The focus of the 2026 DFES scenario update consisted of alignment with the Future Homes Standard, review of early battery electric vehicle (BEV) uptake based on recent actual outturn, and alignment with Connection Reform.

3.3.1 FUTURE HOMES

The Future Homes and Buildings Standard drafted by the UK government, and currently under consultation, legislates that new homes in the UK must be 'zero-carbon ready' and deliver at least 75% carbon savings compared to 2013 energy efficiency requirements¹³. Originally targeted for 2025, legislation is currently being finalised for publication and implementation in 2026. The policy aims to deliver significant carbon savings and reduce the need of retrofitting to produce zero carbon emissions as the electricity grid decarbonises.

¹³ [The Future Homes and Buildings Standards: 2023 consultation - GOV.UK](https://www.gov.uk/government/consultations/the-future-homes-and-buildings-standards-2023)

3.3.1.1 NEW HOMES

The UK government are consulting on two options for new homes. These options set out performance requirements considering technologies best suited to each housing types. These technologies include:

- **Heating:** all new homes require air source heat pumps (ASHPs) or a 4th generation heat network that uses ASHPs.
- **Solar PV panels:** the UK government are consulting on two options regarding solar PV panels, one with and one without. As a result, solar PV panels may become mandatory for new homes.
- **Thermal efficiency:** fabric standards are to remain largely the same as fabric standards in the 2021 Part L uplift to the Building Regulations. Improvements are to be made to in new home airtightness.

3.3.1.2 NON-DOMESTIC BUILDINGS

For non-domestic buildings the UK government have developed two proposals: one for top-lit spaces in buildings and one for side-lit spaces in buildings. Performance targets are proposed for new non-domestic buildings with:

- Good fabric standards to minimise heat loss from windows, walls, floors and roofs.
- A heat pump for side-lit spaces and radiant electric heating in top-lit spaces.
- Enhanced efficacy of lighting and heat recovery efficiency.
- **Solar PV panels:**
 - Option 1: Solar PV panel coverage equivalent of 40% of the building's foundation area for side-lit spaces and 75% for top-lit spaces.
 - Option 2: Solar PV panel coverage equivalent of 20% of foundation area for side-lit spaces and 40% for top-lit spaces.

3.3.1.3 2026 DFES PROPOSED ALIGNMENT METHODOLOGY

To align with the incoming Future Homes and Buildings legislation, the forecasts for rooftop solar have been updated to reflect the requirement for solar PV to be installed on the majority of new build homes. To create the updated forecasts, UK Power Networks has assumed that 90% of suitable new builds (excluding apartments) will be installed with solar PV and that the average system size is 3.5 kW.

To calculate the number of suitable new builds, UK Power Networks applies the latest new build rate and house type mix (detached, semi-detached, apartment etc.) at LSOA level and assumes that this remains constant over time. Applying the 3.5 kW assumption to these suitable new builds results in 700 MW of additional solar capacity in the Holistic Transition scenario and 1,500 MW capacity added to the counterfactual (now Falling Behind scenario world), compared to the DFES 2025 projections.

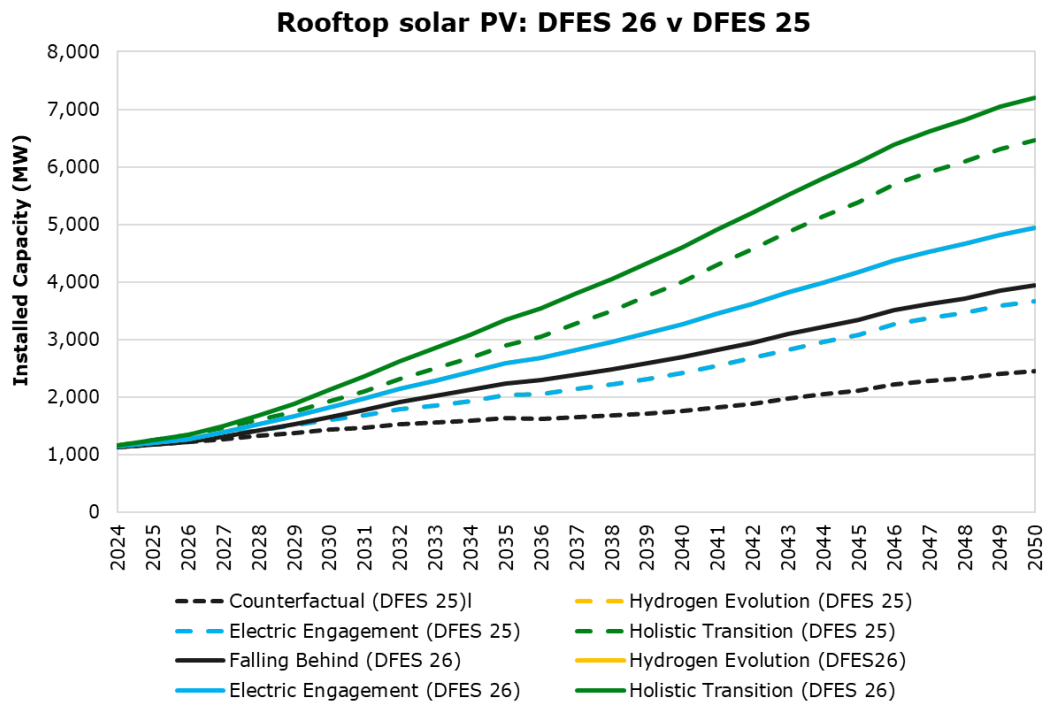


Figure 14. Projected installed capacity of domestic solar PV until 2050 according to the different DFES scenarios, reflecting the alignment with the Future Homes Standard.

Figure 15 shows that projected domestic rooftop solar PV capacity increases materially across all DFES 2026 scenarios following alignment with the Future Homes and Buildings Standard. The uplift is most noticed in the Falling Behind scenario, where mandatory solar on new builds drives a steeper trajectory relative to DFES 2025, effectively narrowing the gap with the Net Zero-consistent pathways. Growth continues with gradual pace in the Holistic Transition and Electric Engagement scenarios, since significant rooftop PV adoption has already been established due to consumer-driven uptake and LAEP contributions.

3.3.2 BEV UPTAKE

The growth of the BEV market has been slower than forecast over recent years, likely reflecting affordability and greater uncertainty over the rate of transition to fully electrified transport, as a number of manufacturers have extended the expected lifetime of petrol and diesel models. To reflect this, the near term forecast for BEV sales has been refined to extend current growth trends, rather than the more rapid increase in the latter part of this decade that was assumed in the prior forecast. This modification to the near term trend is shown in the figure below. While near term growth has been amended to better reflect current market conditions, in the longer term the forecast for BEV deployment remains consistent with prior DFES, tRESP and UK policy objectives.

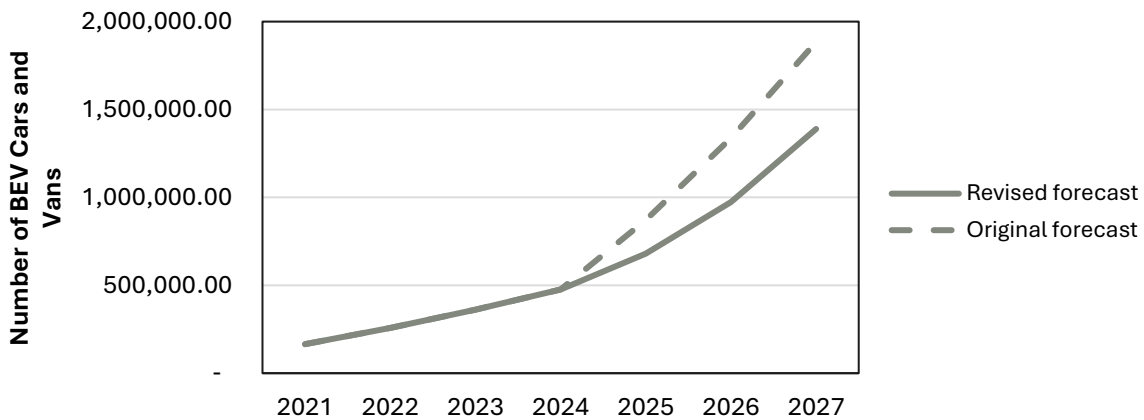


Figure 15. Number of BEV Cars and Vans showing the revised forecast based on recent actual outturn.

3.3.3 CONNECTIONS REFORM ALIGNMENT

Over the past year, UK Power Networks has made significant changes to the pipeline modelling of large generation and storage by aligning with Connections Reform. Rather than using expected connections based on the Embedded Capacity Register, UK Power Networks has aligned its forecasts with the Connections Reform database to model with higher accuracy.

Section 3.4.2 describes in more detail how this methodology aligns with the tRESP, but how further changes to the CP30 connection reform outcomes have been reflected in the tRESP data.

3.3.4 HEAT NETWORKS

The heat network modelling approach and assumptions have not been changed for the 2026 DFES, but the datasets have been updated for alignment with the tRESP. In parallel, UK Power Networks is currently undertaking an innovation project called 'HeatScape'¹⁴ in which heat networks and their energy centres are modelled with greater accuracy using advanced modelling tools. The expectation is that the results from this project will be incorporated into future DFES, providing a more accurate reflection of the impact of heat network deployment on the electricity network, and aligning UK Power Networks' DFES with the government's Heat Network zones.

¹⁴ <https://innovation.ukpowernetworks.co.uk/projects/heatscape>

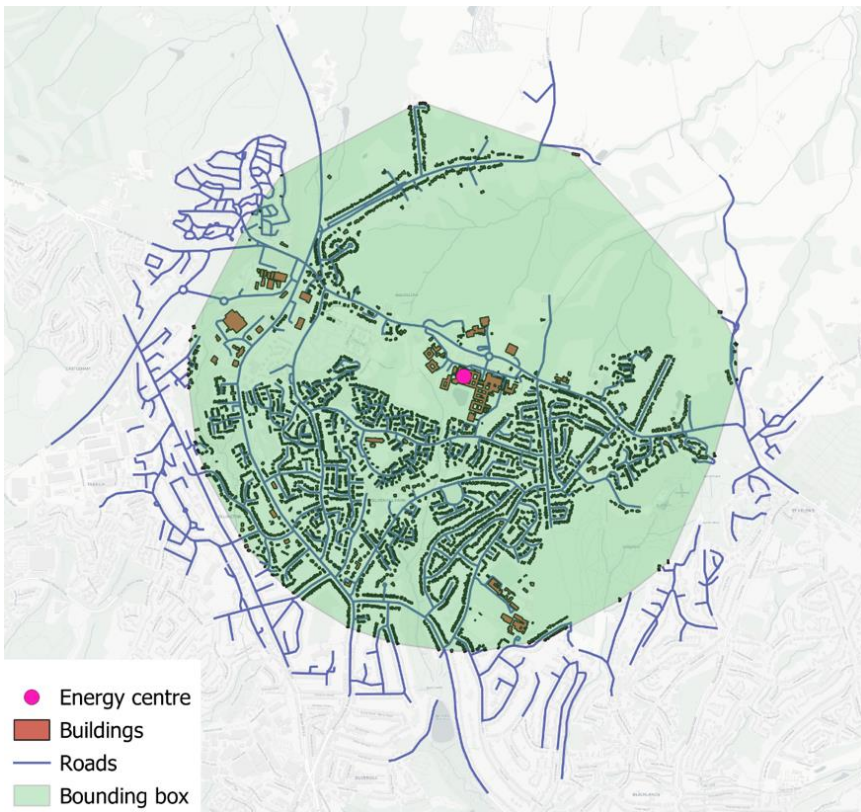


Figure 16. Example of a heat network generated by the advanced modelling software used in the Heat Scape project.

3.4 tRESP RESULTS INTEGRATION

3.4.1 DEMAND TECHNOLOGIES

As part of the tRESP process, NESO applied adjustments to UK Power Networks' technology uptake scenarios across four LCT building blocks to ensure alignment with the UK's Carbon Budget targets. A summary table of DFES 2026 datasets that are informed by tRESP adjustment and LAEPs in Appendix B. The tables below focus on the Carbon Budget milestone years - 2035 (CB5), 2042 (CB6), and 2050 (net zero) - as differences prior to 2035 reflect baseline alignment rather than substantive pathway divergence.

3.4.1.1 BATTERY ELECTRIC VEHICLES (BEVS)

UK Power Networks' BEV forecasts were closely validated by tRESP across all three Carbon Budget milestones. At CB5 (2035) and net zero (2050), the adjustments are negligible - differences of under 3,000 and 5,000 connections respectively against totals exceeding 5 and 11 million. The CB6 (2042) position is similarly well-aligned, with tRESP adding around 8,500 connections to UK Power Networks' 9.2 million. This indicates that UK Power Networks' BEV trajectory is consistent with the Carbon Budget-aligned national pathway, requiring no material correction.

Table 8. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Battery Electric Vehicles (BEVs)

Year	UK Power Networks Submission	tRESP HT Adjusted	Difference	% Change
2035	5,575,806	5,578,681	+2,875	+0.1%
2042	9,155,485	9,163,998	+8,513	+0.1%
2050	11,115,796	11,120,485	+4,689	+0.0%

3.4.1.2 DOMESTIC HEAT PUMPS

Domestic heat pump forecasts required only modest upward adjustment at each Carbon Budget milestone. The largest absolute uplift occurs at CB6 (2042), where tRESP adds approximately 2,000 connections, and at CB5 (2035) where around 4,800 connections are added (+1%). By 2050, the two series are effectively identical at approximately 5.2 million connections. The minor scale of adjustments suggests UK Power Networks' heat pump trajectory was broadly consistent with Carbon Budget requirements, with tRESP making only marginal corrections.

Table 9. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Domestic Heat Pumps

Year	UK Power Networks Submission	tRESP HT Adjusted	Difference	% Change
2035	492,961	497,714	+4,753	+1.0%
2042	2,778,428	2,780,406	+1,978	+0.1%
2050	5,173,448	5,175,885	+2,437	+0.0%

3.4.1.3 DOMESTIC HYBRID HEAT PUMPS

Domestic hybrid heat pump forecasts show small upward revisions at each milestone, growing modestly over time. At CB5 (2035) the adjustment is approximately 2,000 connections (+0.7%), rising to around 6,100 (+0.9%) at CB6 (2042) and approximately 16,800 (+1.8%) by 2050. The growing gap toward net zero may reflect tRESP's view that hybrid systems play a slightly larger role in the long-run decarbonisation pathway than UK Power Networks assumed, though the overall scale of adjustment remains limited.

Table 10. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Domestic Hybrid Heat Pumps

Year	UK Power Networks Submission	tRESP HT Adjusted	Difference	% Change
2035	279,837	281,841	+2,004	+0.7%
2042	651,651	657,727	+6,076	+0.9%
2050	939,306	956,107	+16,801	+1.8%

3.4.1.4 HEAT PUMP HEATED HEAT NETWORKS

Heat pump heated heat networks represent the building block with the most material tRESP adjustment, and the one most consequential for Carbon Budget alignment. At CB5 (2035), tRESP's pathway is nearly double UK Power Networks' submission (541,000 vs 294,000 connections, +84%). This gap widens further at CB6 (2042), where tRESP holds at a plateau of approximately 1.08 million connections against UK Power Networks' 594,000 - a difference of around 484,000 (+81%). The plateau is maintained through to 2050, by which point UK Power Networks' trajectory has only partially closed the gap at 763,000 connections. This reflects a fundamentally different assumption about the scale and pace of heat network deployment needed to meet carbon budgets, and is the single largest source of divergence between UK Power Networks' submission and the tRESP-adjusted pathway.

Table 11. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Heat Pump Heated Heat Networks

Year	UK Power Networks Submission	tRESP HT Adjusted	Difference	% Change
2035	293,559	540,599	+247,040	+84.2%
2042	593,620	1,077,754	+484,134	+81.6%
2050	762,549	1,077,754	+315,205	+41.3%

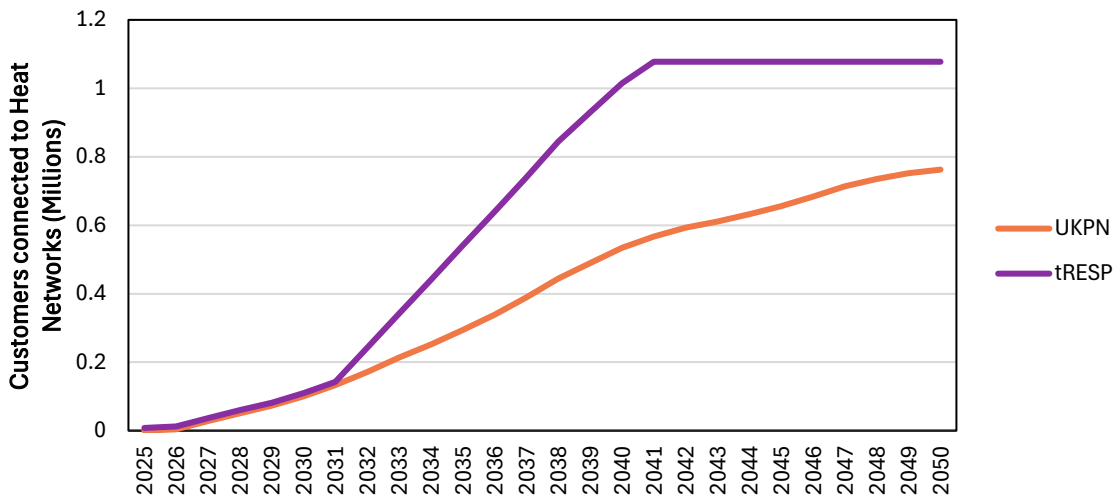


Figure 17. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Heat Pump Heated Heat Networks

3.4.1.5 DATA INTEGRATION

UK Power Networks has ensured that the demand technologies counts align with tRESP projections at GSP resolution level, whilst maintaining the LSOA level distribution determined by the DFES and LAEP processes.

3.4.2 GENERATION AND STORAGE TECHNOLOGIES

3.4.2.1 LARGE SOLAR

Large solar¹⁵ forecasts required only modest downward adjustment of less than 2%, caused by the connections reform, informed by the Clean Power 2030 (CP30) process. The absolute reduction increases from 137 MW at CB5 (2035) to 169 MW at CB6 (2042) and 226 MW by 2050. While the revised pipeline is slightly lower in absolute terms, it is considered more robust as it reflects confirmed and progressed connections following queue reform rather than speculative applications.

Table 12. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Large Solar

Year	UK Power Networks Submission (MW)	tRESP HT Adjusted (MW)	Difference (MW)	% Change
2035	8,165	8,028	-137	-1.7%
2042	11,551	11,382	-169	-1.5%
2050	15,119	14,893	-226	-1.5%

3.4.2.2 ONSHORE WIND

Onshore wind forecasts show significant downward revisions at each milestone, growing substantially over time. At CB5 (2035) the adjustment is approximately 108 MW (-12.8%), increasing to 412 MW (31.7%) in 2042 and 645 MW (39.5%) in 2050. This reflects a more conservative view based only on what is in the pipeline, while UK Power Networks' original forecast assumed more applications and connections in the future.

Table 13. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Onshore Wind

Year	UK Power Networks Submission (MW)	tRESP HT Adjusted (MW)	Difference (MW)	% Change
2035	846	738	-108	-12.8%
2042	1,297	885	-412	-31.7%
2050	1,631	987	-645	-39.5%

¹⁵ Large solar includes all installations > 200kW

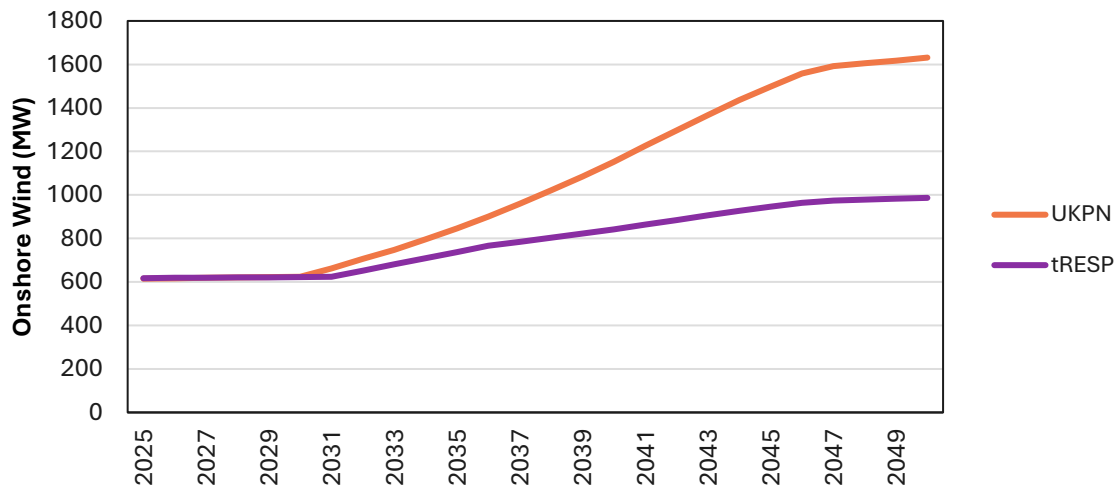


Figure 18. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Onshore Wind

3.4.2.3 LARGE STORAGE

Large storage represents the building block with the most material downward adjustment following connections reform. tRESP's revised pipeline, informed by CP30 connections reform outcomes, is substantially below UK Power Networks' submission at all Carbon Budget milestones. At CB5 (2035), tRESP forecasts approximately 4,813 MW against UK Power Networks' 5,816 MW, a reduction of around 1,003 MW (-17%). The gap persists at CB6 (2042), with tRESP holding at a plateau of 5,359 MW versus UK Power Networks' 5,984 MW (-625 MW, -10%). By 2050, both series step down, with tRESP at approximately 4,148 MW against UK Power Networks' 4,646 MW. The large absolute reductions reflect the high volume of speculative storage applications that did not progress through the reformed connections queue, consistent with the broader pattern seen across generation building blocks. This was due to the pipeline exceeding the storage required to meet Clean Power requirements.

Table 14. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Large Storage

Year	UK Power Networks Submission (MW)	tRESP HT Adjusted (MW)	Difference (MW)	% Change
2035	5,816	4,813	-1,003	-17.3%
2042	5,984	5,359	-625	-10.4%
2050	4,646	4,148	-499	-10.7%

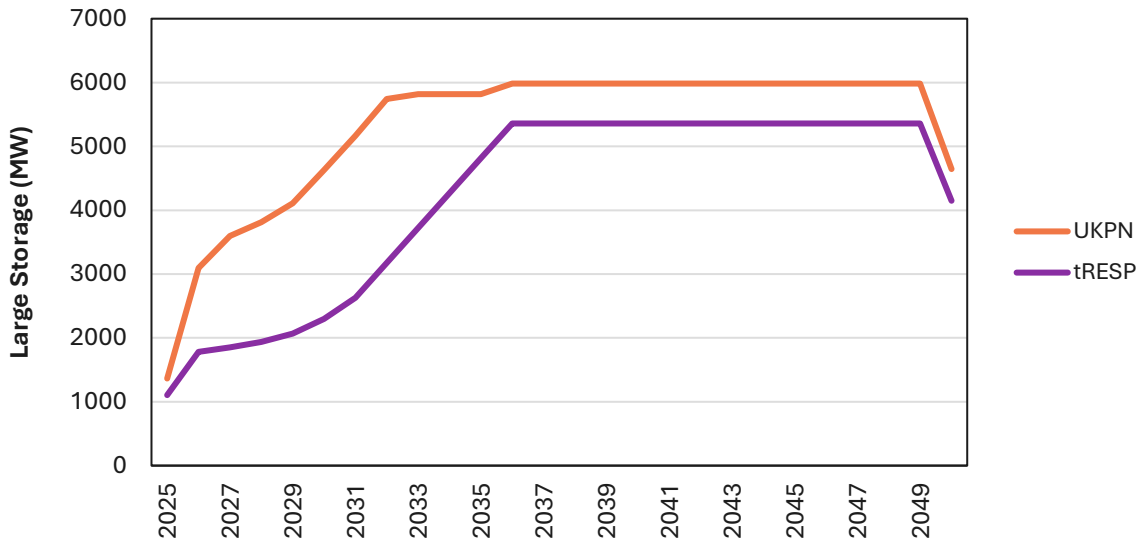


Figure 19. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Large Storage

3.4.2.4 OPEN CYCLE & COMBINED CYCLE GAS TURBINES (OCGTs & CCGTs)

Open cycle and combined cycle gas turbines (OCGTs & CCGTs) forecasts were significantly adjusted, with a slower decommissioning rate assumed in the tRESP resulting in approximately 1,709 MW of gas-fired generation across all three Carbon Budget milestones (compared to full decommissioning by 2031 as originally assumed by UK Power Networks). The plateau from 2035 onward in tRESP's trajectory implies an assumption that a residual fleet will remain operational well beyond CB5 as dispatchable back-up.

Table 15. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Open Cycle & Combined Cycle Gas Turbines (OCGTs & CCGTs)

Year	UK Power Networks Submission (MW)	tRESP HT Adjusted (MW)	Difference (MW)	% Change
2035	0	1,709	+1,709	-
2042	0	1,709	+1,709	-
2050	0	1,709	+1,709	-

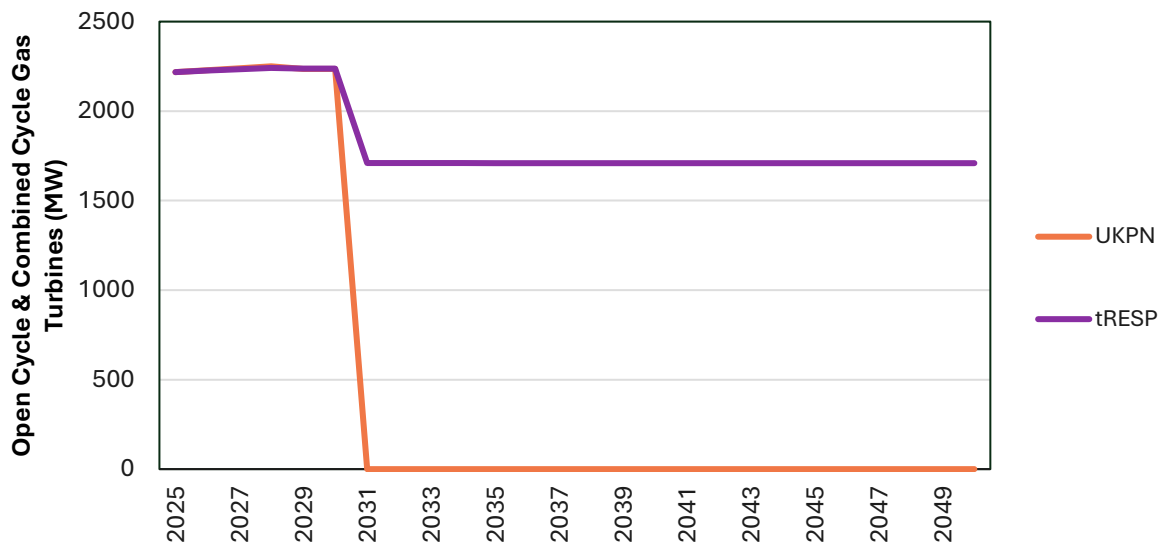


Figure 20. Comparison between original UK Power Networks submitted data and tRESP HT adjusted data for Open Cycle & Combined Cycle Gas Turbines (OCGTs & CCGTs)

3.4.2.5 DATA INTEGRATION

To ensure data alignment between UK Power Networks and tRESP, the Connection Reform data was revised. In cases where the changes were more significant, scenario mapping was updated so that the Holistic Transition better reflects capacity growth as modelled by tRESP:

- for gas-fired generation (Gen_BB008 and Gen_BB009), a slower decommissioning rate was assumed, which reflects the continued role of OCGTs and CCGTs in system balancing.
- for onshore wind (Gen_BB015), a lower uptake scenario was selected.
- for the large solar and storage building blocks (Gen_BB012 and Srg_BB001), the pipeline has been updated following connections reform outcomes (informed by the Clean Power 2030 (CP30) process), resulting in a reduction in the confirmed pipeline across these technologies. A further downward adjustment has been made for alignment with the tRESP, particularly in the case of large storage.

3.4.3 CONSISTENT PLANNING ASSUMPTIONS

It is worth noting here that whilst most of the tRESP consistent planning assumptions are outside the scope of the DFES scenario modelling, the efficiency scenarios are normally included in the DFES report. The dwelling thermal efficiency factor represents improvements to existing housing fabric, expressed as a proportion of baseline efficiency (set to 1 at baseline and declining over time). It is applied annually to adjust assumed installed heat pump capacity at network assets, but only to dwellings that exist at the 31 March 2025 baseline, with all new builds since then excluded to reflect their already high energy efficiency standards. The factor is fixed from 2035 to 2050, applied uniformly across all regions and voltage levels, and does not account for regional variation due to data availability and uncertainty.

3.4.3.1 DOMESTIC APPLIANCE EFFICIENCY

The graph below shows that the tRESP CPA for domestic appliance efficiency describes a trend that aligns quite closely with the DFES 2025 counterfactual scenario trend. Informed by the tRESP position, UK Power Networks has updated its scenarios to all align with the tRESP CPA instead of the range previously set out. This acknowledges that while there may be room for more rapid efficiency improvement, the prior scenarios assumed ambitious rates for replacement to high efficiency appliance models.

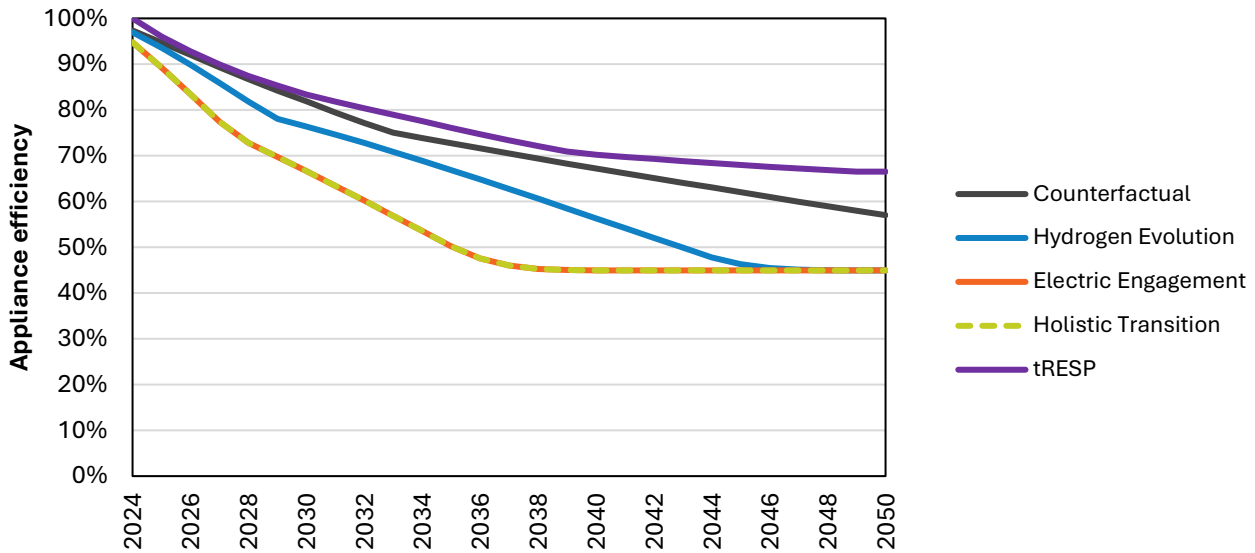


Figure 21: Domestic appliance efficiency relative to 2023 (DFES 2025) and relative to 2024 (tRESP).

3.4.3.2 DOMESTIC THERMAL EFFICIENCY

As part of the Heat Pump CPAs, the domestic thermal efficiency is also included. This efficiency trend was already accounted for by UK Power Networks' SFS modelling, and represented a similar scale of efficiency improvements, although efficiency was assumed to only significantly improve from 2035 onwards. The tRESP data assumes the 10% efficiency improvement will have already been achieved by then.

In contrast, the tRESP CPA assumes that new builds have no further potential for efficiency improvements whilst the SFS assumed some further increase.

The SFS modelling assumptions have been updated to reflect the tRESP CPAs.

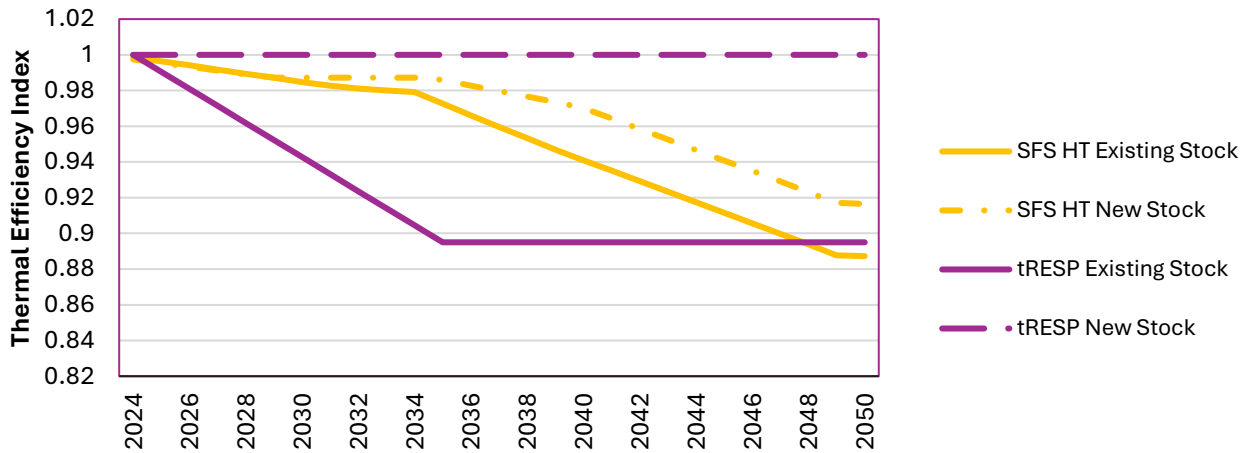


Figure 22: Domestic thermal efficiency index used by UK Power Networks SFS alongside the data prescribed by the tRESP CPAs.

3.5 2026 DFES KEY TECHNOLOGIES UPTAKE FORECASTS

Accounting for the DFES, LAEP and tRESP alignment processes, this section will show the resulting uptake scenario data for some of the key technologies.

The graph below reflects the DFES uptake described above for all EV (BEV and PHEV) cars and vans, including the reduced near-term uptake forecast. The Holistic Transition forecast of 10.7 million EV cars and vans by 2050 is aligned with the tRESP pathway and the overall scenario ranges are similar to what has been presented in previous years.

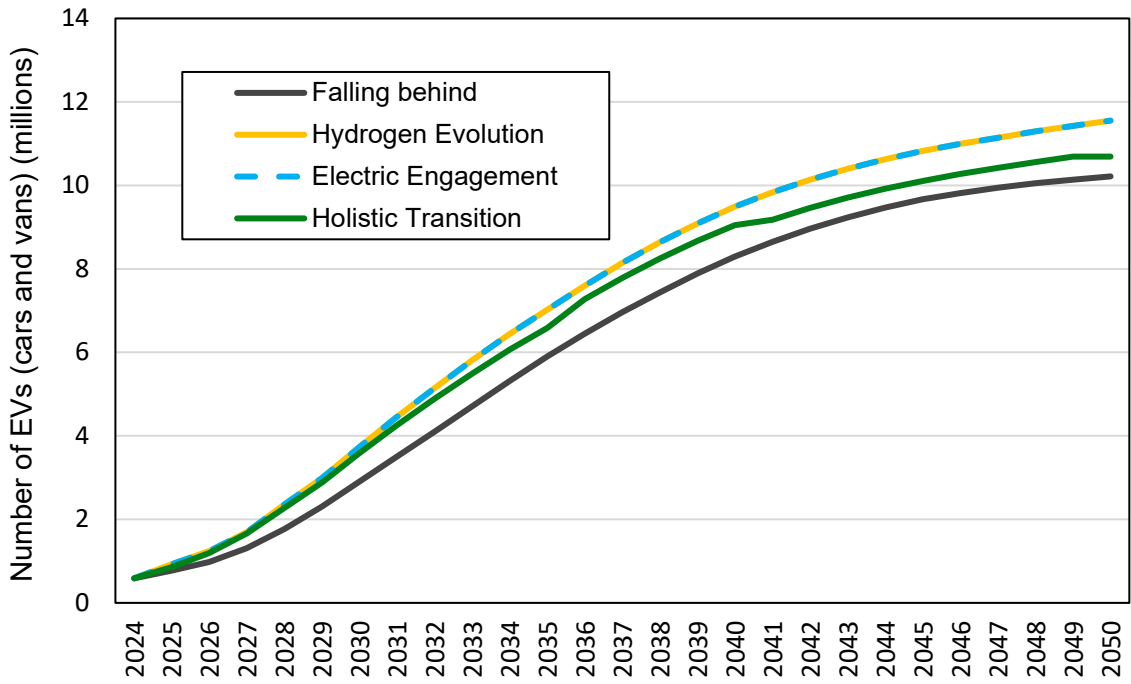


Figure 24. Number of EVs (cars & vans)

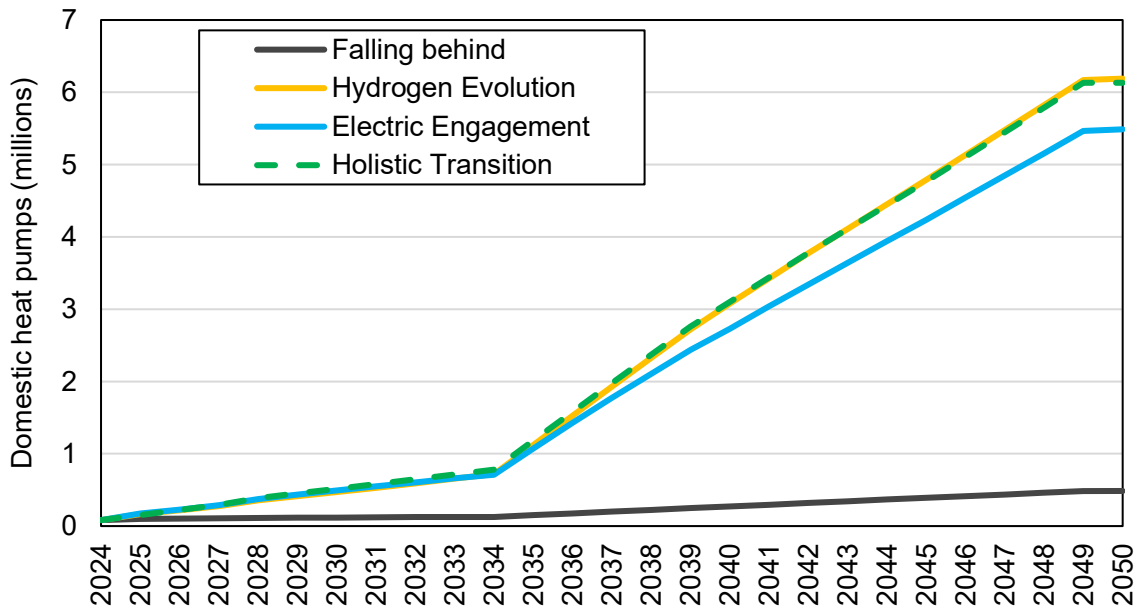


Figure 23, Number of domestic heat pumps (including hybrids)

After aligning with the tRESP, the expectation is still that heat pump uptake will be limited in the near term, whilst becoming the dominant heating technology by 2050. The forecasts also show that the further strengthened district heating uptake is not expected to reduce the number of heat pumps connected, which will result in a higher share of decarbonised heating technologies on the network.

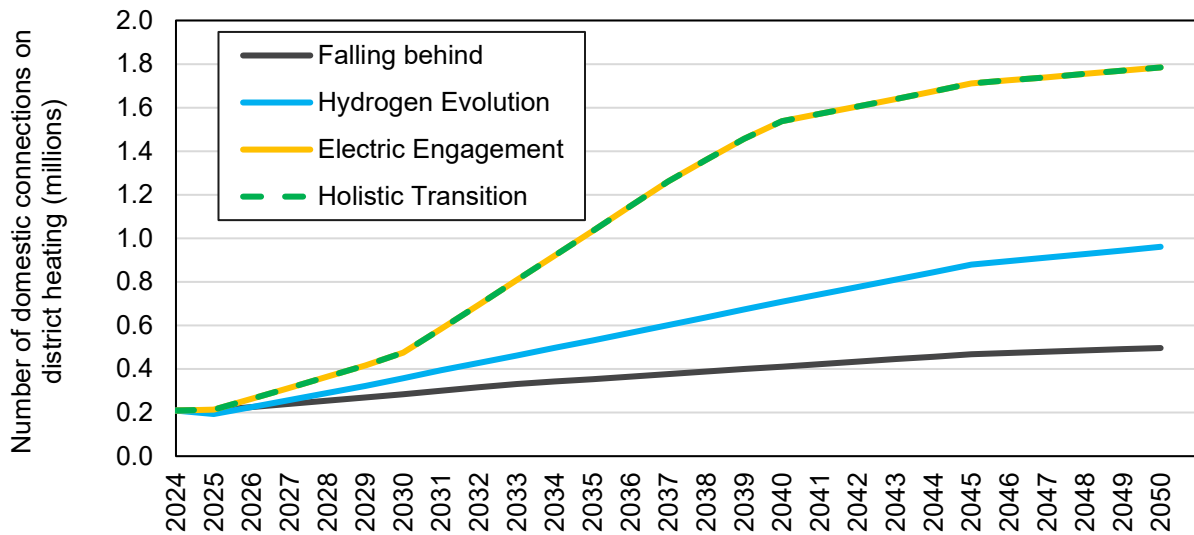


Figure 25. Domestic district heating connections

Aligning the high uptake scenario with the tRESP has significantly increased the domestic district heating connections in the Holistic Transition and Electric Engagement scenarios compared to the 2025 DFES.

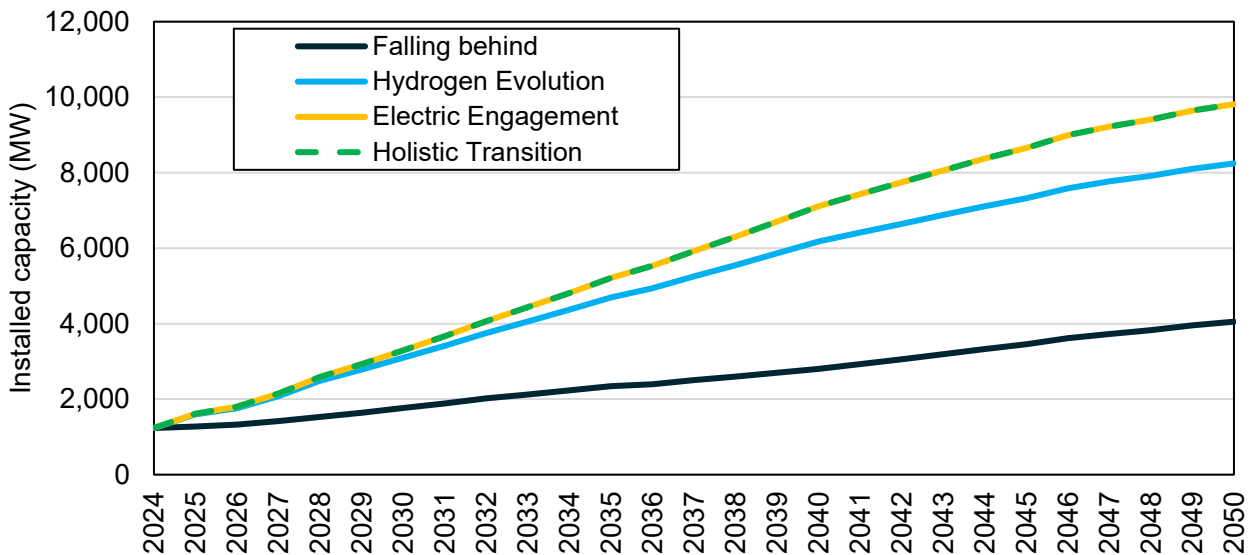


Figure 26. Installed capacity of rooftop solar

Rooftop PV sees a significantly stronger uptake than in the 2025 DFES, which is the result of the combination of the updated PV forecasts based on the Future Homes Plan review, which clearly shows up in the Falling Behind scenario, and additional LAEP data driving uptake even further in the other scenarios.

3.6 FUTURE WORK

3.6.1 WARM HOMES PLAN

3.6.1.1 POLICY OVERVIEW

The Warm Homes Plan¹⁶ positions itself as the largest ever public investment in home upgrades. It sets out £15 billion of investment targeting upgrades to five million homes with a clear shift toward large scale uptake of clean heat, rooftop solar, battery storage and energy efficiency. Alongside cutting emissions, this investment is aimed at other central themes in the plan: cutting bills, reducing fuel poverty and creating jobs. The £15 billion investment is hypothecated with:

Investment Area	Amount (£bn)
Low-income Schemes	£5 billion (£4.4 billion of which is as grants)
Low or zero interest consumer loans	£2 billion
Boiler Upgrade Scheme (BUS)	£2.7 billion
Heat networks	£1.1 billion
Innovative finance through the Warm Homes Fund	£2.7 billion
Other funding through the Warm Homes Fund	£1.5 billion

Table 16. Warm Homes Plan investment areas

A central pillar of the plan is that all new homes, through the Future Homes Standard, will be delivered with low-carbon heating, high levels of fabric efficiency, and rooftop solar as standard. Whereas for existing homes, the plan emphasises expanded financial support, simplified installation processes, and targeted interventions for low-income and fuel-poor households. The £5 billion allocated in the plan to low-income households covers insulation, rooftop solar, batteries and clean heat, delivered through consolidated schemes from 2027/28 onwards. The details of how this funding will work has not been announced but £4.4 billion will fully fund tailored installations of the technologies best suited to the specific home, this could include more than one technology, e.g. a heat pump plus solar panels or solar panels plus a domestic battery.

While the plan does not introduce a gas boiler ban for existing homes, it highlights the role of heat pumps as the UK's primary long-term solution for electrified heating, reinforced by an uplift in the total funding for the BUS and additional support such as low-interest loans and market reforms to reduce electricity prices. It also states strong ambitions for solar, with the possibility to triple the number of homes with rooftop solar by 2030 from 1.6 million today to 4.6 million in 2030, and a desire to mainstream domestic battery storage as part of a broader consumer-led flexibility strategy. The plan further underlines that storage, and smart-ready devices will be central to household flexibility, with smart functionality being mandated for clean heating appliances from 2027.

Lastly, substantial focus is also placed on accelerating heat networks through new zoning powers and £1.1 billion of investment, plus supply-chain and workforce expansions to underpin large-scale rollout. The plan states an expectation that by 2050 heat networks will provide about a fifth of building

¹⁶ Warm Homes Plan, 2026, Department for Energy Security and Net Zero, [Link](#)

heat demand and on that basis, it sets a target to double its current heat provision to 7% of heat demand by 2035.

3.6.1.2 WARM HOMES PLAN ALIGNMENT

The Warm Homes Plans commitment to the Future Homes Standard means all new builds from early 2026 will be built with solar panels and a heat pump. In UK Power Networks' DFES scenarios, the current deployment rate of solar panels and low-carbon heating in new builds is 90% and 100% respectively. These deployment rates are already very high and pre-emptive of the direction of travel; however, the solar panel deployment rate is below the 100% that can now be expected. This is something to be reviewed in future iterations of the DFES scenarios.

There are approximately 210,000 new builds expected in UK Power Networks' licence areas between now and 2030, while 368,000 of new heat pump deployments are forecast in all DFES scenario worlds within the same time period. Even if all new builds are built with a heat pump, there will still be an outstanding number of heat pumps in the forecast which must come from retrofits. This is approximately 158,000 retrofit heat pumps between now and 2030, which is a rate of 32,000 per year or 0.39% per year of UK Power Networks licence area stock (2026-2030 inclusive). In comparison, the national heat pump uptake was 0.28% of stock in 2024, increasing from 0.19% in 2023. With additional grant funding for low-income households and extended BUS, the national deployment rate can be expected to continue growing to 2030, indicating that the UK Power Networks retrofit heat pump deployment rate does not appear to be overly ambitious in the current policy environment.

The Warm Homes Plan states an ambition that it "could put solar panels on the roofs of up to 3 million more homes by 2030", and as there are currently 1.6 million homes with solar panels in the UK, this could near triple the number of rooftop solar panels by the end of the decade. In 2024, there was 0.65 GW of domestic rooftop solar in the UK Power Networks licence areas and the forecast for 2030 is 1.80 GW for the Electric Engagement and Holistic Transition scenario worlds, 1.70 GW in the Hydrogen Evolution and 1.02 GW in the Falling Behind scenario world. The UK Power Networks' Electric Engagement and Holistic Transition forecasts have virtually the same rate of increase as is targeted by the Warm Homes Plan¹⁷ and therefore the current modelling is well aligned with the domestic rooftop solar target. Ongoing alignment between the target and the DFES scenario worlds should be considered in future forecasts, particularly when more detail is given on new Warm Home Plan initiatives, such as the low-income fund and low and zero interest loans.

Although the specifics regarding the allocation mechanisms and projected distribution of the £5 billion in funding for low-income households and the £2 billion in low and zero interest loans remain limited, both initiatives are expected to yield notable impacts in the future. The funding targeted specifically at low-income households may skew heat pump retrofits towards fuel poor areas within the licence areas more than previously expected. As an order of magnitude estimate of the impact, taking the assumption that half of the £5 billion is dedicated to heat pumps and that an average ASHP costs £11,900¹⁸, this would fund 210,000 air-source heat pumps for low-income households across the UK. The housing stock in the UK Power Networks licence areas represents around 28% of the total UK housing stock. Distributing the 210,000 heat pumps for low-income households equally on this basis would equate to 60,000 heat pump retrofits in low-income households in UK Power Networks' licence areas by 2030. A total of 160,000 heat pump retrofits is forecast in UK

¹⁷ 4.6 million / 1.6 million = 290% increase to 2030 and 1.70 GW / 0.65 GW = 280% increase to 2030.

¹⁸ The median cost of the median ASHP capacity band from the BUS 2024/25 [Link](#)

Power Networks' licence areas by 2030, and this new fund could not only increase the overall retrofit rate but also direct more installations towards fuel poor areas.

The £5 billion low-income household fund and £2 billion for low and zero interest loans are also seemingly the main mechanisms to support the plan's ambition to increase deployment rates of domestic storage, including battery storage. Once the details of the schemes are published, they should be analysed to assess if there should be any increase in future forecasts of domestic battery storage deployment.

4 CONCLUSIONS

The 2026 DFES continue to provide a robust, evidence based outlook for how UK Power Networks' licence areas are expected to evolve as the UK progresses toward Net Zero. Building on the foundations laid in previous DFES iterations, this year's update further strengthens alignment between local energy ambitions, national strategic planning, and the evolving policy landscape. Through close collaboration with NESO, local authorities, and other stakeholders, the 2026 DFES integrates refreshed datasets, improved modelling approaches, and updated assumptions to deliver a comprehensive view of electricity demand, generation, and storage out to 2050.

Key Updates and Insights

Local Insights and Data Integration

A major enhancement in the 2026 DFES is the deeper integration of LAEPs. With LAEP coverage rising from 32 to 66 local authority areas, local intelligence is now materially shaping spatial forecasts of transport electrification, heat decarbonisation, and rooftop solar deployment. After undergoing UK Power Networks' materiality and confidence assessment processes, LAEP data is incorporated directly into baseline modelling, reflecting local insights projections and ambitious. NESO's subsequent adjustments ensure that the final DFES outputs reflect both local ambition and national consistency.

Building Stock Update

The 2026 DFES incorporates updated national and local datasets on household and non domestic building stock, including detailed LSOA level mapping of major development clusters and refined geospatial methods. These updates provide a stronger baseline for modelling domestic heating, rooftop PV, energy efficiency, and other core drivers of demand. By improving the accuracy of building stock representation, the 2026 DFES enhances the credibility of long-term scenario outputs, enabling more precise network planning in areas experiencing rapid growth.

Future Homes Consideration

For the 2026 DFES, a methodological change is proposed in order to account for the Future Homes and Buildings Standard, by aligning future demand and generation assumptions with proposed zero-carbon-ready requirements for new developments. While earlier DFES iterations relied on consumer-choice modelling for technologies such as solar PV, the 2026 DFES proposes a revised approach that reflects the likely mandatory adoption of low-carbon heating and on-site generation in new buildings. By linking solar PV uptake directly to new-build housing forecasts at LSOA level, the DFES more accurately captures the impact of forthcoming legislation, resulting in higher projected installed capacity, particularly in scenarios that previously assumed lower levels of consumer uptake.

Integration with NESO's tRESP and Demand, Generation, and Storage Alignment

Building on iterative engagement with NESO throughout 2025, the 2026 DFES is closely aligned with the tRESP Pathways. The Holistic Transition scenario world is now fully harmonised with tRESP's Short-Term Pathway (2025-2035), ensuring coherence between UK Power Networks' central planning scenario and national strategic logic.

Overall, the comparison between UK Power Networks' DFES demand forecasts and the tRESP-adjusted pathways demonstrate a high degree of alignment with most demand technologies. For BEVs and domestic heat pumps, only marginal uplifts were required, confirming that UK Power Networks' underlying trajectories are broadly consistent with the tRESP. Small upward adjustments to domestic hybrid heat pumps suggest a slightly greater long-term role for hybrid systems than originally assumed, though the scale of divergence remains limited.

The most significant divergence arises for heat pump-heated heat networks, where tRESP assumes substantially faster and larger-scale deployment than reflected in the DFES submission. This difference highlights a fundamentally different view of the contribution of heat networks and represents the single largest source of adjustment in the tRESP process.

Alongside these demand changes, UK Power Networks has integrated tRESP-aligned generation, storage and common planning assumptions, including domestic appliance efficiency, to ensure internal consistency across datasets while retaining local spatial distributions informed by DFES and LAEP evidence. Collectively, these updates ensure that the DFES remains robust, Carbon Budget-aligned, and appropriately reflects both national strategic direction and regional energy system characteristics.

Future Work and the Warm Homes Plan

The UK Government's 2026 Warm Homes Plan introduces transformative funding for domestic energy efficiency, rooftop solar, heat pumps, battery storage, and heat networks. Although implementation details are still emerging, these initiatives have the potential to materially influence deployment rates, particularly for low income households and retrofit heat pumps.

From early 2026, the Future Homes Standard requires all new builds to include solar panels and heat pumps, implying full adoption in UK Power Networks' licence area. Current DFES assumptions already reflect high deployment rates but remain below this requirement and should be reviewed in future iterations. With around 210,000 new homes expected by 2030, the majority of additional heat-pump uptake must come from retrofits, implying a deployment rate above the current national average, which may be justified by accelerating national trends, higher regional affluence and additional government funding.

Future DFES iterations will assess how these schemes affect spatial distribution of uptake, retrofit feasibility, and consumer participation in low carbon technologies. As policy clarity increases, UK Power Networks will incorporate these signals into its modelling, ensuring continued alignment with national decarbonisation programmes.

Looking Ahead

The 2026 DFES reinforces the importance of maintaining a coherent planning chain across local, regional, and national forecasting processes. As NESO progresses toward the full RESP from 2027, and as the NESO Future Energy Scenarios evolve, UK Power Networks will continue to refine its assumptions, strengthen data integrations, and engage proactively with local and national stakeholders. This collaborative approach remains critical to producing scenarios that are credible, transparent, and capable of supporting strategic investment decisions for ED3 and beyond.

The next phase of DFES development will continue to integrate emerging policy frameworks, new data sources, enhanced geospatial modelling, and ongoing stakeholder intelligence, ensuring that UK Power Networks remains well positioned to navigate the evolving energy landscape and enable the transition to a secure, affordable, and Net Zero electricity system.

Appendix A

tRESP TECHNOLOGY BUILDING BLOCKS

The list of technology building blocks included in the tRESP data provided by NESO is shown in the table below.

Category	Technology	Building Block ID Number	Technology Detail	Units
Generation	Non-renewable CHP	Gen_BB001	>=1MW	MW
		Gen_BB002	<1MW	MW
	Micro CHP	Gen_BB003	Domestic (G98/G83)	MW
	Renewable Engines (Landfill Gas, Sewage Gas, Biogas)	Gen_BB004		MW
	Non-renewable Engines (Diesel) (non CHP)	Gen_BB005		
	Non-renewable Engines (Gas) (non CHP)	Gen_BB006		MW
	Fuel Cells	Gen_BB007		MW
	OCGTs (non CHP)	Gen_BB008		MW
	CCGTs (non CHP)	Gen_BB009		MW
	Biomass & Energy Crops (including CHP)	Gen_BB010	Includes Biomass Conversions	MW
	Waste Incineration (including CHP)	Gen_BB011		MW
	Solar Generation	Gen_BB012	Large (G99)	MW
		Gen_BB013	Small (G98/G83)	MW
		Gen_BB015	Onshore Wind >=1MW	
		Gen_BB016	Onshore Wind <1MW	MW
	Hydro	Gen_BB018	Not pumped hydro	MW
	Geothermal	Gen_BB019		MW
	Hydrogen fuelled generation	Gen_BB023	Hydrogen	MW
		Dem_BB005	I&C HP Demand	GWh
	Demand Low Carbon Technologies	Electric Vehicles	Lct_BB001	Pure Electric (vans, cars & motorbikes)
Lct_BB002			Plug-in-hybrid (vans, cars and motorbikes)	Number of
Lct_BB003			Pure Electric (road vehicles other than vans, cars and	Number of
Lct_BB004			Plug-in-hybrid (road vehicles other than vans, cars and	Number of
Heat Pumps		Lct_BB005	Domestic - Non-hybrid	Number of
		Lct_BB006	Domestic - Hybrid	Number of
District Heating		Lct_BB009		Number of properties connected to Low carbon
Airconditioning units		Lct_BB014	A/C Domestic units	Number of
		Lct_BB015	A/C I&C units	Number of
Storage & Flexibility		Storage	Srg_BB001	Batteries
	Srg_BB002		Domestic Batteries (G98)	MW
	Srg_BB003		Pumped Hydro	MW
	Srg_BB004		Other	MW
	Srg_BB005		V2G	MW availability

APPENDIX B

UK POWER NETWORK DFES DATASET

Parameter	Unit	Resolution	HT aligned with tRESP	LAEPs Integrated
File: <i>UKPN-domestic-heating-scenarios-LSOA.xlsx</i>				
Domestic heat pump	Number	LSOA	Yes	Yes
Domestic hybrid heat pump	Number	LSOA	Yes	Yes
Domestic electric resistive heating	Number	LSOA	No	Yes
File: <i>UKPN-IC-heating-scenarios-LSOA.xlsx</i>				
Non-domestic heat pump	Number	LSOA	No	Yes
Non-domestic hybrid heat pump	Number	LSOA	No	Yes
Non-domestic electric resistive heating	Number	LSOA	No	Yes
File: <i>UKPN-core-energy-efficiency.xlsx</i>				
Domestic Appliance Efficiency	Percentage	UKPN	Yes	
I&C Core Energy Efficiency	Percentage	UKPN	No	
File: <i>UKPN-thermal-energy-efficiency.xlsx</i>				
Domestic Thermal Energy Efficiency	Percentage	UKPN	Yes	
I&C Thermal Energy Efficiency	Percentage	UKPN	No	
File: <i>UKPN-domestic-connection-count-scenarios-LSOA.xlsx</i>				
Domestic connections	Number	LSOA	No	
File: <i>UKPN-industrial-and-commercial-connection-count-scenarios-LSOA.xlsx</i>				
I&C connections	Number	LSOA	No	
File: <i>UKPN-domestic-district-heating-scenarios-LSOA.xlsx</i>				
Domestic district heating	Number	LSOA	Yes	Yes
File: <i>UKPN-IC-district-heating-scenarios-LSOA.xlsx</i>				
Non-domestic district heating	Number	LSOA	No	Yes
File: <i>UKPN-domestic-air-conditioning-scenarios-LSOA.xlsx</i>				
Domestic AC	Number	LSOA	Yes	
File: <i>UKPN-IC-air-conditioning-scenarios-LSOA.xlsx</i>				
Non-domestic AC	Number	LSOA	No	
File: <i>UKPN-electric-car-van-scenarios-LSOA.xlsx</i>				
BEV cars	Number	LSOA	Yes	Yes
PHEV cars	Number	LSOA	Yes	Yes
BEV vans	Number	LSOA	Yes	Yes
PHEV vans	Number	LSOA	Yes	Yes
File: <i>UKPN-electric-motorcycle-scenarios-LSOA.xlsx</i>				
Electric motorcycles (BEV)	Number	LSOA	Yes	Yes
File: <i>UKPN-electric-Taxi-PHV-scenarios-LSOA.xlsx</i>				

Electric Taxis (BEV)	Number	LSOA	Yes	
Electric PHVs (BEV)	Number	LSOA	Yes	
File: UKPN-electric-HGV-Bus-Coach-Minibus-scenarios-LSOA.xlsx				
Electric HGV (BEV)	Number	LSOA	Yes	
Electric buses (BEV)	Number	LSOA	Yes	
Electric coaches (BEV)	Number	LSOA	Yes	
Electric minibuses (BEV)	Number	LSOA	Yes	
File: UKPN-flexibility-scenarios.xlsx				
Smart meter uptake	Percentage	Licence area	No	
Domestic ToUT uptake	Percentage	Licence area	No	
Small and Medium I&C ToUT uptake	Percentage	Licence area	No	
Large I&C ToUT uptake	Percentage	Licence area	No	
File: UKPN-rooftop-PV-scenarios-LSOA.xlsx				
Small rooftop PV capacity (<=4 kW)	kW	LSOA	Yes	Yes
Large rooftop PV capacity (4-150 kW)	kW	LSOA	No	
File: UKPN-domestic-batteries-scenarios-LSOA.xlsx				
Domestic Batteries	kW	LSOA	Yes	
File: UKPN-IC-storage-scenarios-LSOA.xlsx				
Non-domestic Batteries	kW	LSOA	No	
File: UKPN-distributed-storage-scenarios-GSP.xlsx				
Co-located storage	MW	GSP	Yes	
Stand-alone grid services	MW	GSP	Yes	
File: UKPN -distributed-generation-scenarios-GSP.xlsx				
Non-renewable CHP (<1 MW)	MW	GSP		
Non-renewable CHP (>=1 MW)	MW	GSP		
Non-renewable engines (Diesel) (non-CHP)	MW	GSP		
Non-renewable engines (Gas)	MW	GSP		
Biomass & energy crops (including CHP)	MW	GSP		
Onshore wind >1MW	MW	GSP	Yes	
Onshore wind <1MW	MW			
Renewable engines (Landfill gas, Sewage Gas, Biogas)	MW	GSP		
Waste incineration (including CHP)	MW	GSP		
Hydrogen fuelled generation	MW	GSP		
Solar Generation (Large >150 kW)	MW	GSP	Yes	

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