REGEN

SSEN Distribution Future Energy Scenarios 2025
Southern England

MARCH 2026

Technology change logs

Change log detailing key modelling updates, differences with DFES 2024 analysis and NESO tRESP pathway comparison

Scottish & Southern Electricity Networks

DSO Powering Change

About Regen

Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future. We focus on analysing the systemic challenges of decarbonising power, heat and transport. We know that a transformation of this scale will require engaging the whole of society in a just transition.

This report was sponsored by	Scottish and Southern Electricity Networks (SSEN)
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Contents

Glossary

Short-form	Definitions
ASHP	Air Source Heat Pump
BSP	Bulk Supply Point
CM	Capacity Market
CNDM	Connections Network Design Methodology
CPA	Consistent Planning Assumptions
CP30	Clean Power 2030
DFES	Distribution Future Energy Scenarios
DNO	Distribution Network Operators
EPC	Energy Performance Certificate
ESA	Electricity Supply Area
EV	Electric Vehicle
FES	Future Energy Scenarios
GB	Great Britain
GSP	Grid Supply Point
GW	Gigawatt(s)
HAR	Hydrogen Allocation Round
HAR2	Hydrogen Allocation Round 2
HGV	Heavy Goods Vehicle
HVAC	Heating, Ventilation and Air Conditioning
kW	Kilowatt(s)
LAEP	Local Area Energy Plan
LGV	Light Goods Vehicle
MW	Megawatt(s)
NESO	National Energy System Operator
ONS	Office for National Statistics
PV	(Solar) Photovoltaics
RESP	Regional Energy Strategic Plan

RIIO-ED3	RIIO: Revenue = Incentives + Innovation + Outputs ED3: The third price control period for Electricity Distribution RIIO-ED3 is Ofgem's upcoming price control framework for GB electricity distribution networks (2028-2033)
SEP	Strategic Energy Plans
sqm	Square metre
TIA	Transmission Impact Assessment
tRESP	Transitional Regional Energy Strategic Plan
UK	United Kingdom

Introduction

Purpose

This report provides a results summary for the 2025 iteration of the Distribution Future Energy Scenarios (DFES) analysis for the Scottish and Southern Electricity Networks (SSEN) Southern England licence area.

The DFES comprises spatial projections of electricity generation, demand and storage capacity connecting to the electricity distribution network over the period to 2050. SSEN uses the DFES analysis as part of an integrated network planning, optioneering and investment appraisal process. The DFES projections enable SSEN to model changes in future electricity needs across the network and subsequently assess where network improvements are needed to ensure the capacity is available to meet future demand and deliver government ambitions for both Clean Power 2030 (CP30) and net zero by 2050.

The 2025 iteration of DFES builds on the 2024 analysis, and this report details how and why projections have changed for each technology. This DFES 2025 technology change log report is intended to be read alongside the SSEN DFES 2024 technical reports. The following documentation and data can be accessed via SSEN's DFES webpage:

- DFES 2024 technical reports for each licence area
- Introductory documentation outlining the background, framework and context for the DFES analysis
- DFES 2024 datasets (accessed via the SSEN Data Portal).

Technology scope

The DFES 2025 analysis includes updated projections for a subset of DFES technology building blocks, reflecting a deliberately reduced scope to enable fast-track delivery to provide timely input to tRESP (see page 4), support ED3 planning and allow greater focus on CP30 impact analysis. The updated technologies include:

Electricity generation and storage:

- Large-scale solar PV
- Large-scale battery storage
- Onshore wind
- Small-scale solar PV
- Small-scale battery storage.

Electricity demand:

- Air conditioning
- Data centres
- Electric vehicles (EVs) and EV chargers
- Heat in buildings
- Hydrogen electrolysis
- New property developments.

Projections from DFES 2024 for technologies which have not been updated can be accessed via SSEN's webpage or data portal. The DFES projections remain unchanged since DFES 2024 for the following technologies:

- Biomass generation
- Diesel generation
- Fossil gas-fired generation
- Hydrogen-fuelled generation
- Hydropower
- Liquid Air Energy Storage
- Marine generation
- Renewable engines
- Waste-fuelled generation.

The Southern England licence area

The Southern England electricity distribution licence area refers to the area served by the low-voltage (LV), high-voltage (HV) and extra-high-voltage (EHV) network that is managed by SSEN in the southern central geographical area of England. The licence area comprises 50 local authority areas, either wholly or partially, including city regions, counties, and large district and borough councils.

Figure 1: The Southern England licence area with cities, protected areas and grid network infrastructure highlighted | *Source: Regen.*

Policy and scenario environment

Scenario framework

The SSEN DFES 2025 uses the National Energy System Operator's (NESO) Future Energy Scenarios (FES) 2025 framework, adopting the same national-level societal, technological and economic assumptions as the FES under four scenarios. Three of these scenarios are modelled to meet net zero (**Holistic Transition**, **Electric Engagement** and **Hydrogen Evolution**), while **Falling Behind** does not meet net zero. **Falling Behind** is a new FES 2025 scenario and corresponds to the FES 2024 **Counterfactual** scenario.

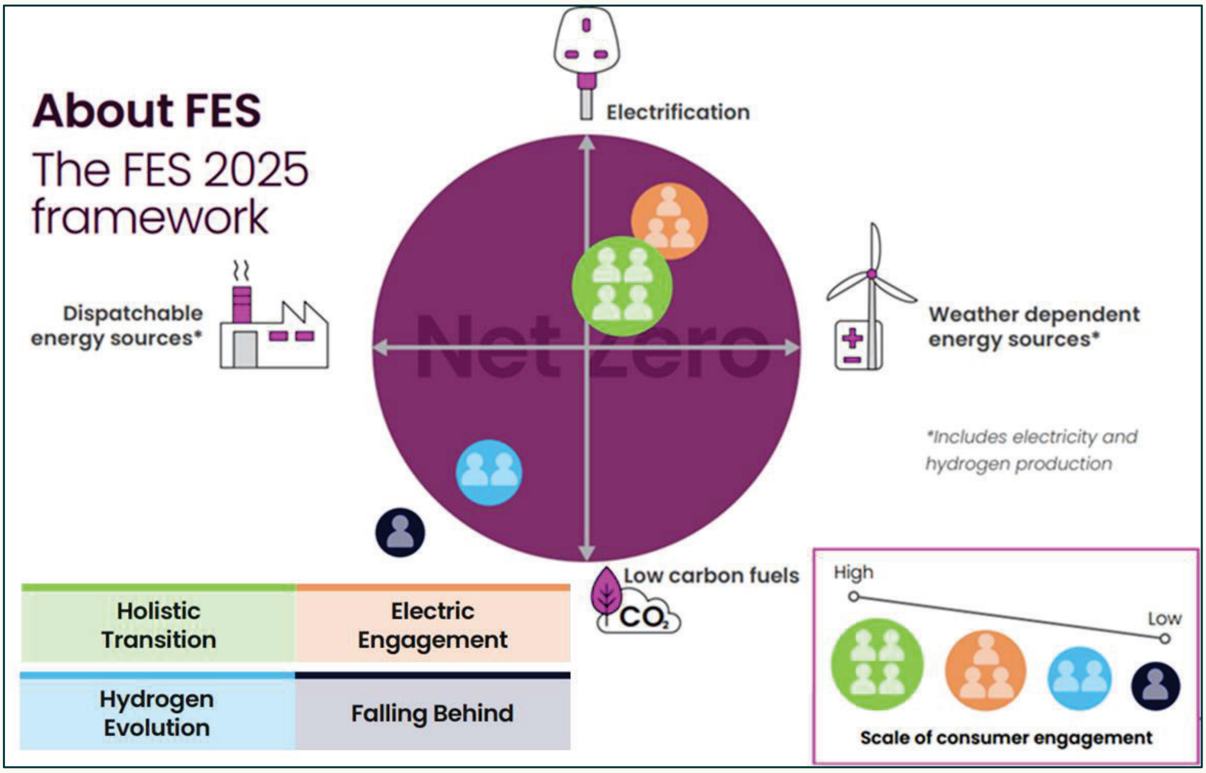


Figure 2: Future Energy Scenarios 2025 framework | *Source & Credit: NESO FES 2025: Pathways to Net Zero.*

The overall trends for each of the technology building blocks in scope for this year's analysis, as well as specific regional (GSP-level) data held within the FES 2025 workbook, have been interrogated and reconciled to the DFES analysis.

Clean Power 2030 and connections reform

The UK government, Ofgem and NESO have worked together to reform and implement significant new policies and processes to address the large queue of projects seeking network connections with SSEN and other network operators across GB. This includes:

- The UK government's CP30 Action Plan, which includes regional technology capacity allocations to 2030 and 2035
- Grid connection reform, including reordering the queue of electricity generation and storage projects via NESO's Connections Network Design Methodology (CNDM) and associated grid code modifications.

As part of the DFES 2025 analysis, Regen undertook detailed site research to identify which onshore wind, solar PV and battery storage projects in SSEN's connections pipeline could potentially secure 'Gate 2' connection offers for connection by 2030 or 2035. This analysis was finalised in August 2025 and has been fed directly into the scenario projections for these technologies.

Transitional RESP

NESO has been appointed to deliver a suite of Strategic Energy Planning (SEP) documents to support a coordinated approach to future energy planning. A core component is the development of Regional Energy Strategic Plans (RESPs), including an early view 'transitional' RESP (tRESP) output to support Distribution Network Operators (DNOs) with business planning for the 2028 – 2033 RIIO-ED3 price control period. The development of these tRESPs (11 publications, covering 11 regions across GB) has involved NESO engaging with network companies and a range of regional stakeholders to define:

- Technology building blocks (defining technologies in scope and the sub-technology categorisations)
- Consistent Planning Assumptions (CPAs) for key low-carbon technologies
- Strategic investment needs and strategically important projects in each region
- Future net zero pathways for key technologies in each region.

The DFES 2025 analysis was provided by SSEN as an input to NESO for the development of tRESP, which was published in early 2026.

The tRESP components have been considered in the DFES analysis in a few different ways:

- The tRESP technology building blocks were already closely aligned to the DFES building blocks. The potential for analysis to be aggregated up for comparison/reconciliation hinges on the granularity of the projections being at the same level.
- The interim CPAs provided by NESO for EVs and heat pumps were considered in the equivalent DFES 2025 modelling assumptions.
- The future net zero pathways for the building blocks published in early 2026 have been interrogated and reconciled to the DFES projections at SSEN's network level. Commentary on the potential reason for any variances has been included in this report as a dedicated tRESP comparison annex.

Stakeholder input

Stakeholder engagement and regional and local input are cornerstones of the DFES analysis. Although based on the national FES framework, the DFES analysis relies on a diverse range of inputs from stakeholders to build regional, sub-regional and local knowledge and insight that informs the DFES modelling assumptions and resultant projections.

Activities to gather information from stakeholders for DFES 2025 included:

- **An interactive online webinar** hosted by SSEN, covering DFES 2025 timelines and opportunities for stakeholder engagement, pathways to net zero within DFES 2024 and DFES 2025, the ED3 price control period, and collaboration with NESO's RESP
- **A local authority data exchange**, facilitating updated input on:
    - New building developments
    - Priorities for low-carbon technologies
    - Local Area Energy Plans (LAEPs)
- **Targeted sector representative and developer engagement** to inform the uptake projections and spatial factors for generation, storage and demand technologies
- **Engagement with NESO** to discuss modelling assumptions, market intelligence and updates to the scenario framework.

There are 44 unitary authorities in the Southern England licence area. For DFES 2025, 28 unitary authorities provided updated new developments site data, and 25 responded to engagement questions. Over the past three years, 40 out of 44 local authorities have provided updates to new developments data.

Local Authority Energy Plans (LAEPs)

For 2025, LAEPs were provided directly, sourced through direct engagement with local authority teams or obtained via manual web scraping. Regen facilitated an 'ask-once' process so that some local authorities serving populations across multiple DNO licence areas (SSEN, NGED and UKPN) could feed information into a single platform.

With the DFES projections modelled to the Electricity Supply Area (ESA) level, a direct comparison is undertaken where:

- LAEP data is provided at the local authority level (or a spatial granularity that can be aggregated up to the local authority level)
- LAEP outputs are summarised at a suitable technology building block level and in a comparable unit used in DFES.

Extracting these relevant technology-specific LAEP datapoints (targets, pathways or projects) enables them to be reconciled with equivalent DFES projections. This process can be applied in three different ways, depending on how the LAEP outputs compare to the DFES modelling:

- Where a LAEP target is within the envelope of DFES scenario outcomes for that technology, no change is made as the DFES already reflects or exceeds the LAEP target
- Where a LAEP target is above the highest DFES scenario by up to 10%, the highest DFES projection for that technology in that area is uplifted to directly reflect the LAEP target
- Where the LAEP target is above the highest DFES scenario by more than 10%, the highest DFES scenario outcome for that technology in that area is uplifted by 10%. This aims to reflect the ambition detailed within the LAEP, but ensures that the wider SSEN DFES projections remain consistent with the overarching NESO FES scenario framework.

The following LAEPs have been considered in the DFES 2025 reconciliation:

Local authority	Input
BCP (Bournemouth, Christchurch & Poole)	BCP LAEP
Hounslow	Hounslow LAEP report and data dictionary
Old Oak and Park Royal Development Corporation (OPDC)	OPDC LAEP
Oxfordshire County Council	A ‘Gap Analysis’ report comparing DFES 2024 results with projections from an in-development LAEP
Southampton	A data workbook from an in-development LAEP
West London	West London subregional LAEP
Spelthorne, Southampton, Oxfordshire, Reading, Arun	LEVI EV charger data provided through SSEN’s LENZA platform.

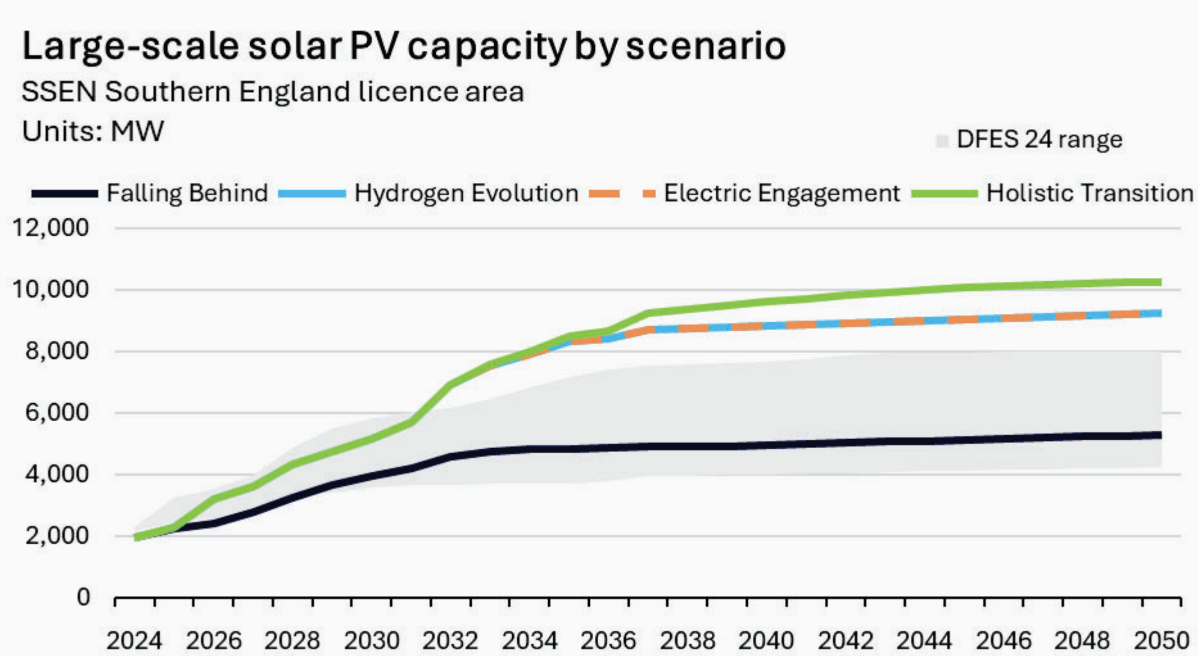
For SEPD LAEP reconciliation, 37 individual local authority targets were identified. 13 of these targets were above the highest scenario DFES projection for the area. Reconciliation with these local inputs has influenced over 290 MW of additional installed capacity, primarily solar PV and small amounts on onshore wind and battery storage. 30,000 additional new homes and nearly 100,000 additional heat pumps have also been modelled as a result of this local input process.

Generation and storage change logs

Large-scale solar PV

Technical specification	Building blocks
Large solar generation (G99)	Gen_BB012

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	1,968	This is a small decrease in reported baseline capacity from DFES 2024. This is due to a change in methodology for the DFES 2025 analysis to report the baseline in terms of export capacity, rather than installed capacity, to align with SSEN's Embedded Capacity Register (ECR).
Pipeline	Total	7,458	The total installed capacity of pipeline sites has increased by 236 MW since DFES 2024.

Pipeline	Planning permission granted	1,507	The total installed capacity of sites with planning permission has increased by 125 MW since DFES 2024.
Pipeline buildout methodology		DFES 2025 reflects NESO's CP30 plan, which includes capacity allocations for large-scale solar PV in SSEN's licence areas by 2030 and 2035. The three net zero compliant scenarios share the same pipeline buildout assumptions. This is a departure from DFES 2024, which projected a greater spread of pipeline buildout capacity.	

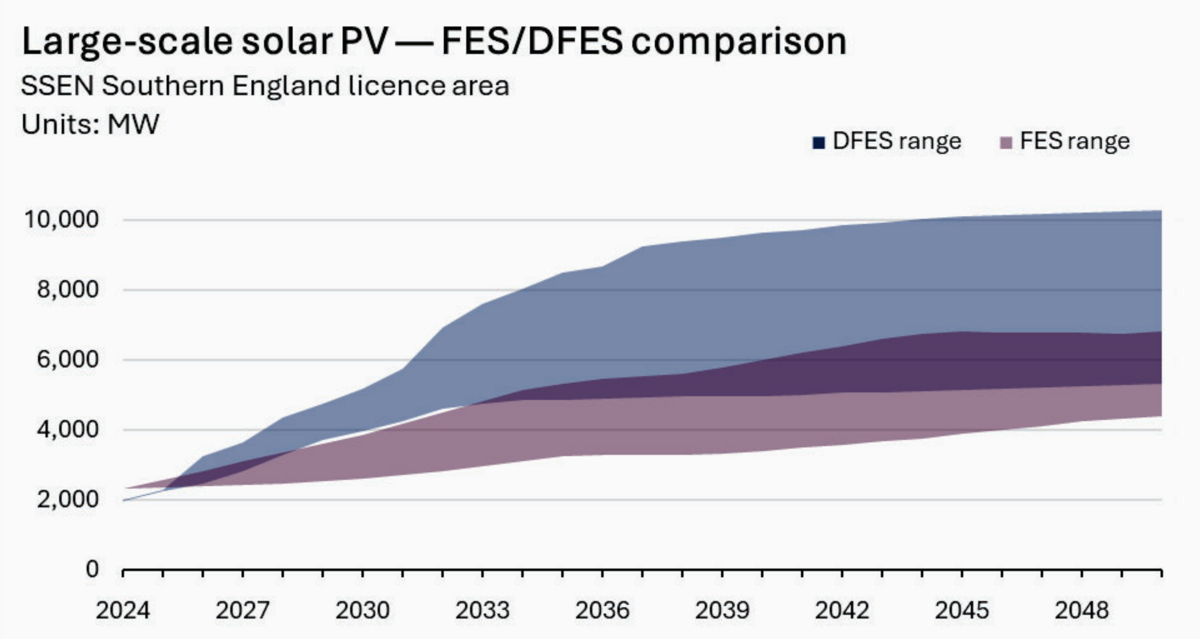
Post-pipeline projections

Scenario	Changes compared to DFES 2024
Holistic Transition	By 2035, the installed capacity is modelled to be 8.5 GW, representing a 2.3 GW increase from DFES 2024. This increase is associated with the approach for DFES 2025 modelling, aligned with CP30 and connections reform. All sites with a modelled Gate 2 offer are also modelled to connect by 2035. This variance is projected to 2050, where the total large-scale solar generation reaches 10.9 GW, 2.9 GW higher than DFES 2024.
Electric Engagement **Hydrogen Evolution**	By 2035, the installed capacity under these scenarios is modelled to be 8.4 GW, representing a 3.4 GW increase from DFES 2024. This increase is associated with the approach for DFES 2025 modelling, aligned with CP30 and connections reform. All sites with a modelled Gate 2 offer are also modelled to connect by 2035. This variance is projected to 2050, where the total large-scale solar generation reaches 9.2 GW, 3.1 GW higher than DFES 2024. The repowering assumptions of baseline sites before 2035 account for the change in capacity compared to the 2035 **Holistic Transition** capacity.
Falling Behind	By 2035, the installed capacity is modelled to be 4.9 GW, representing a 1.2 GW increase from DFES 2024. This increase is associated with the approach for DFES 2025 modelling, aligned with CP30 and connections reform. DFES 2025 modelled all sites with planning evidence. **Falling Behind** still reflects an overall slower deployment of large-scale solar PV out to 2050, including a delayed deployment of CP30 technologies.

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Planning progress and CP30	Uptake modelling	The three net zero scenarios were modelled to align with CP30 capacity allocations and eligible projects in the Southern England licence area. This differs from DFES 2024, which modelled each scenario individually. Each pipeline site was assessed and researched to determine whether it would be likely to receive a Gate 2 connection offer. Sites determined to have received a Gate 2 connection offer (based on site research) were modelled to connect under the three net zero compliant scenarios, using the same methodology as DFES 2024. Delays to pipeline connections are reflected in the least ambitious **Falling Behind** scenario. Sites with no planning evidence were not modelled to connect in any scenario.
Repowering assumptions	Uptake modelling	The following assumptions were used to consider the repowering of solar sites reaching the end of their operational life. In line with DFES 2024 assumptions, baseline sites are modelled to repower with a 25% capacity increase in **Electric Engagement** and **Hydrogen Evolution** after 25 years and a 50% increase in **Holistic Transition** after 20 years. In Falling Behind, there is no modelled capacity increase at the end of life. For DFES 2025, only sites reaching the end of life with capacity under 5 MW were modelled to repower with capacity increases before 2035. This is because sites over 5 MW would breach the Transmission Impact Assessment (TIA) threshold and would require a Gate 2 offer.

Reconciliation

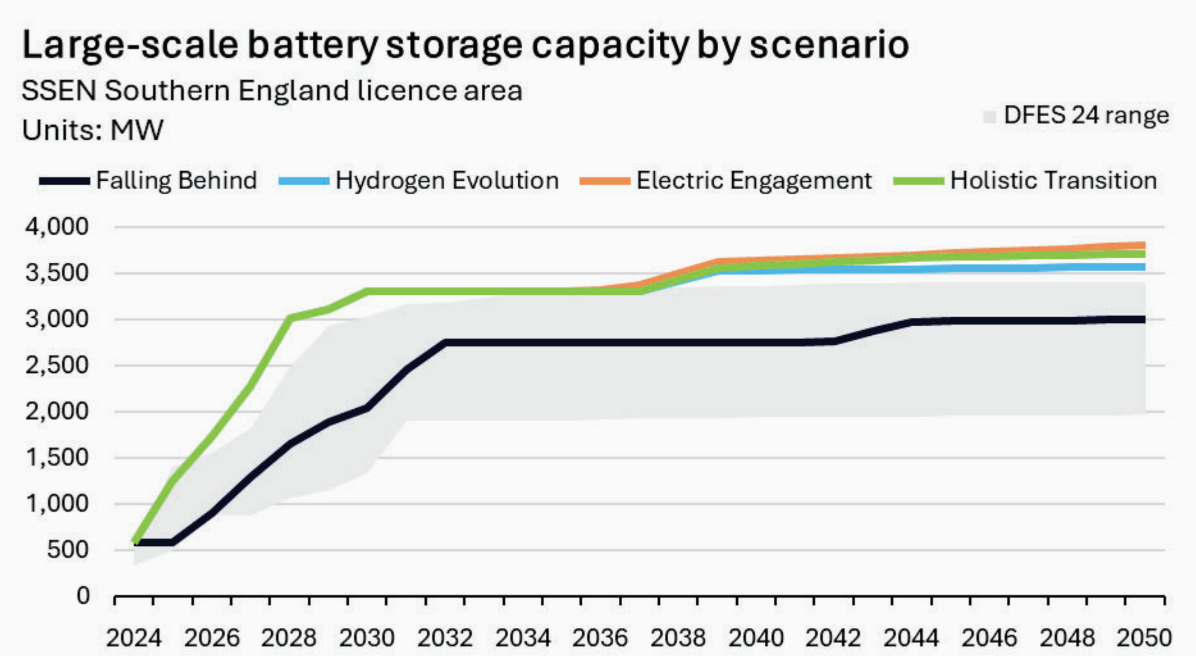


Comparison	Details
DFES 2025 to DFES 2024	Overall, the three DFES 2025 net zero scenarios are closely aligned with the **Holistic Transition** projection from DFES 2024. Falling Behind is also well aligned with the **Counterfactual** from DFES 2024, until 2030, where DFES 2025 reflects the ambitions of CP30. **Hydrogen Evolution** and **Electric Engagement** follow the same pathways in the long term in DFES 2025, and both are aligned with the DFES 2024 **Electric Engagement** projection out to 2050.
DFES 2025 to FES 2025	The DFES 2025 near-term uptake reflects the large pipeline of projects and the CP30 allocations for the Southern England licence area. The capacity of projects found to be eligible to connect under CP30 and modelled in the DFES analysis is notably above the FES regional projections. The CP30 allocation for large-scale solar is 4.6 GW by 2030 for the Southern England licence area. The DFES 2025 analysis models 5.2 GW of CP30 Gate 2 project capacity under the net zero compliant scenarios by 2030, whereas the most ambitious FES scenario only reaches 3.8 GW by 2030. Note: CP30 analysis references export capacity. DFES 2025 baseline is reported in terms of export capacity (to align with the ECR) and DFES projections are reported in installed capacity.

Large-scale battery storage

Technical specification	Building blocks
Standalone grid services	Srg_BB001
Generation co-location	Srg_BB001

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	589	The baseline capacity has increased significantly from the 281 MW reported for DFES 2024. This is due, in part, to the connection of two new sites of 25 MW and 40 MW. In addition, DFES 2025 reports baseline export capacity to align with SSEN's ECR, while DFES 2024 reported baseline installed capacity.

Pipeline	Total	14,650	A large pipeline of sites remains, but has decreased from the 15.9 GW reported for DFES 2024. Of the 14.7 GW pipeline, 10.8 GW have accepted connection offers, while the remaining sites are yet to accept their connection quotes.
Pipeline	Planning permission granted	2,367	There has been a moderate increase in the battery storage capacity that has secured planning approval, 411 MW higher than the 1.9 GW reported for DFES 2024.
Pipeline	Prequalified for, or have won, Capacity Market (CM) contracts	1,262	An additional 500 MW of capacity has won capacity agreements in recent CM auctions since DFES 2024. These sites are modelled to commission in their T-4 CM delivery year. We are aware of recent developments for a small number of battery storage projects that have relinquished their CM agreements. These updates to individual sites have been reflected in the analysis, but we are continuing to use CM dates as a modelling input for sites that hold a CM agreement.
Pipeline buildout methodology			DFES 2025 reflects the CP30 plan, with its allocations for battery storage capacity to be deployed in the Southern England licence area by 2030 and 2035. The net zero compliant scenarios, **Holistic Transition**, **Electric Engagement** and **Hydrogen Evolution**, share the same pipeline buildout assumptions. This is a departure from DFES 2024, which projected a greater spread of pipeline buildout outcomes across the three net zero scenarios.

Post-pipeline projections

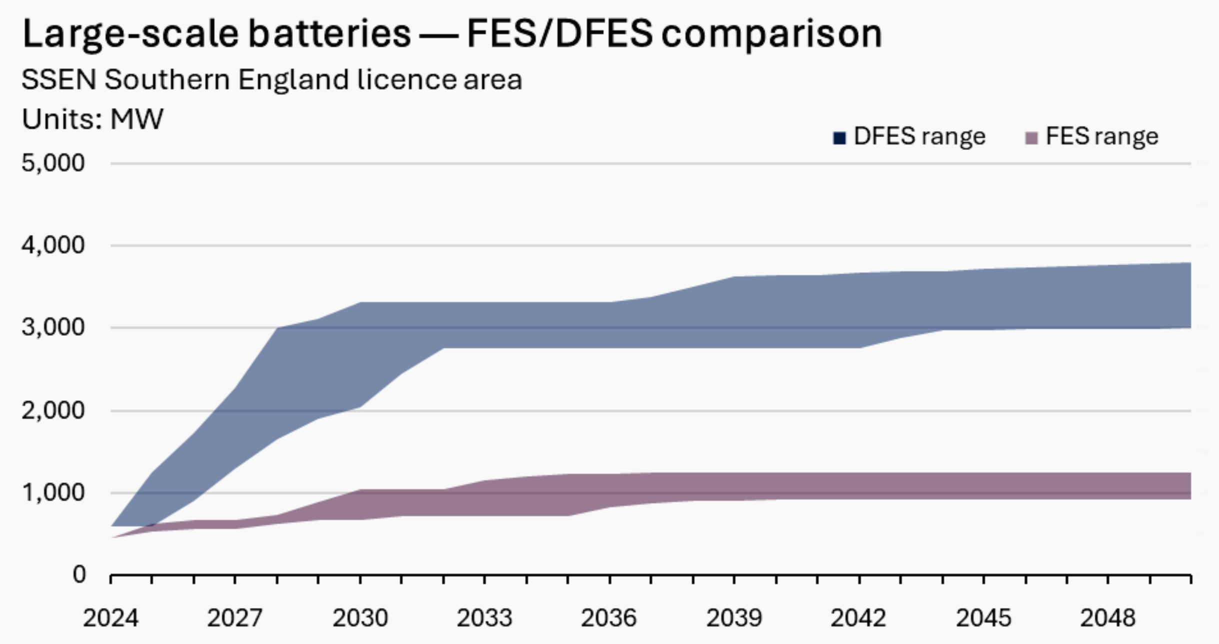
Scenario	Changes compared to DFES 2024
Holistic Transition **Electric Engagement** **Hydrogen Evolution**	Following the updated FES 2025 scenario framework, **Electric Engagement** is now the highest growth scenario for large-scale battery storage. Previous FES and DFES projections used **Holistic Transition** as the highest growth scenario. By 2050, total large-scale battery storage capacity in the Southern England licence area reaches approximately 3.8 GW under **Electric Engagement**, 3.7 GW under **Holistic Transition** and 3.5 GW under **Hydrogen Evolution**. These are higher than the highest projection made under DFES 2024 (in **Holistic Transition**). This is due to the updated, CP30-compliant buildout methodology.
Falling Behind	By 2050, total large-scale battery storage capacity in the Southern England licence area reaches 2.8 GW. This is 800 MW higher than the total projected for DFES 2024 under the **Counterfactual** scenario.

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Planning progress	Uptake modelling	As part of the ongoing connections reform process, NESO created an allocation for the total capacity of battery storage which can connect in the Southern England licence area by 2030 and 2035. Under this mechanism, any site which has been granted planning permission or secured a CM agreement is given protected status and guaranteed a Gate 2 connection offer regardless of whether it would exceed the allocated storage capacity for the Southern England licence area. In the Southern England licence area, the pipeline of projects with protected status significantly exceeds the licence area's battery storage capacity allocation. This leaves no remaining capacity for less advanced sites. As a result, it is assumed that any site which does not yet have protected status will not receive a Gate 2 connection offer, and is not modelled to build out under any scenario. This is a change from the approach used for DFES 2024, whereby projects which had submitted planning permission could build out under high-growth scenarios.

Co-located projections	Uptake modelling	Reflecting evidence from the pipeline of sites with connection offers, 30-40% of new onshore renewable generation capacity is assumed to co-locate with battery storage under **Holistic Transition** and **Electric Engagement**. This results in higher post-2035 growth relative to DFES 2024, which assumed a 10% co-location rate. **Hydrogen Evolution** and **Falling Behind** maintain the same 10% rate of co-location, which was modelled for all scenarios in DFES 2024.

Reconciliation



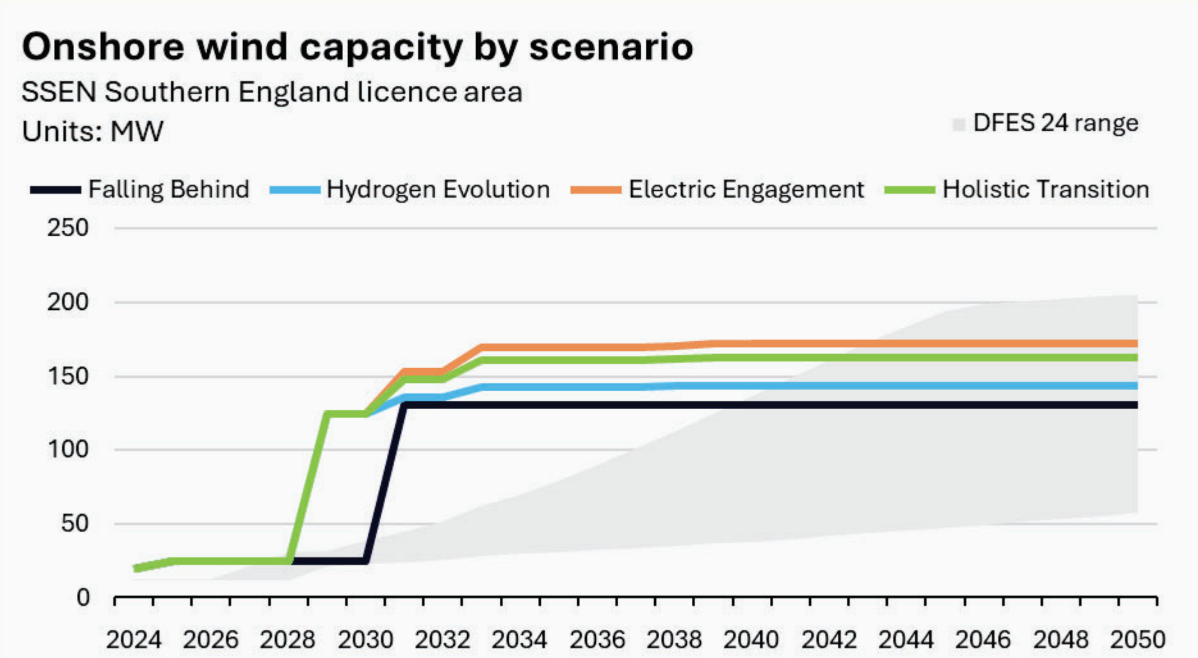
Comparison	Details
DFES 2025 to DFES 2024	Near-term growth rates and long-term capacity projections for **Electric Engagement**, **Holistic Transition** and **Hydrogen Evolution** are slightly higher than the **Holistic Transition** scenario in DFES 2024. **Falling Behind** projects near-term growth and long-term capacity broadly aligned with the **Hydrogen Evolution** scenario in DFES 2024. This increase in the lowest growth scenario reflects the overall increase in the FES's GB projections for distributed battery storage.

DFES 2025 to FES 2025	The FES 2025 baseline of 453 MW is lower than the DFES baseline of 589 MW. The FES 2025 projects significantly lower near-term growth and long-term installed capacity under all scenarios. The DFES projections are informed by SSEN connections data and the pipeline of projects with planning permission granted and protected status under the CP30 Gate 2 connection offer process.

Onshore wind

Technical specification	Building blocks
Onshore wind >= 1 MW	Gen_BB015
Onshore Wind < 1 MW	Gen_BB016

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	25	The baseline capacity has increased from the 11 MW recorded for DFES 2024. This is due to the connection of the Alaska wind farm in Dorset. It should also be noted that the DFES 2025 reports baseline export capacity to align with SSEN's ECR, while the DFES 2024 reported baseline installed capacity.
Pipeline	Total	164	The pipeline has increased significantly from the 18 MW reported in DFES 2024. This is mainly due to a 100 MW site now securing a connection agreement, alongside a 50 MW site that has been

	issued a connection quote, but has not yet accepted it. Neither site has evidence of progress through planning. These sites are modelled to connect before 2035 under all scenarios except **Falling Behind**, where the 50 MW site is not modelled to connect.
Pipeline buildout methodology	DFES 2025 reflects the CP30 plan, with its allocations for onshore wind capacity to be deployed in England and Wales by 2030 and 2035. The net zero compliant scenarios, **Holistic Transition**, **Electric Engagement** and **Hydrogen Evolution**, share equal pipeline buildout assumptions. This is a departure from DFES 2024, which projected a greater spread of pipeline buildout outcomes.

Post-pipeline projections

Scenario	Changes compared to DFES 2024
Holistic Transition	DFES 2025 models 222 MW of onshore wind capacity by 2050 under this scenario. This is 70 MW more than the 152 MW projected under the same scenario for DFES 2024. This is due to the larger project pipeline and higher assumed repowering factors.
Electric Engagement	DFES 2025 models 231 MW of onshore wind capacity by 2050 under this scenario. This is 27 MW more than the 204 MW projected for DFES 2024. This is due to the larger project pipeline and higher assumed repowering factors.
Hydrogen Evolution	DFES 2025 models 203 MW of onshore wind capacity by 2050 under this scenario. This is 107 MW more than the 96 MW projected for DFES 2024. This is due to the larger project pipeline and higher assumed repowering factors.
Falling Behind	DFES 2025 models 135 MW of onshore wind capacity by 2050 under this scenario. This is 78 MW more than the 57 MW projected for DFES 2024 under the **Falling Behind** scenario. This is due to the larger project pipeline and higher assumed repowering factors.

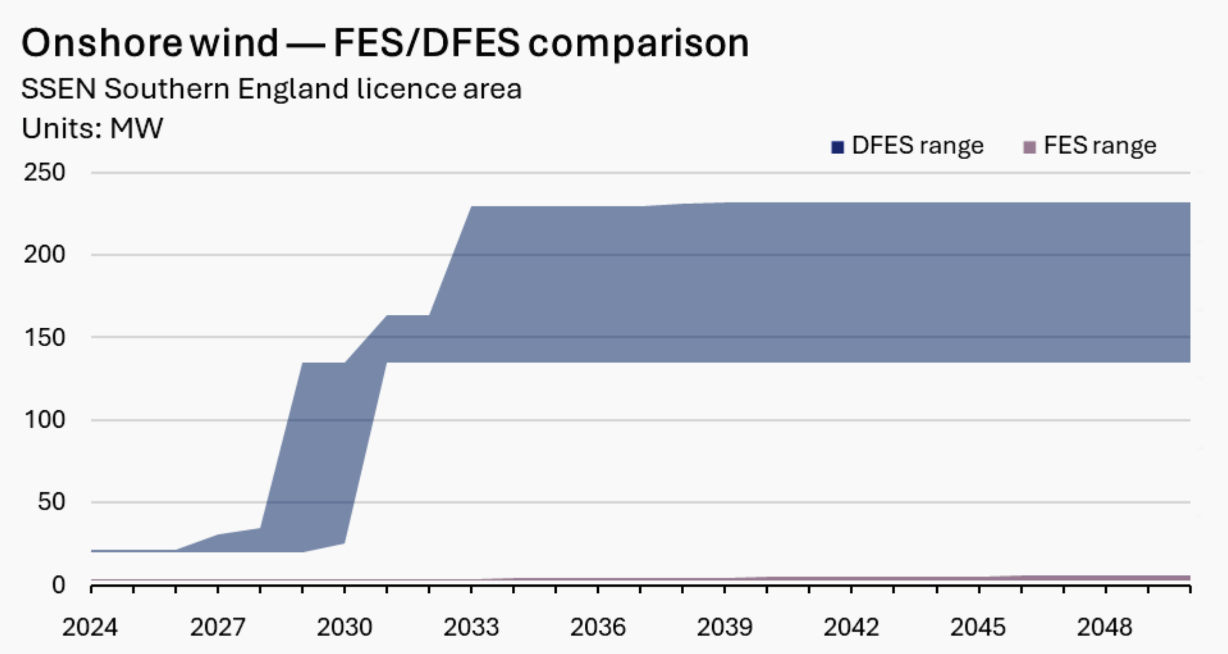
Modelling factors

Factor	Impact	Changes compared to DFES 2024
Planning progress and CP30	Uptake modelling	DFES 2024 assumed that sites with no evidence of progress through planning would not build out under less ambitious scenarios.

Factor	Impact	Changes compared to DFES 2024
		NESO's connections reform process has created allocations for the amount of onshore wind capacity to be connected within SSEN's licence areas and the wider national regions by 2030 and 2035. CP30 allocated capacities for onshore wind in 2030 and 2035 are large enough to accommodate the buildout of the entire Southern England project pipeline. As a result, in DFES 2025, the entire pipeline of sites which are over 5 MW (and subject to the TIA) is assumed to be built under **Holistic Transition**, **Electric Engagement** and **Hydrogen Evolution**. Delays to projects coming online are reflected in the less ambitious **Falling Behind** scenario. In addition, sites with connection offers not yet accepted are not modelled to be built under this scenario.
Repowering assumptions	Uptake modelling	Higher uplifts in site capacity when repowering have been assumed in DFES 2025. This is based on desktop research, evidence from network operators and analysis of sites which have already repowered. Baseline sites are assumed to repower with a percentage of additional capacity, with potential impact at the BSP/GSP level across the onshore wind fleet. The percentage of additional capacity modelled varies by scenario: • **Electric Engagement**: 250% additional capacity • **Holistic Transition**: 200% additional capacity • **Hydrogen Evolution**: 100% additional capacity • **Falling Behind**: 50% additional capacity. Existing onshore wind sites in the Southern England licence area are modelled to repower in the early 2030s.
Modelled post-pipeline capacity	Uptake modelling	DFES modelling has historically included post-pipeline capacity for onshore wind in the Southern England licence area, connecting in the 2030s and 2040s. This was due to the lack of a significant project pipeline and more conservative repowering assumptions, leaving room for potential additional capacity connecting out to 2050. For DFES 2025, however, no post-pipeline capacity has been modelled. The CP30 onshore wind allocation for the licence area is filled in 2030 and 2035 due to the buildout of

Factor	Impact	Changes compared to DFES 2024
		the known project pipeline. Repowering is the basis for all modelled post-pipeline growth thereafter.

Reconciliation

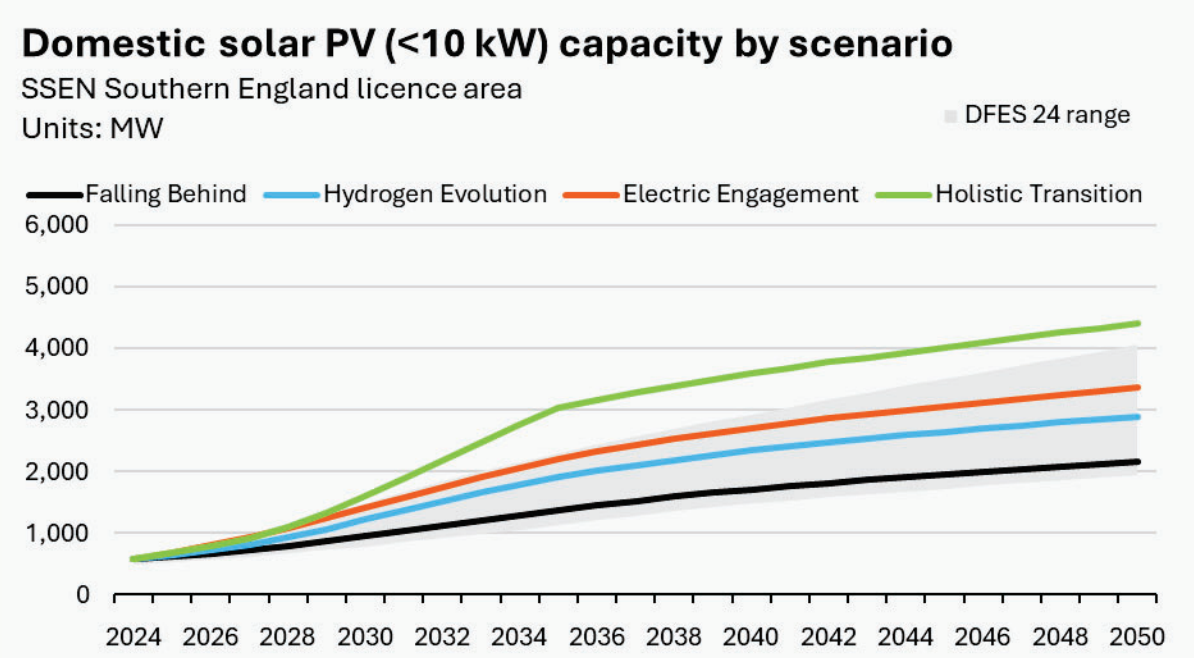


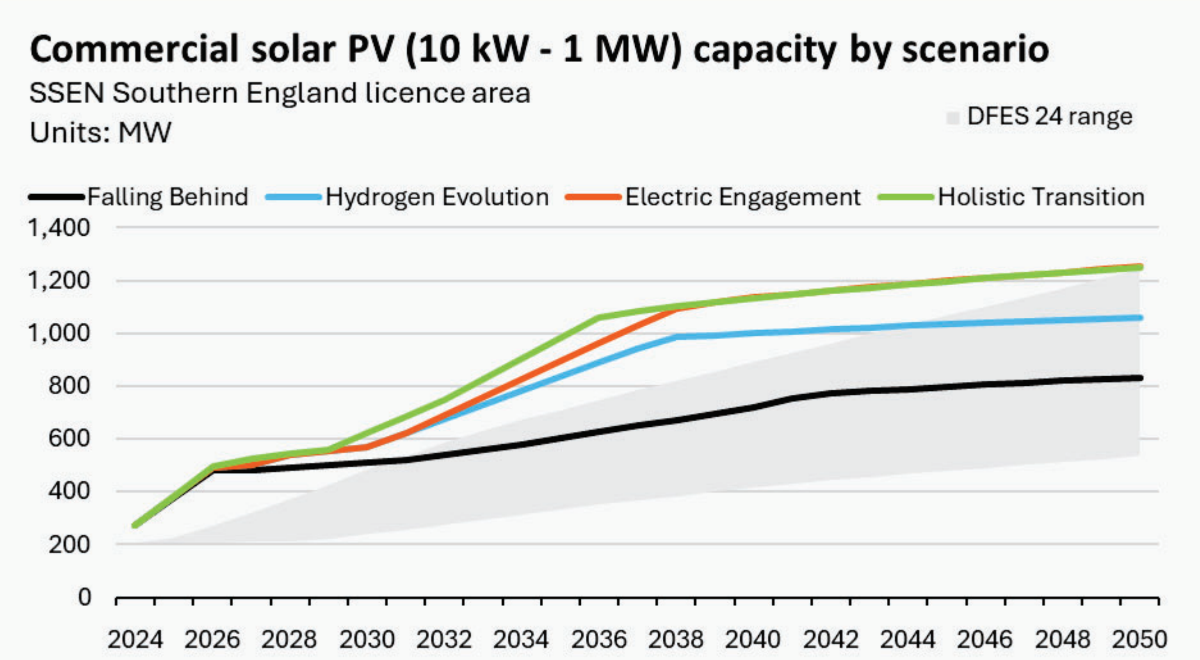
Comparison	Details
DFES 2025 to DFES 2024	DFES 2025 projects increased near-term growth, relative to DFES 2024, due to a larger project pipeline. By 2050, 30 -100 MW of additional onshore wind capacity is modelled across the four scenarios, relative to the equivalent DFES 2024 scenarios.
DFES 2025 to FES 2025	FES 2025 projects negligible onshore wind capacity in the Southern England licence area, in the entire period to 2050. This is not aligned with the pipeline of connection offers for new sites or the potential for future repowering.

Small-scale solar PV

Technical specification	Building blocks
Small solar generation (G98/G83) *Below 1 MW in capacity. Includes domestic rooftop PV (<10kW) and commercial rooftop PV (10kW- 1MW).*	Gen_BB013

DFES 2025 scenario projections





Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	861	Installed capacity has increased significantly by 288 MW since DFES 2024. Installed capacity is higher than the 768 MW projected in the DFES 2024 **Holistic Transition** scenario.
Pipeline	Total	202	The pipeline has increased by 175 MW compared to DFES 2024.

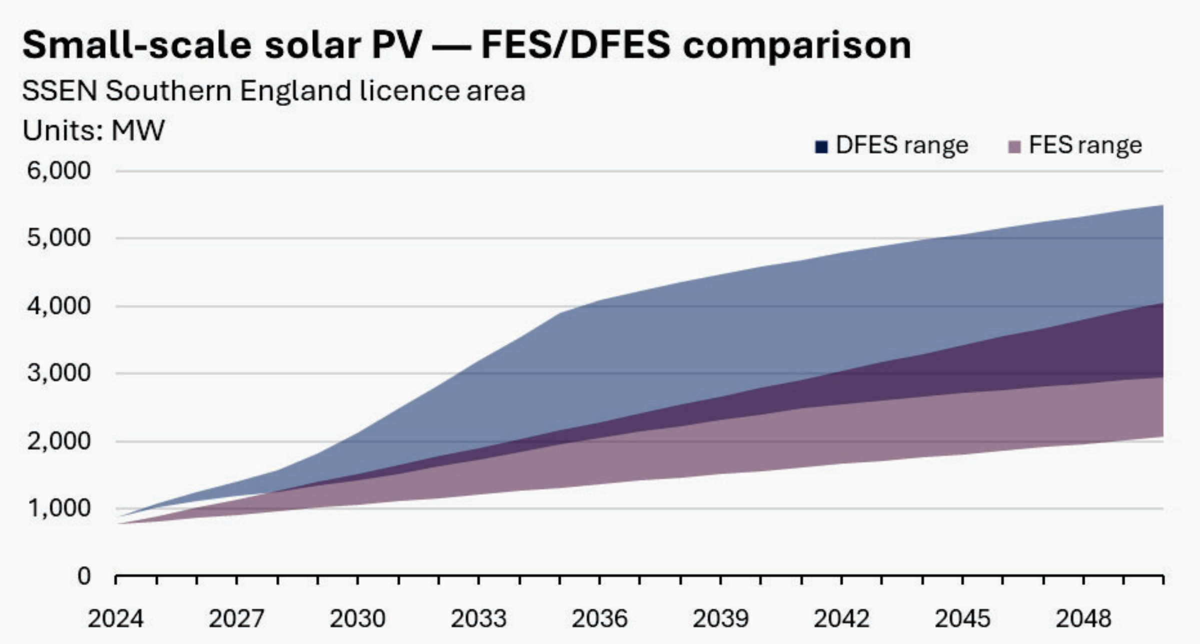
Post-pipeline projections

Scenario	Changes compared to DFES 2024
Holistic Transition	Total capacity in 2050 under all scenarios is marginally higher in DFES 2025 than DFES 2024 due to increased baseline capacity, increased new development projections and updated solar array size assumptions (see table below).
Electric Engagement	
Hydrogen Evolution	The installation rate between 2029 and 2035 under **Holistic Transition** is higher than in the other scenarios. This is driven by the projected uptake of solar on new developments, which are projected to be built out most rapidly under **Holistic Transition**.
Falling Behind	

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Average technology size	Uptake modelling	Reflecting evidence from the most recent baseline data, the average technology sizes of domestic and commercial rooftop solar PV installations have been updated. Average domestic rooftop capacity has increased from 4 kW to 5 kW, and commercial rooftop capacity has increased from 15 kW to 30 kW. This has slightly increased the overall projected capacity out to 2050.

Reconciliation



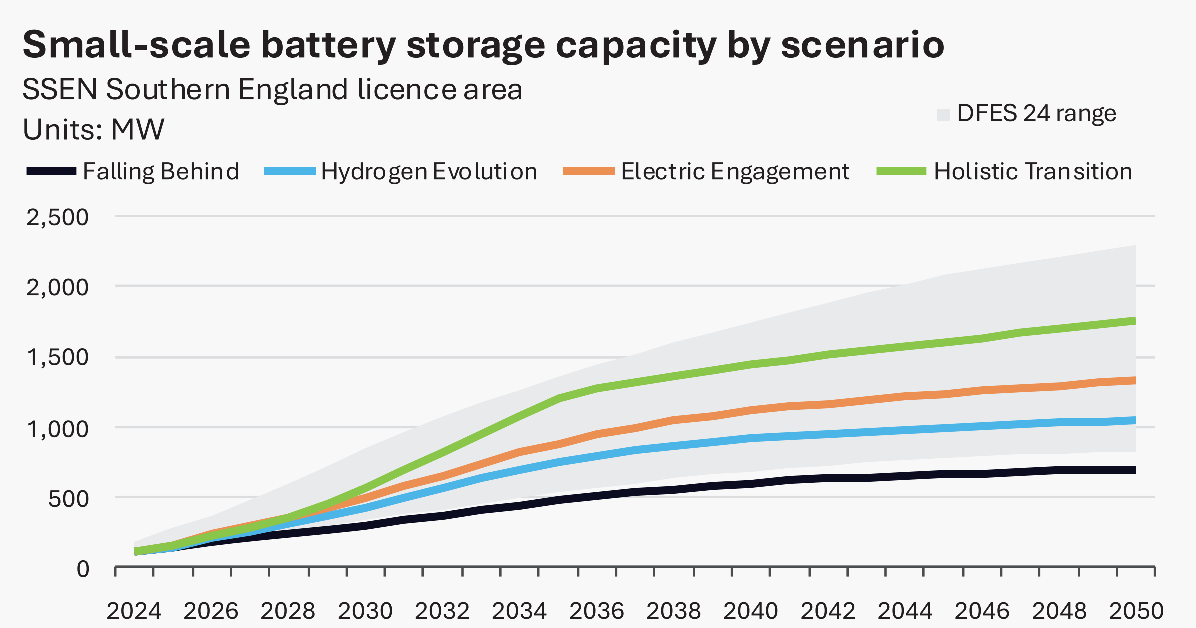
Comparison	Details
DFES 2025 to DFES 2024	Across almost all scenarios, DFES 2025 projects higher small-scale solar PV capacity across the period to 2050, relative to DFES 2024. This is based on higher house building targets and an increase in the average size of domestic and commercial rooftop solar installations. The only exceptions are domestic solar PV (<10 kW) under **Electric Engagement**, which is marginally lower than but effectively in line with DFES 2024, and commercial solar (10 kW – 1 MW) under **Holistic Transition**, which show slightly less capacity than DFES 2024 due to changes in FES 2025, which now projects greater uptake of domestic solar PV under **Electric Engagement** than **Holistic Transition**.

DFES 2025 to FES 2025	Across almost all scenarios, DFES 2025 projects higher small-scale solar PV capacity across the period to 2050, relative to FES 2025. This is probably related to differences in the assumed uptake of solar PV on new developments. DFES 2025 projects faster growth in the 2030s but tapers off in the longer term. This is driven by the projected uptake of solar on new developments, which are projected to be built out rapidly in the near term before tapering off in the longer term. This trend is different to FES 2025, which shows a linear increase out to 2050.

Small-scale storage

Technical specification	Building blocks
Domestic battery storage (G98)	Srg_BB002
High energy user	Srg_BB002

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	109	Installed capacity has increased significantly, by 96 MW, since DFES 2024. This is due to SSEN providing more comprehensive connection data compared to previous years.
Pipeline	Total	26	The pipeline has decreased by 2 MW since DFES 2024.

Post-pipeline projections

Scenario	Changes compared to DFES 2024

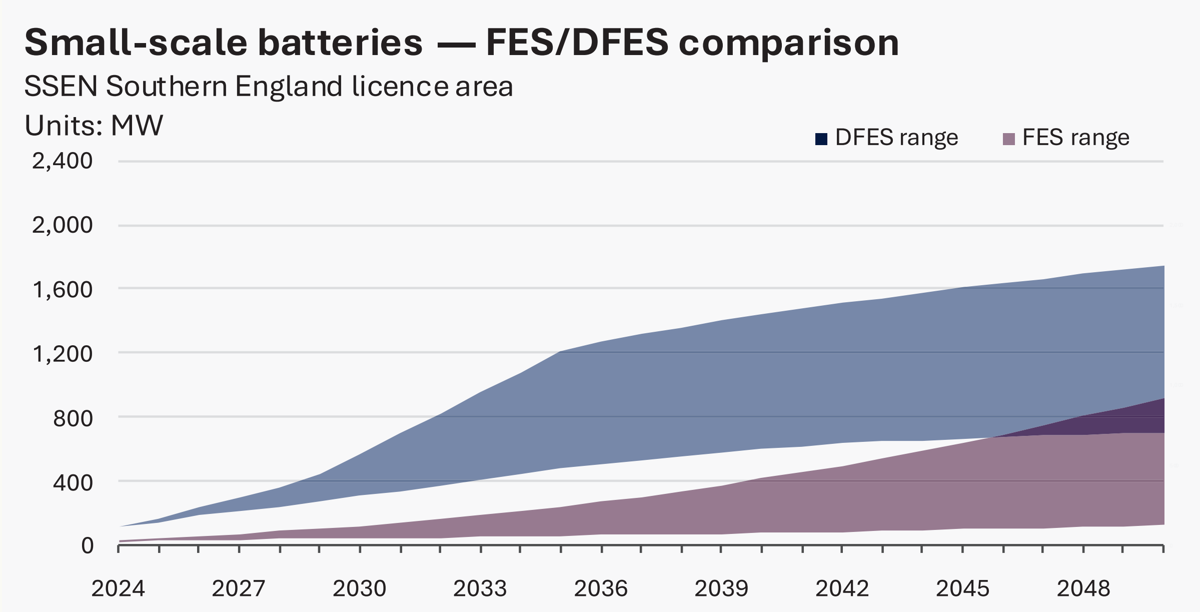
Holistic Transition	By 2050, total small-scale storage capacity reaches 1.8 GW. This is 0.5 GW lower than the total projected for DFES 2024. The reason for the reduced capacity seen across all scenarios is outlined in the modelling factors table below. The installation rate between 2029 and 2035 under **Holistic Transition** is higher than in the other scenarios. This is driven by the projected co-location with small-scale solar on new developments, which are projected to be built out most rapidly under **Holistic Transition**.
Electric Engagement	By 2050, total small-scale storage capacity reaches 1.3 GW. This is 0.6 GW lower than the total projected for DFES 2024.
Hydrogen Evolution	By 2050, total small-scale storage capacity reaches 1 GW. This is 0.3 GW lower than the total projected for DFES 2024.
Falling Behind	By 2050, total small-scale storage capacity reaches 0.7 GW. This is 0.1 GW lower than the total projected for DFES 2024.

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Co-located storage with solar	Uptake modelling	The proportions of baseline domestic and commercial solar sites which are co-located with battery storage were calculated by licence area and used to project future co-location capacity until 2030. After 2030, these proportions were linearly decreased to meet the same levels in 2050 as modelled in DFES 2024. This is a change to the modelling approach from DFES 2024, which used evidence from a market report to set the proportion in 2025 and then linearly decreased this to meet 2050 levels. The market report rate was higher than that calculated using baseline data, meaning that projections decreased under this new method.
Average technology size	Uptake modelling	Reflecting evidence from the most recent baseline data, the average technology sizes of domestic and high-energy-user battery storage installations have been updated. Average domestic battery capacity has increased from 5 kW to 6 kW, and high-energy-user battery capacity has decreased from 120 kW to 30 kW, which now aligns with the average capacity of commercial rooftop solar installations. In DFES

		2024, high-energy-user batteries were projected to increase linearly in capacity up to 300 kW in 2050.
Pipeline connection date	Uptake modelling	Projects in the pipeline have been modelled to connect based on the expected connection years provided by SSEN. Sites expected to connect in 2025 have been modelled to do so, and sites expected to connect later have been modelled to connect in 2026. This is a change from the approach used in DFES 2024, which modelled the whole pipeline to connect in the first year of the analysis.

Reconciliation



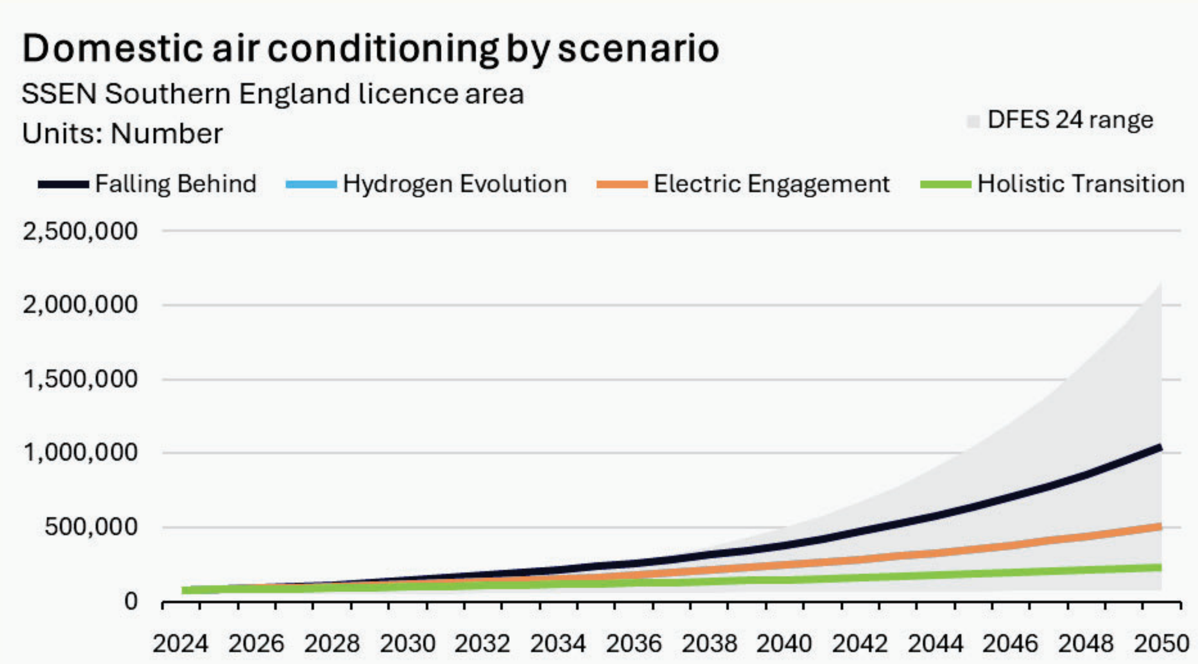
Comparison	Details
DFES 2025 to DFES 2024	Across all scenarios, DFES 2025 projects lower capacity across the period to 2050, relative to DFES 2024. This is due to updated modelling assumptions reflecting current rates of battery co-location with rooftop solar and lower average technology size of high-energy-user installations.
DFES 2025 to FES 2025	Across all scenarios, DFES 2025 projects much higher installed capacity across the period to 2050, relative to FES 2025. The FES baseline is low compared to the reality of installed battery storage capacity. DFES 2025 also envisages faster deployment of small-scale storage in the near term, based on projections of co-location with rooftop solar, which is projected to increase rapidly in the 2030s before tapering off in the longer term. This trend is different to FES 2025, which shows a linear increase out to 2050.

Demand technology change logs

Air conditioning

Technical specification	Building blocks
Air conditioning domestic units	Lct_BB014

DFES 2025 scenario projections



Baseline

Status	Details	Number	Changes since DFES 2024
Baseline	Connected	78,000	There is limited data on current domestic air conditioning levels in the UK. The DFES modelling aligns with FES 2025's estimate of c. 600,000 domestic air conditioning units in the UK in 2024. This is nearly twice the FES 2024 baseline, and this change has been reflected in the DFES modelled baseline.

Projections

<table>
<tr><th>Scenario</th><th>Changes compared to DFES 2024</th></tr>
<tr><td>Holistic Transition</td><td>Following changes to the overall electricity demand from domestic air conditioning in the FES, Holistic Transition sees a higher number of homes installing air conditioning across the scenario timeframe in DFES 2025, compared to 2024. However, overall uptake remains very low.</td></tr>
<tr><td>Electric Engagement</td><td rowspan="2">Following changes to the overall electricity demand for domestic air conditioning in the FES, these scenarios see a lower number of homes installing air conditioning across the scenario timeframe in DFES 2025, compared to 2024, particularly in the longer term.</td></tr>
<tr><td>Hydrogen Evolution</td></tr>
<tr><td>Falling Behind</td><td>Following changes to the overall electricity demand for domestic air conditioning in the FES, this scenario sees a lower number of homes installing air conditioning across the scenario timeframe in DFES 2025, compared to 2024, particularly in the longer term. As a result, the upper range of the scenario projections for DFES 2025 is much lower than DFES 2024, with around half as many homes installing domestic air conditioning by 2050. This directly reflects changes in FES 2025 projections of domestic air conditioning uptake at a national level.</td></tr>
</table>

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Air-to-air heat pumps	Uptake modelling	The domestic heat modelling has been updated in DFES 2025 to include air-to-air heat pumps. As these can provide cooling, homes modelled to install air-to-air heat pumps have been removed from the air conditioning modelling. This only impacts a small proportion of homes, and the impact of this change is substantially outweighed by changes in the overarching FES scenario projections for domestic air conditioning.

Reconciliation

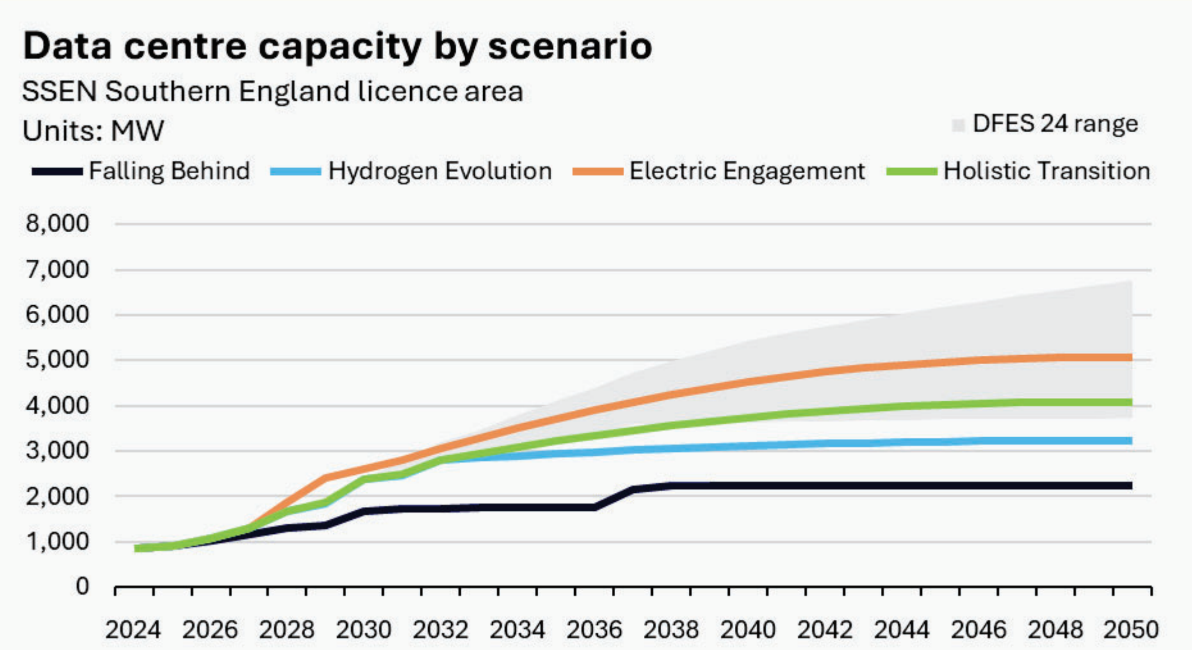
Comparison	Details
DFES 2025 to DFES 2024	DFES 2025 projects a narrower range of outcomes for domestic air conditioning, with fewer units projected in the **Falling Behind** scenario and a greater number of units projected in the **Holistic Transition** scenario. This is driven entirely by similar changes to the FES projections for domestic air conditioning electricity demand across GB.

DFES 2025 to FES 2025	FES 2025 does not detail air conditioning projections by region, so no direct comparison can be made.

Data centres

Technical specification	Building blocks
Data centres	N/A

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	846	Since DFES 2024, an additional 40 MW of data centre demand has been reported as connected.
Pipeline	Total	1,954	The pipeline of sites with SSEN connection offers has slightly increased from 1,913 MW in DFES 2024. This capacity is across 26 sites, fewer than the 31 pipeline sites in DFES 2024.
Pipeline	Contracted	1,556	This is an increase from the 1,025 MW reported for DFES 2024. Over half of

			these sites have applied for or secured full planning permission.
Pipeline	Quoted	200	This is a decrease from the 248 MW reported for DFES 2024. This is a single 200 MW site which has submitted full planning permission, but has yet to accept its connection offer quote.
Pipeline	To be quoted	198	This is a decrease from the 650 MW reported for DFES 2024. These are sites which are extensions to existing data centres with no evidence of progress in planning.

Post-pipeline projections

Scenario	Changes compared to DFES 2024
Holistic Transition	4.1 GW is projected by 2050 under this scenario. This is a notable decrease from the 6.7 GW projected under DFES 2024. This large decrease is due to **Holistic Transition** no longer being the scenario with the highest future data centre capacity under the FES framework. In addition, DFES 2025 models less post-pipeline capacity growth across all scenarios, relative to DFES 2024. This change was made to align more closely with FES projections for total data centre capacity across GB.
Electric Engagement	5.1 GW is projected by 2050 under this scenario. This is a decrease from the 6 GW projected under DFES 2024. DFES 2025 models less post-pipeline capacity growth across all scenarios, relative to DFES 2024. This change was made to align more closely with FES projections for total data centre capacity across GB.
Hydrogen Evolution	3.2 GW is projected by 2050 under this scenario. This is a decrease from the 5.3 GW projected under DFES 2024. DFES 2025 models less post-pipeline capacity growth across all scenarios, relative to DFES 2024. This change was made to align more closely with FES projections for total data centre capacity across GB.
Falling Behind	2.2 GW is projected by 2050 under this scenario. This is a decrease from the 3.7 GW projected under DFES 2024. DFES 2025 models less post-pipeline capacity growth across all scenarios, relative to DFES 2024. This change was made to align more closely with FES projections for total data centre capacity across GB.

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Scenario framework	Pipeline and post-pipeline modelling	Engagement with data centre developers has highlighted uncertainty around the balance of future project deployment on the transmission and distribution networks. This is related to developers targeting sites of increasing scale, ongoing reforms to the connections processes and the potential for alternative models of network asset ownership. To reflect **Electric Engagement** becoming the scenario that sees the highest connected data centre capacity under the FES 2025 framework, **Electric Engagement** has the fastest pipeline buildout and the highest post-pipeline growth. **Electric Engagement** reflects a world where developers are able to build out their planned distribution network sites before 2030. Large-scale sites are able to continue connecting on the distribution network out to 2050. In other scenarios, pipeline buildout is slower and transmission network connections account for a greater portion of future data centre project development.
Modification application connection dates	Pipeline modelling	The DFES has previously reflected the anticipated connection offer dates of pipeline sites directly. However, since DFES 2024, a number of pipeline sites have received modification applications (mod apps) from NESO, pushing back the connection offer date to the mid-to-late 2030s, due to constraints on the transmission network. These mod app dates are reflected under the **Falling Behind** scenario only. The three net zero scenarios reflect theoretical data centre deployment rates should network capacity constraints not delay their development. In these scenarios, it is assumed that data centres are able to connect with their originally offered connection dates. This has resulted in a wider spread of near-term projections than was produced for DFES 2024
Project pipeline attrition	Pipeline modelling	The DFES previously assumed that all pipeline sites would be built under all scenarios. For DFES 2025, some sites which have no evidence of development through planning, or those without accepted connection offers, are modelled to drop out under the **Falling Behind** scenario.

Factor	Impact	Changes compared to DFES 2024
Post-pipeline growth	Post-pipeline modelling	Across all scenarios, less post-pipeline growth is projected when compared with DFES 2024. This aligns the DFES more closely with FES projections across GB, while still reflecting the scale of the baseline and pipeline in the licence area.

Reconciliation

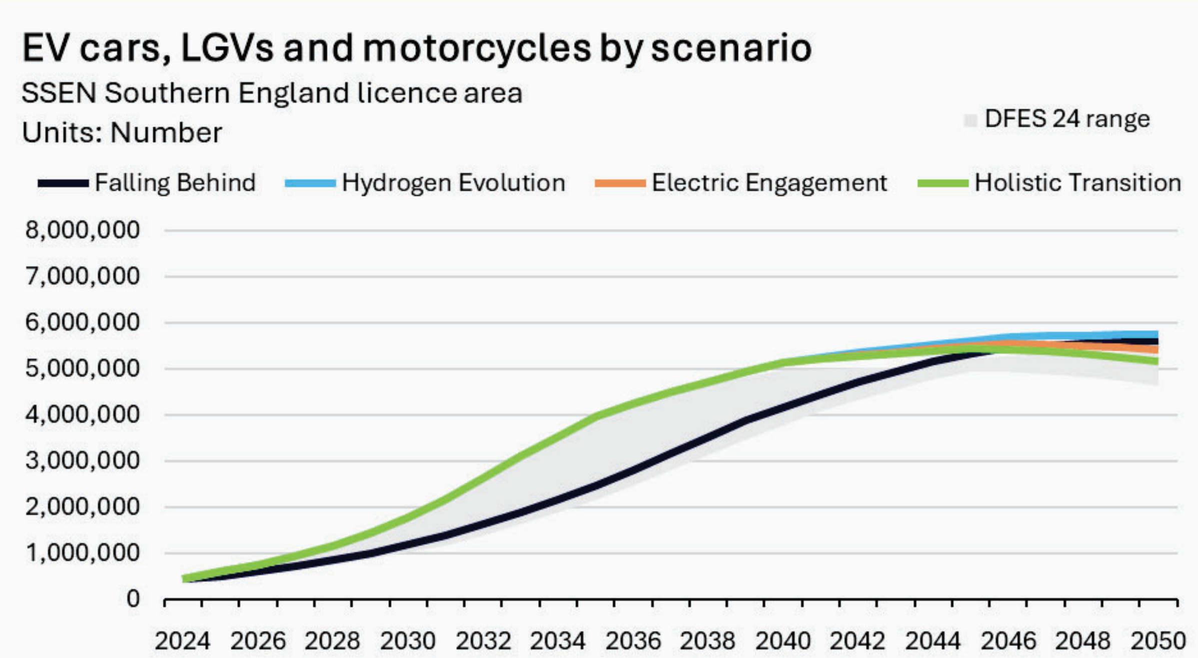
Comparison	Details
DFES 2025 to DFES 2024	DFES 2025 reflects the updated FES scenario framework, with **Electric Engagement** becoming the highest growth scenario for data centres, as opposed to **Holistic Transition** within DFES 2024. Relative to DFES 2024, a wider range of near-term projections has been produced for DFES 2025, along with reduced long-term projections.
DFES 2025 to FES 2025	FES does not produce licence area projections for data centre demand, only a national projection for total data centre electricity consumption across transmission and distribution networks. One stage of reconciliation can be achieved using FES assumptions, namely: • Data centres operate with a 70% load factor • 40% of national data centre demand is connected to the distribution network. This shows that the DFES projection for the Southern England licence area is approximately equal to the total distribution network projection under the FES. Whilst significantly higher, this is justified by the current scale of the known baseline and pipeline capacity in the licence area. The scale of the pipeline across the transmission network also suggests that the FES projection may be underestimating future growth across GB.

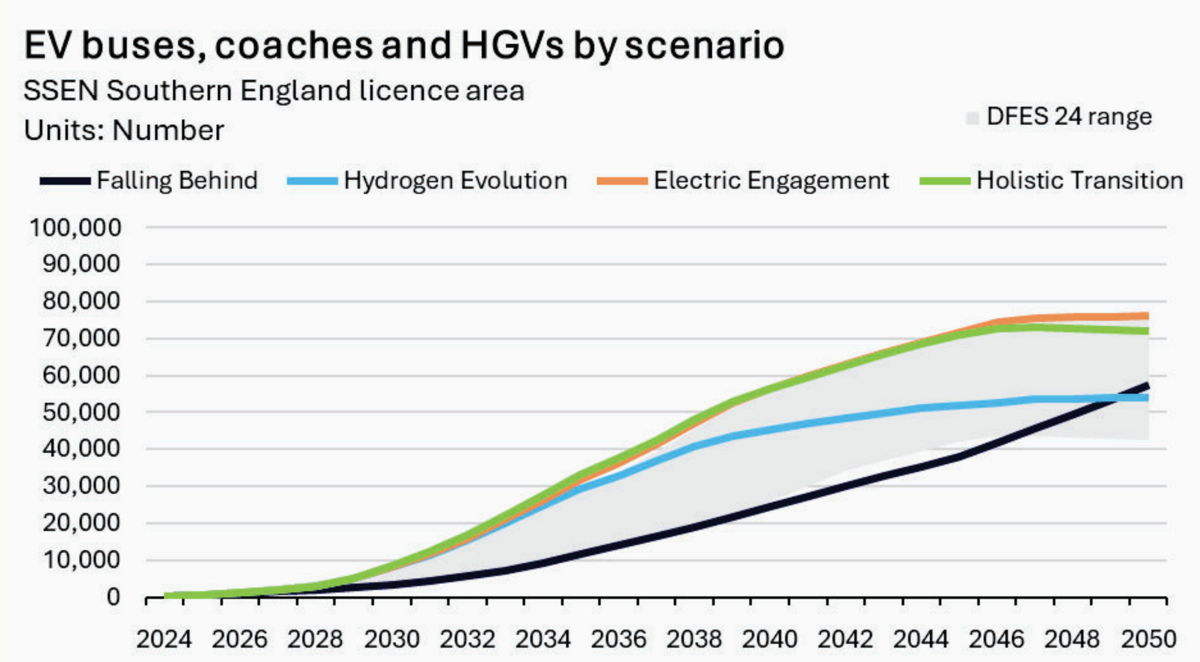
EVs and EV chargers

Technical specification	Building blocks
Electric vehicles (EVs), including vans, cars, motorbikes, HGVs, buses and coaches, covering both pure electric and plug-in hybrid	Lct_BB001 Lct_BB002 Lct_BB003 Lct_BB004
Electric vehicle (EV) charging units, including domestic, workplace, public slow/fast and public rapid	Lct_BB010b Lct_BB011b Lct_BB012b Lct_BB013b

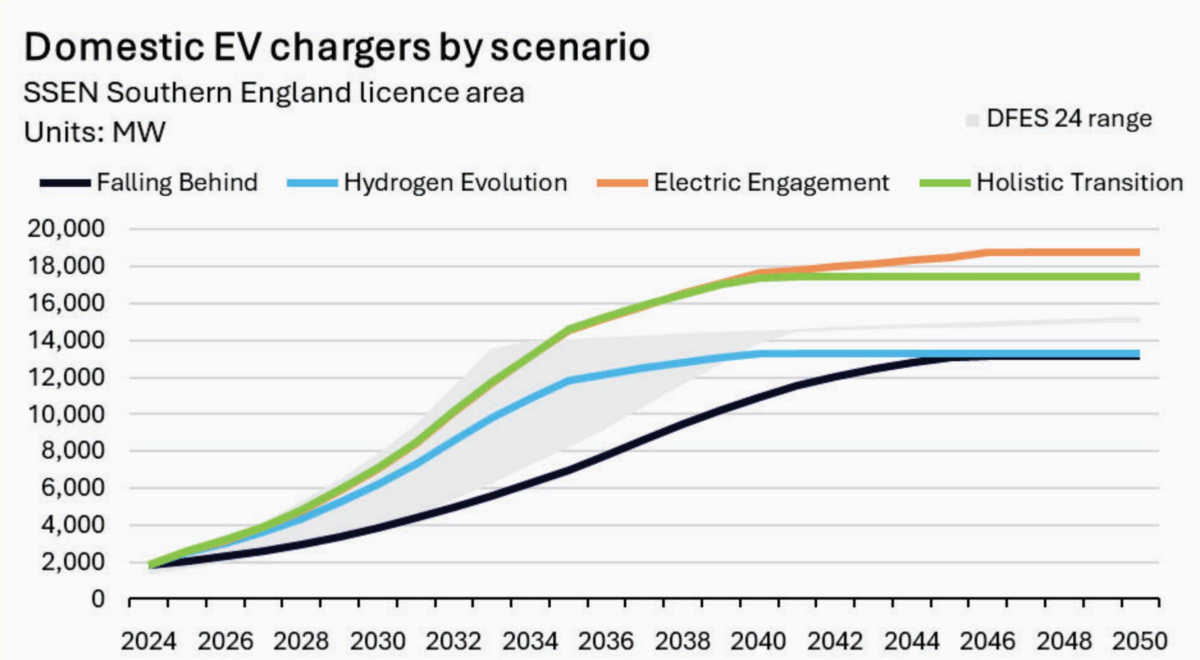
DFES 2025 scenario projections

Number of vehicles




EV buses, coaches and HGVs by scenario
SSEN Southern England licence area
Units: Number
DFES 24 range
Falling Behind
Hydrogen Evolution
Electric Engagement
Holistic Transition
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
2048
2050

EV chargers


Domestic EV chargers by scenario
SSEN Southern England licence area
Units: MW
DFES 24 range
Falling Behind
Hydrogen Evolution
Electric Engagement
Holistic Transition
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
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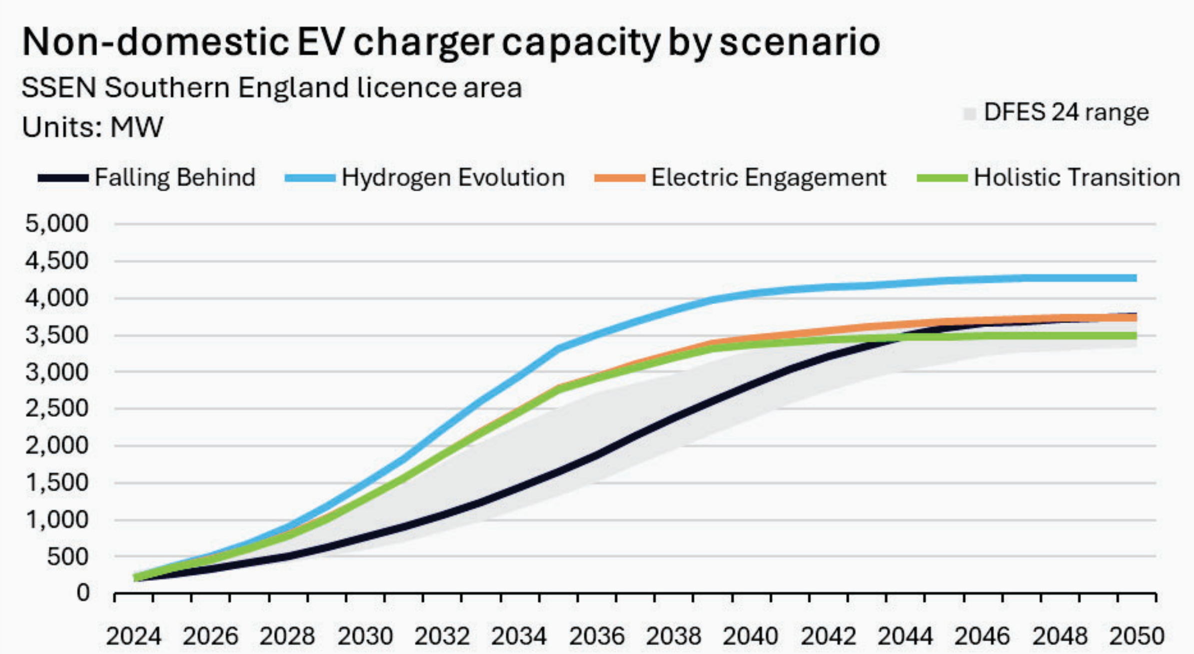
2044
2046
2048
2050



EV baseline

Status		Vehicles	Changes since DFES 2024
Baseline	Plug-in cars	404,000	The number of EVs in the Southern England licence area has increased from 365,000 to 428,500. The total number of vehicles of all fuel types in the Southern England licence area also increased, by 4% from 5 million to 5.2 million.
	Plug-in LGVs	22,000	
	Other EVs	2,500	

EV charger baseline

Status	Capacity (MW)		Changes since DFES 2024
Baseline	Domestic (modelled)	1,852	The calculated baseline charger capacity, based on the number of EVs in the licence area, has increased to 1.8 GW from 1.1 GW last year. The significant increase is reflective of EV uptake being primarily driven by plug-in cars, which have increased by 60,000 in the Southern England licence area.
	Domestic (SSEN connections)	314	DFES 2025 is the first time that domestic EV charger baseline data from SSEN has been available to use. SSEN's connections data includes 314 MW of domestic charger capacity recorded in the licence area. The variance in connected charger

Status	Capacity (MW)		Changes since DFES 2024
			capacity could be due to a range of reasons, including: • The data may not capture charging via 3-pin charging • The registered capacity in the SSEN data may not be correct for all chargers recorded • Installers may not notify SSEN of chargers • There may be differences in the model assumptions applied to calculate baseline charger capacity.
	Non-domestic (OpenChargeMap)	216	Non-domestic charging capacity has increased by 13 MW since DFES 2024. This is a slightly smaller increase than the 16 MW that was modelled to connect in 2025 in the DFES 2024 **Counterfactual** scenario.
	Non-domestic (SSEN connections)	47	SSEN connections data records 47 MW of commercial EV charger capacity in the Southern England licence area. The variance is likely due to incomplete customer notifications to SSEN when chargers are installed.

Post-pipeline projections

Scenario	Changes compared to DFES 2024
Holistic Transition	Uptake of EV cars, LGVs and motorcycles is significantly faster than DFES 2024 throughout the modelling period. By 2050, there are 5% more vehicles under this scenario due to the higher number of existing registered vehicles in the licence area, as well as changes to the overall FES 2025 pathway. EV bus, coach and HGV uptake is aligned with DFES 2024 in the near term, but is significantly higher from 2030 onwards. Changes in the FES uptake pathway, however, result in very similar numbers of vehicles by 2050, with DFES 2025 being only 1% higher than DFES 2024. Domestic EV charger capacity is significantly increased in DFES 2025. This is a result of an increased uptake of EVs relative to DFES 2024 and changes to the domestic charger methodology outlined in the modelling factors section below, which references the tRESP CPAs provided by NESO. By 2050, there is an additional 14% of domestic charging capacity projected relative to DFES 2024.

	Non-domestic charger uptake is higher than DFES 2024 throughout the modelling period, with significantly higher capacity through the 2030s. By 2050, the DFES 2025 **Holistic Transition** pathway has 4% more capacity compared to DFES 2024.
Electric Engagement	Uptake of EV cars, vans and motorcycles in DFES 2025 is slightly higher than in DFES 2024 in the near-to-medium term. However, DFES 2025 has significantly more EVs from 2045 onwards due to changes to the FES uptake pathway, resulting in an additional 17% of EVs for these vehicle classes by 2050. EV buses, coaches and HGVs are very closely aligned to DFES 2024 throughout the model period. By 2050, DFES 2025 has no significant difference from DFES 2024. Domestic EV charger deployment under this scenario is closely aligned to DFES 2024 until the early 2030s, after which it becomes significantly higher. By 2050, DFES 2025 has 25% more domestic charging capacity than DFES 2024. This is predominantly due to changes to the overall methodology, referencing the tRESP CPAs provided by NESO, as outlined in the modelling factors section below. Non-domestic charger deployment is slightly lower than DFES 2024 until the 2030s. After 2030, DFES 2025 is higher, with the difference growing throughout the modelling period. By 2050, there is an additional 2% capacity compared with DFES 2024.
Hydrogen Evolution	Uptake of EV cars, LGVs and motorcycles is significantly faster than DFES 2024 throughout the modelling period. By 2050, there are 7% more vehicles under this scenario, due to the higher baseline number of vehicles in the licence area, as well as changes to the FES pathway. EV buses, coaches and HGVs are significantly higher than DFES 2024 throughout the modelling period, with 28% more of these vehicles modelled to be on the road by 2050. This is due to a shift away from hydrogen as a potential transport fuel solution for non-domestic vehicles within the FES 2025 assumptions and, as a result, a higher adoption of EVs. Domestic charger deployment is higher than DFES 2024 in the short term and into the mid-2030s, but lower in the long term. DFES 2025 projects 12% less domestic charging capacity by 2050. This is due to changes to the overall methodology, referencing the tRESP CPAs provided by NESO, as outlined in the modelling factors section below. Non-domestic chargers have a significantly higher deployment throughout the model period, with an additional 15% capacity relative to DFES 2024 by

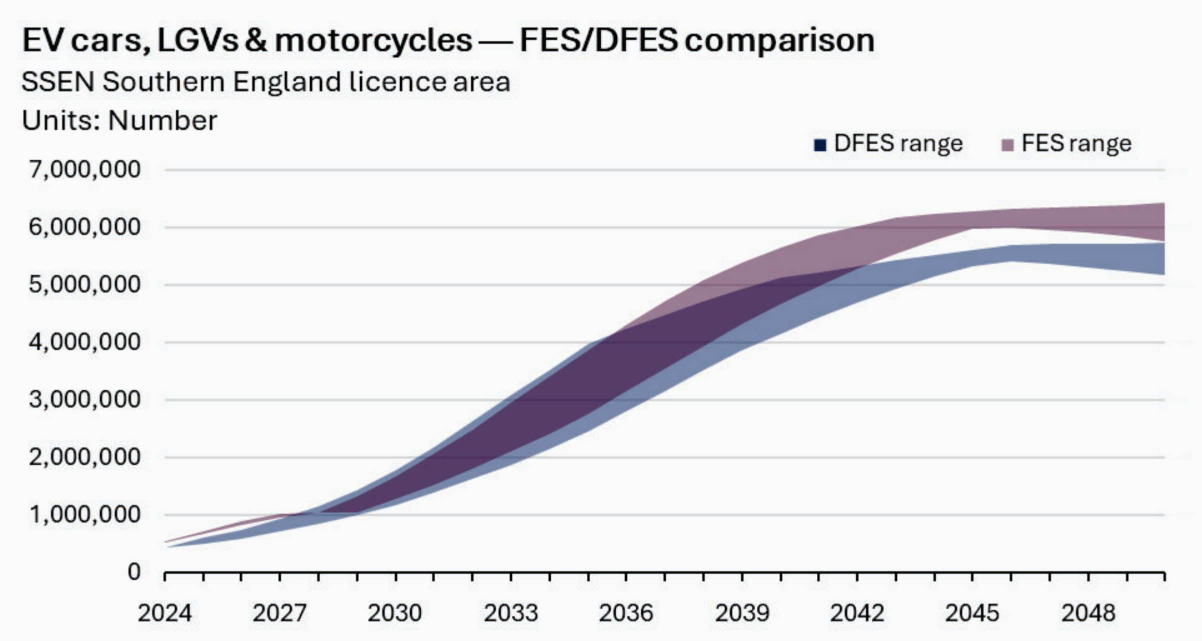
	2050. This is due to the shift away from hydrogen as a transport fuel solution for non-domestic vehicles, the higher uptake of EVs in the medium term, and changes to the EV charger methodology.
Falling Behind	Uptake of EV cars, LGVs and motorcycles in **Falling Behind** is above the projections from the DFES 2024 Counterfactual scenario throughout the modelling period, with 7% more vehicles by 2050. This increase is due to a higher baseline of EVs and changes to the FES pathways. The uptake of EV buses, coaches and HGVs in **Falling Behind** is aligned with DFES 2024 Counterfactual up until the early 2040s. Through the early 2040s, DFES 2025 has a lower uptake rate, but accelerates in the late 2040s. By 2050, there are 3% fewer EVs in these vehicle classes in DFES 2025 compared to DFES 2024. This is due to changes in the FES uptake pathways. Domestic EV charger deployment in DFES 2025 is slightly faster up until 2030, but significantly lower in the long term, compared to DFES 2024. By 2050, DFES 2025 has a 12% lower projected domestic charging capacity than DFES 2024. This is due to changes in the methodology, which now references the tRESP CPAs provided by NESO, as outlined in the modelling factors section below. Non-domestic charger capacity is higher than DFES 2024 throughout the modelling period. Despite a significant difference through the late 2030s, by 2050, DFES 2025 only has a 2% higher capacity of non-domestic chargers than in DFES 2024.

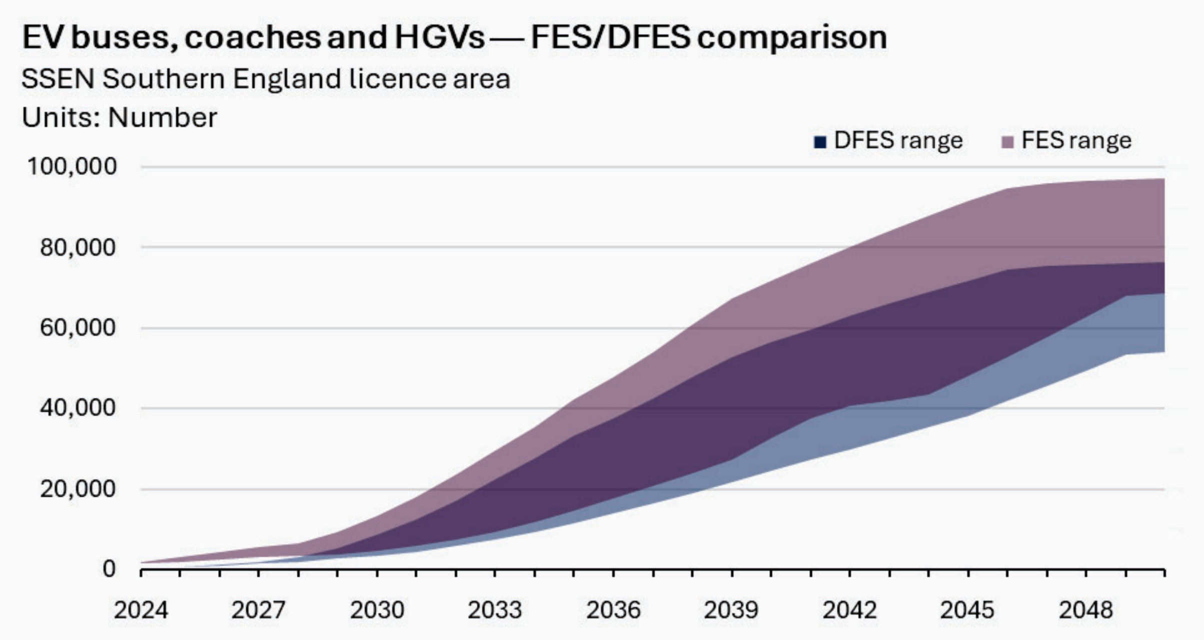
Modelling factors

Factor	Impact	Changes compared to DFES 2024
Vehicle uptake	Number of vehicles	The uptake curves for battery electric and hybrid cars and LGVs under the three net zero scenarios have been taken from the DFES 2024 **Electric Engagement** scenario up to 2040, after which they follow the FES 2025 uptake. The uptake rates under the net zero scenarios in FES 2025 assume that sales of new hybrid vehicles (without a plug) would be phased out from 2030. However, a policy change has since allowed these vehicles to be sold until 2035, delaying the uptake in that period. The DFES 2024 net zero scenarios reflect the latest policy position, whereas the FES 2025 scenarios do not.

Domestic charger methodology	Domestic charger capacity	The methodology for determining domestic charging capacity has been updated to better reflect actual charging demand, in line with the tRESP CPAs published by NESO. This has caused a minor decrease in capacity in the **Electric Engagement** and **Holistic Transition** pathways and a significant decrease in the **Hydrogen Evolution** and **Falling Behind** pathways. Differences across these scenarios are reflective of the underlying assumptions of charging behaviour.
Percentage of miles driven on electricity	Charger capacity	The percentage of miles which hybrid vehicles do on their electric drivetrains has been uplifted from 30% to 50% in line with the tRESP CPAs published by NESO.

Reconciliation





Comparison	Details
DFES 2025 to DFES 2024	The DFES 2025 scenario range for EV cars, vans and motorcycles is closely aligned, but higher overall than the equivalent results in DFES 2024 throughout the modelling period. By 2050, despite an increase in the number of vehicles relative to DFES 2024, the scenario range in DFES 2025 is narrower. The EV bus, coach and HGV uptake is also closely aligned to DFES 2024. The range of final vehicle numbers by 2050 in DFES 2025 is narrower and within the DFES 2024 range. The uptake of domestic charger capacity is slower in DFES 2025 than in DFES 2024 for the **Hydrogen Evolution** and **Falling Behind** scenarios. In **Electric Engagement** and **Holistic Transition**, despite a slightly slower uptake out to the late 2030s, the final number of chargers by 2050 is higher in DFES 2025. The scenario range by 2050 is also significantly wider in DFES 2025 due to the significant decrease in capacity in **Hydrogen Evolution** and **Falling Behind** compared to DFES 2024. Non-domestic charger capacity in DFES 2025 is higher than in DFES 2024 for all scenarios. **Hydrogen Evolution** has a significant increase in capacity when compared to its 2024 counterpart, which results in a much wider scenario range throughout the whole modelling period.
DFES 2025 to FES 2025	Vehicle adoption for EV cars, vans and motorcycles is aligned with the FES 2025 projections in the near term, though the **Falling Behind**

scenario has a much slower uptake in the DFES. From the late 2030s, the DFES 2025 projections are significantly lower than the FES 2025, with a difference of approximately 600,000 vehicles by 2050.

Whilst the reason for this is not fully clear, Regen's analysis draws directly on government statistics for vehicle numbers in the Southern England licence area, combined with EV uptake assumptions from FES 2025. This provides a granular and locally grounded projection that provides an accurate reflection of regional trends out to 2050.

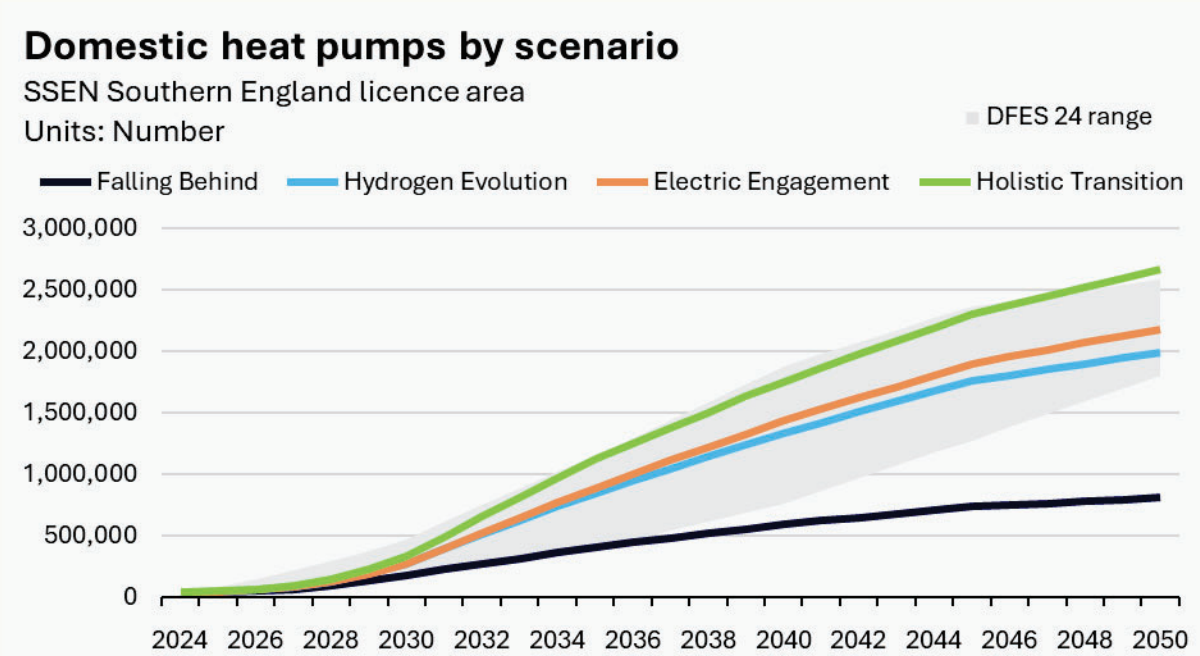
For EV buses, coaches and HGVs, projections are slightly lower than FES 2025 in the near term and significantly lower in the long term across the DFES 2025 scenarios. As with cars, vans and motorcycles, Regen's analysis draws from government statistics for the total number of vehicles in each licence area. This may be a more granular reflection of the licence area-specific vehicle numbers than the FES estimates.

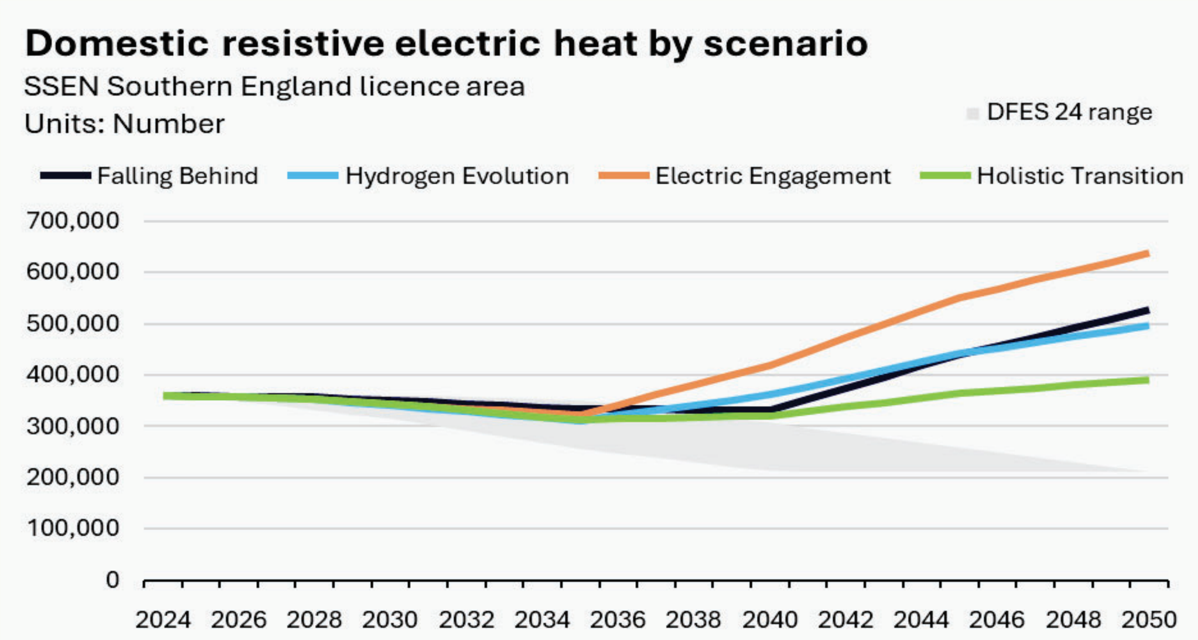
Note: FES does not produce EV charger capacity projections to licence area levels, and so no comparison has been made.

Heat in buildings

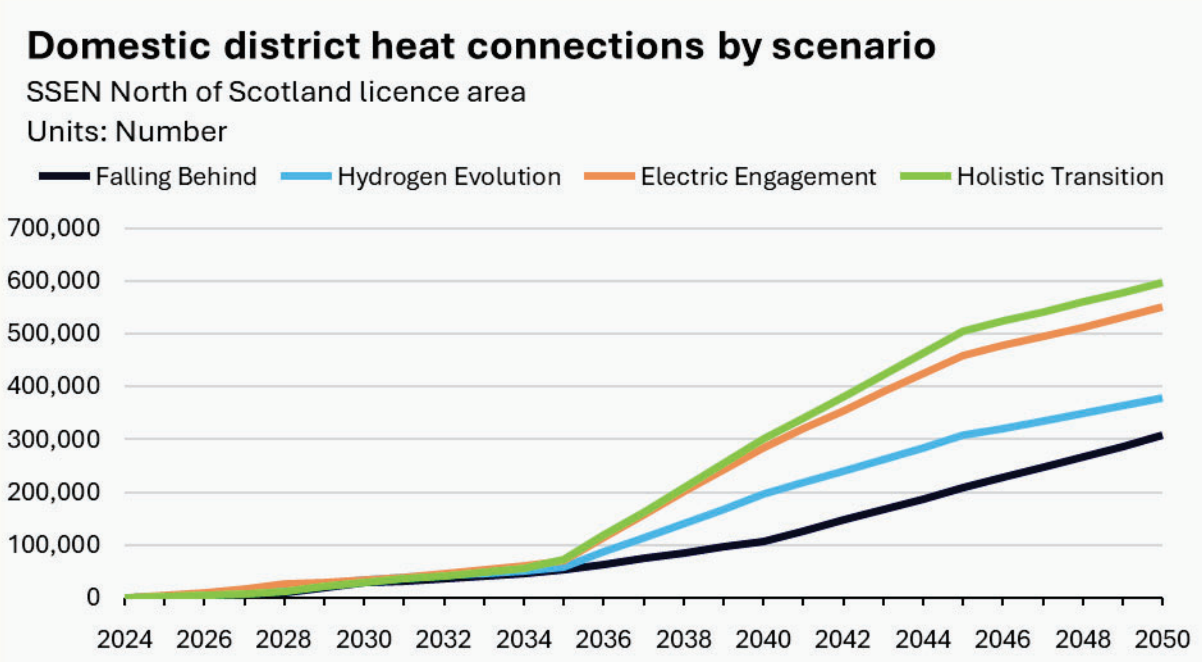
Technical specification	Building blocks
Heat pumps, domestic non-hybrid	Lct_BB005
Heat pumps, domestic hybrid	Lct_BB006
Heat pumps, industrial and commercial hybrid	Lct_BB007
Heat pumps, industrial and commercial non-hybrid	Lct_BB008
District heating	Lct_BB009

DFES 2025 scenario projections

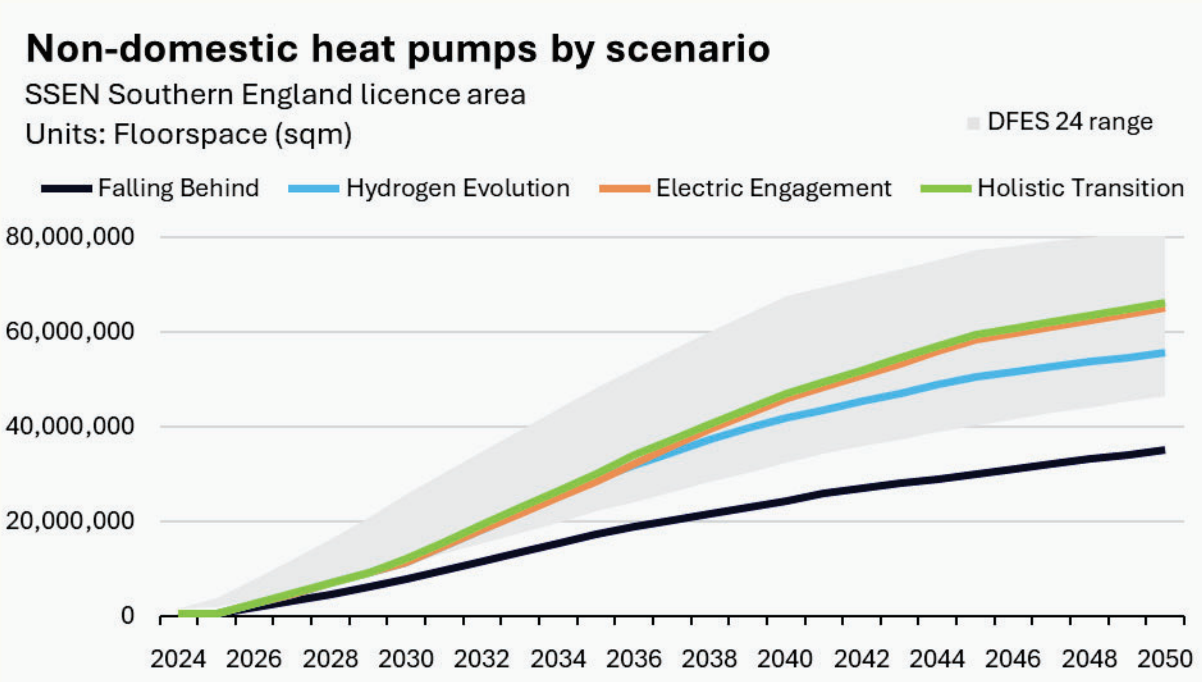


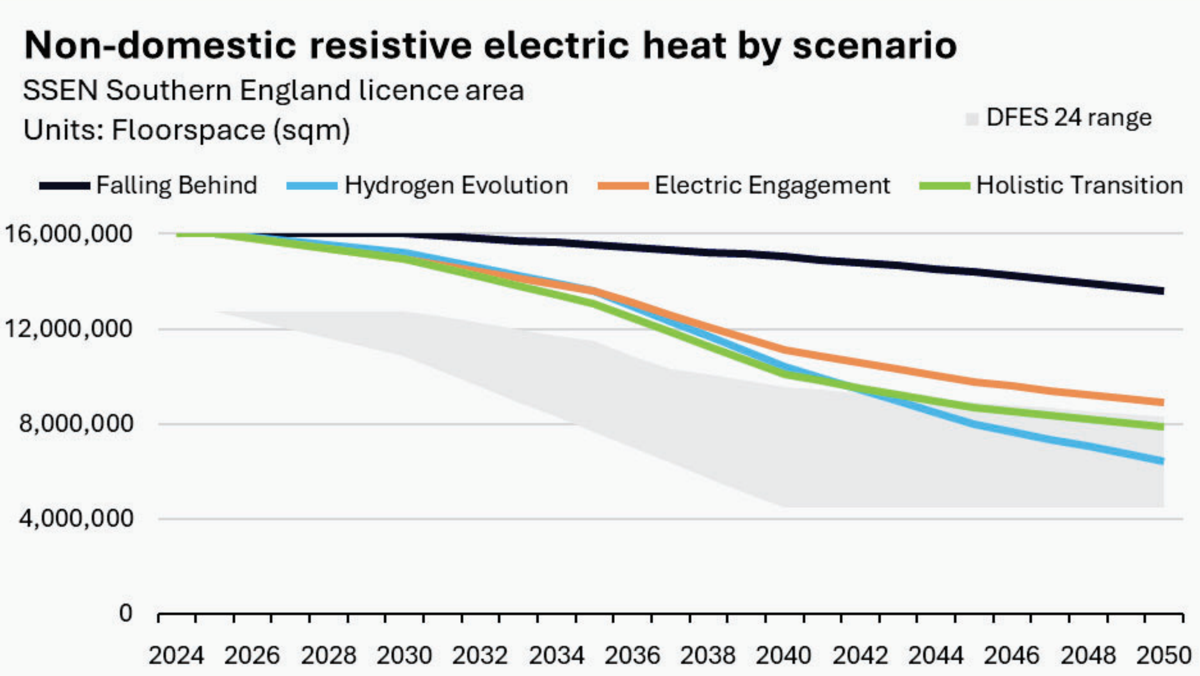


Note: Resistive electric heating is modelled to decline in some types of home (such as where households may be able to shift to a heat pump or district heating connection) and increase in others (such as where a space-constrained home currently fuelled by mains gas or oil may not be able to install a heat pump or connect to a district heat network). This means that different areas will see different trends to the overall licence area trajectory, where the archetype of housing is different. For example, an area with lots of homes with resistive heating will see a decline in resistive heating, as many of these homes adopt more efficient technologies. Another area might have little or no resistive heating, but it does have many small homes with gas or liquid fuel. We assume a portion of these homes (where heat demand is low) will adopt smart resistive heating technologies, rather than heat pumps.



Note: Domestic district heat connections were not included in DFES 2024 as a direct output. As a result, the above graph has no DFES 2024 range.





Domestic heat baseline

Status	Details	Number of homes	Changes since DFES 2024
Baseline	Heat pumps	39,000	The heat pump baseline has increased by just under 10% since DFES 2024, reflecting the uptake of heat pumps in new and existing properties over the last year.
	Resistive electric heating	360,000	The resistive electric heating baseline has remained largely unchanged since DFES 2024.

Non-domestic heat baseline

Status	Details	Floorspace (million sqm)	Changes since DFES 2024
Baseline	Heat pumps	0.5	While uptake of non-domestic heat pumps has increased across GB, this is countered by the identification and removal of additional duplicate certificates in the EPC data used to model non-domestic heat. As a result,

			the overall modelled baseline is similar to DFES 2024.
	Resistive electric heating	16.0	The resistive electric heating baseline has increased compared to DFES 2024, where it was modelled at just under 13 million sqm. This is mostly due to updates to the floorspace modelling methodology rather than new installations, as detailed in the modelling factors section below.

Projections

Scenario	Changes compared to DFES 2024
Holistic Transition	For domestic heat pumps and district heating, the scenario projections have only marginally changed compared to DFES 2024 to reflect changes in FES 2025 pathways for the transition to low-carbon heat across the UK. This results in a slower uptake of heat pumps in the near term, reflecting current uptake trends and a slightly higher outcome by 2050 due to the removal of hydrogen for heating in this scenario. In addition, the increase in the number of new homes modelled in this scenario, reflecting government housebuilding targets, has been reflected in the uptake of heat pumps and district heating in new build properties. For domestic resistive electric heating, the DFES projections have been updated to align with the FES 2025 pathways. FES 2025 now reflects a more significant role for resistive electric heating in the longer term, as supported by the findings of Public First's report for NESO.[1] In the decade to 2035, this additional electric heating is in the context of lower heat pump deployment and a slower transition more generally. By 2050, it goes alongside fewer hybrid heat pumps and hydrogen or biofuel boilers in FES 2025, as compared to FES 2024. For non-domestic heat pumps, a slower uptake is modelled in the near term, compared to DFES 2024. Similar to domestic heat, this is a reflection of the current limited uptake rates. In the longer term, the DFES 2025 projections model lower overall heat pump deployment under every scenario, albeit with a similar trend to DFES 2024, resulting in c.66 million

[1] Domestic Heat Decarbonisation Insight, Public First, April 2025

	sqm heated by a heat pump by 2050. This is due in part to modelling a greater volume of floorspace to be heated by resistive electric heating, and revisions to the overall volume of non-domestic building floorspace modelled (see modelling factors table below). Other than the increased baseline, non-domestic resistive electric heating follows the same trend as in DFES 2024.
Electric Engagement	For domestic heat pumps and district heating, the scenario projections have only marginally changed compared to DFES 2024 to consider changes in FES 2025 pathways for the transition to low-carbon heat across the UK. This results in a slower uptake of heat pumps in the near term, reflecting current uptake trends. For domestic resistive electric heating, the DFES projections have been updated to consider the FES 2025 pathways. This now reflects a significantly larger role for resistive electric heating in the longer term, rather than alternative low-carbon heating technologies, such as bioenergy, that featured more heavily in this scenario in FES 2024 and DFES 2024. For non-domestic heat pumps, a slower uptake is modelled in the near term, compared to DFES 2024. Similar to domestic heat, this is a reflection of the current limited uptake rates. In the longer term, the DFES 2025 projections model lower overall heat pump deployment under every scenario, albeit with a similar trend to DFES 2024, resulting in c.65 million sqm heated by a heat pump by 2050. This is due in part to modelling a greater volume of floorspace to be heated by resistive electric heating, and revisions to the overall volume of non-domestic building floorspace modelled (see modelling factors table below). Other than the increased baseline, non-domestic resistive electric heating follows the same trend as in DFES 2024.
Hydrogen Evolution	For domestic heat pumps and district heating, the scenario projections have only marginally changed compared to DFES 2024 to consider changes in FES 2025 pathways for the transition to low-carbon heat across the UK. This results in a slower uptake of heat pumps in the near term, reflecting current uptake trends. Within the domestic heat pump sub-technologies, the DFES 2025 projects a greater number of standalone heat pumps and a smaller number of hydrogen hybrid heat pumps compared to DFES 2024. This reflects changes in the FES scenarios, where NESO has shifted its assumptions on consumer demand from hydrogen to electrification across all scenarios.

	For domestic resistive electric heating, the DFES projections have been updated to consider the FES 2025 pathways. This now reflects a significantly larger role for resistive electric heating in the longer term, rather than alternative low-carbon heating technologies, such as hydrogen and bioenergy, that featured more heavily in this scenario in FES 2024 and DFES 2024. For non-domestic heat pumps, a slower uptake is modelled in the near term, compared to DFES 2024. Similar to domestic heat, this is a reflection of the current limited uptake rates. In the longer term, the DFES 2025 projections model lower overall heat pump deployment under every scenario, albeit with a similar trend to DFES 2024, resulting in c.56 million sqm heated by a heat pump by 2050. This is due in part to modelling a greater volume of floorspace to be heated by resistive electric heating, and revisions to the overall volume of non-domestic building floorspace modelled (see modelling factors table below). Other than the increased baseline, non-domestic resistive electric heating follows the same trend as in DFES 2024.
Falling Behind	For domestic heat pumps, the scenario projection has changed significantly in the longer term compared to DFES 2024. This reflects changes in FES 2025 pathways, which project a longer period of low heat pump uptake under this non-net zero compliant scenario, resulting in more homes left with gas boilers to 2050. For domestic resistive electric heating and heat networks, the DFES projections have also been updated to consider the FES 2025 pathways. This now shows a significantly larger role for both technologies in the longer term, rather than alternative low-carbon heating technologies, such as heat pumps, that featured more heavily in this scenario in FES 2024 and DFES 2024. For non-domestic heat pumps, a slower uptake is modelled in the near term, compared to DFES 2024. Similar to domestic heat, this is a reflection of the current limited uptake rates. In the longer term, the DFES 2025 projections model lower overall heat pump deployment under every scenario, albeit with a similar trend to DFES 2024, resulting in c.35 million sqm heated by a heat pump by 2050. This is due in part to modelling a greater volume of floorspace to be heated by resistive electric heating, and revisions to the overall volume of non-domestic building floorspace modelled (see modelling factors table below). Other than the increased baseline, non-domestic resistive electric heating follows the same trend as in DFES 2024.

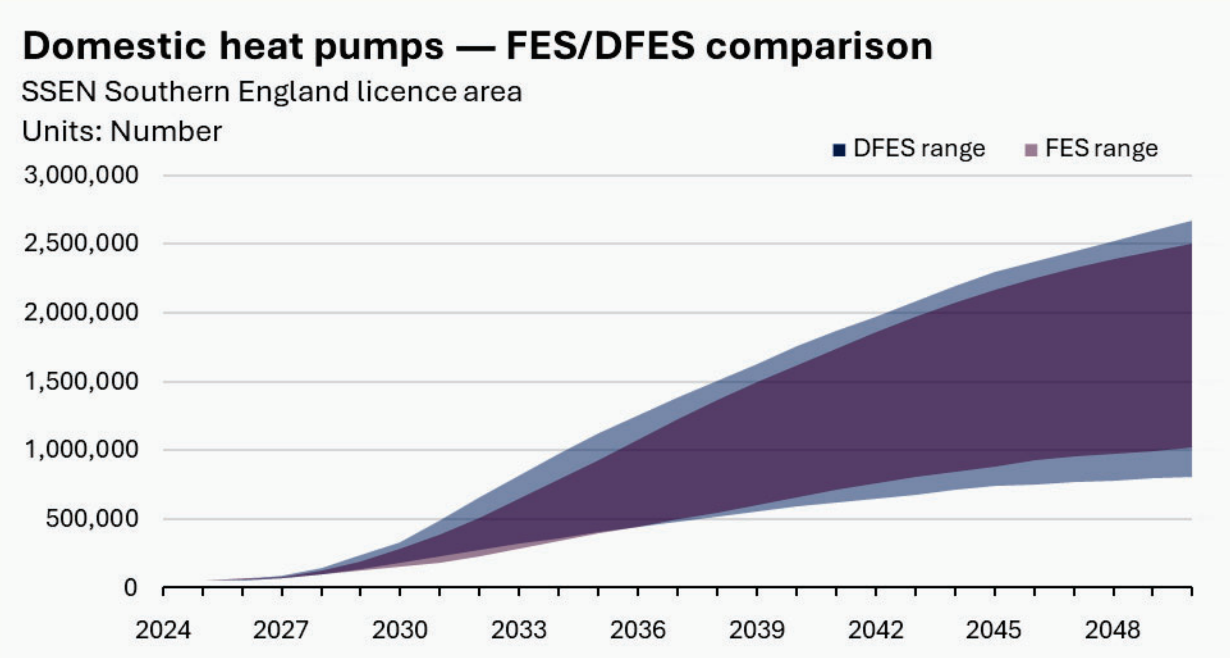
Modelling factors

Factor	Impact	Changes compared to DFES 2024
Projected technology uptake by building archetype	Domestic uptake modelling	Regen has undertaken a full review of our technology distribution across all archetypes and scenarios. This reflects changes to the FES, the latest evidence on current heat pump uptake and new insight from the retrofit sector. The overall methodological approach is unchanged.
Modelled technologies	Domestic uptake modelling and spatial distribution	The non-hybrid heat pump sub-technology has been subdivided into hydronic (air-to-water) heat pumps and air-to-air heat pumps. This reflects underlying modelling in previous iterations of the DFES that reflected the potential for air-to-air heat pump systems in some buildings, such as flats.
Modelled archetypes	Domestic uptake modelling and spatial distribution	A new archetype has been created for existing communal heating – modelled to remain communal and be decarbonised with district heating heat pumps over time, with the rate of conversion depending on the scenario.
Electric heating in new build homes	Domestic uptake modelling and spatial distribution	Updated the proportion of new build properties that have ASHPs installed, reflecting the latest data that 25% of new builds are built with ASHPs already. This is based on EPC data, as processed by Ambient.[2] The predicted start of the Future Homes Standard is the same as DFES 2024, with no new gas boilers after 2027 in all scenarios, except **Falling Behind**, which is modelled as 2033.
Non-domestic building stock	Non-domestic uptake modelling and spatial distribution	The non-domestic building stock in DFES is modelled based on location, HVAC, heating fuel and floorspace data from non-domestic EPCs and Display Energy Certificates (DECs). The updated non-domestic building stock modelling has led to an increased proportion of properties modelled as having resistive electric heating and fewer baseline heat pumps. This is due to updated certificates for some buildings, alongside updated classification of building HVAC environment descriptions, classifying more buildings as resistive electric heating that

[2] August Electrification of Heat Tracker (EHTT), Ambient, 28 August 2025.

		were previously classified as other non-electric heating types, air conditioning or unheated.
Projected technology uptake by building archetype	Non-domestic uptake modelling	The DFES methodology categorises non-domestic buildings into archetypes, based on each building's current HVAC system, heating fuel and location within a potential district heating or hydrogen supply zone. The uptake rates for heat pumps and resistive electric heating in each of these archetypes have been updated to reflect the FES 2025 pathways. This is a minor change and mostly results in reduced heat pump uptake in the near term under each scenario.

Reconciliation



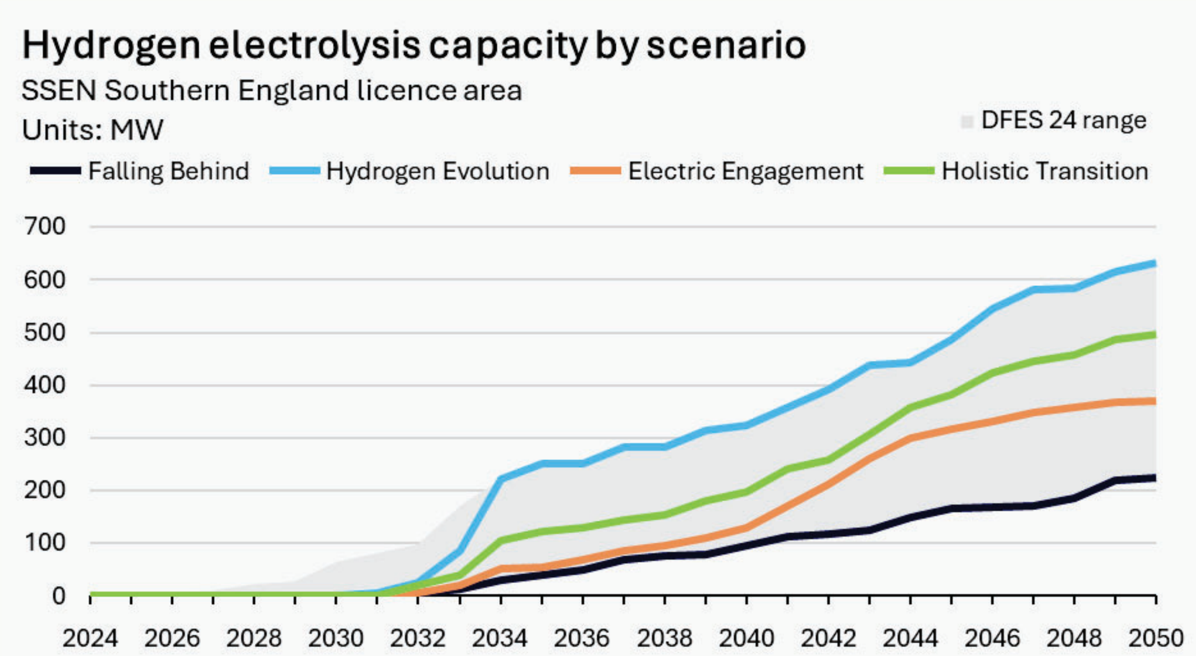
Comparison	Details
DFES 2025 to DFES 2024	The scenario outcomes for domestic heat pumps are similar between DFES 2024 and DFES 2025 for the three net zero scenarios. The **Falling Behind** scenario models much lower uptake by 2050, mirroring a similar change in the FES 2025 scenario framework. The longer-term scenario outcomes for domestic resistive electric heating are much higher than projected in DFES 2024, with increasing projections from 2035 onwards under all scenarios, compared to the

	decline previously projected. Again, this reflects changes to the overarching FES 2025 framework, where resistive heating has a much stronger role in heat decarbonisation in the long term. This has been carried over into the DFES 2025 modelling. For non-domestic heating, the uptake of heat pumps and resistive electric heating follows a similar trend to DFES 2024 under each scenario, albeit with resistive electric heating starting from a higher baseline position and a lower volume of non-domestic building stock floorspace being modelled for the uptake of non-domestic heat pumps.
DFES 2025 to FES 2025	The uptake of heat pumps between FES and DFES is very closely aligned in the Southern England licence area. There is no regional FES data for resistive electric heating. The regional FES data for non-domestic electric heating is by number of properties rather than floorspace, and as such a direct comparison cannot be made.

Hydrogen electrolysis

Technical specification	Building blocks
Distribution-connected hydrogen electrolysis	Dem_BB009

DFES 2025 scenario projections



Baseline and pipeline

Status	Details	Capacity (MW)	Changes since DFES 2024
Baseline	Connected	0 MW	In DFES 2024, no operational hydrogen electrolyser projects were found to be connected. There has been no change to this baseline in DFES 2025.
Pipeline	Planning progress	0 MW	There are no projects in development with planning permission granted or submitted, unchanged from DFES 2024.
Pipeline	No planning information	5 MW	As in DFES 2024, there remains one prospective project at

	Wroughton Airport with a capacity of 5 MW. This is assumed to connect by the end of 2031 in the **Hydrogen Evolution** scenario only An additional scheme, the Fawley Green Hydrogen project, has been shortlisted in the second Hydrogen Allocation Round (HAR2), with potential to connect to the SSEN distribution network. Due to uncertainty, it has not been modelled in DFES 2025.

Post-pipeline projections

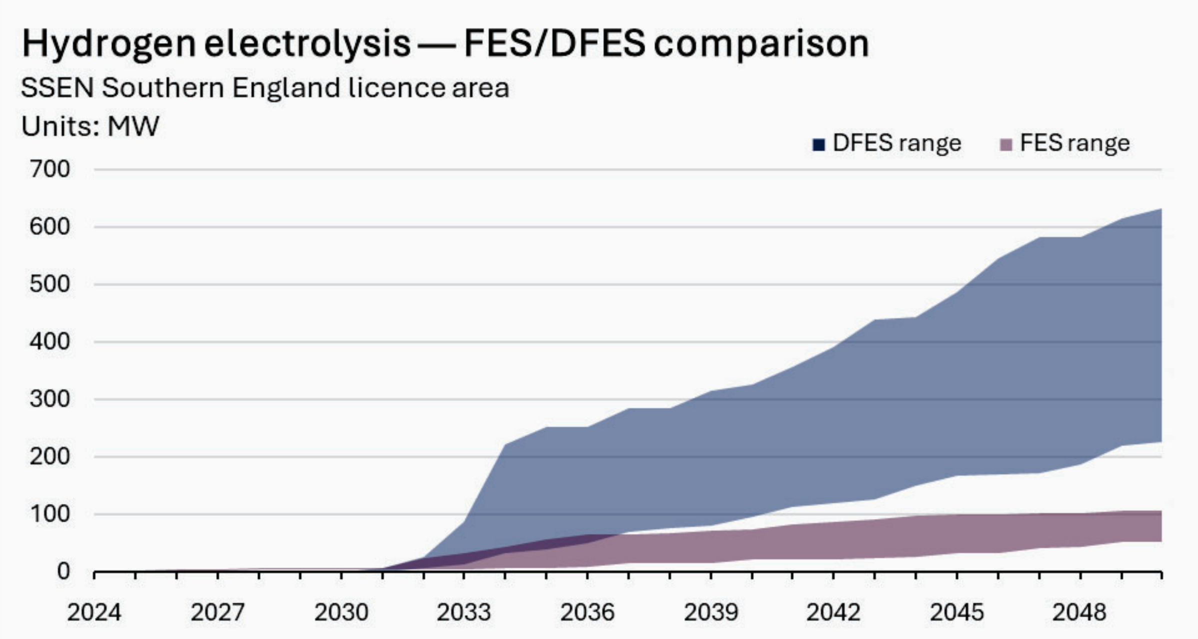
Scenario	Changes compared to DFES 2024
Holistic Transition **Electric Engagement** **Hydrogen Evolution** **Falling Behind**	In the near term, capacity projections are based solely on known pipeline sites (see more information in the modelling factors table below). This results in lower near-term figures across all scenarios. This provides a more accurate picture of the currently limited development of distributed electrolysers. In the medium and long term, capacity projections remain unchanged from DFES 2024.

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Hydrogen Allocation Rounds (HARs)	Uptake modelling	Feedback received in 2024 indicated that commercial electrolysis projects would not be feasible in the near term without HAR support. There are currently no projects that have been awarded or shortlisted for HAR support that plan to connect to SSEN's Southern England distribution network. This has been reflected in the **Holistic Transition**, **Electric Engagement** and **Falling Behind** scenarios. Additional projects are assumed to connect under **Hydrogen Evolution** only, as this is the scenario that is most supportive of decentralised green hydrogen

		production. Under this scenario, the prospective 5 MW Wroughton Airport site is assumed to connect by the end of 2031.
Long-term growth in electrolysis capacity	Uptake modelling	In DFES 2025, the long-term projections are based on DFES 2024. These projections are based on FES projections for national networked electrolysis, paired with a regional analysis of potential supply and demand drivers for hydrogen.

Reconciliation



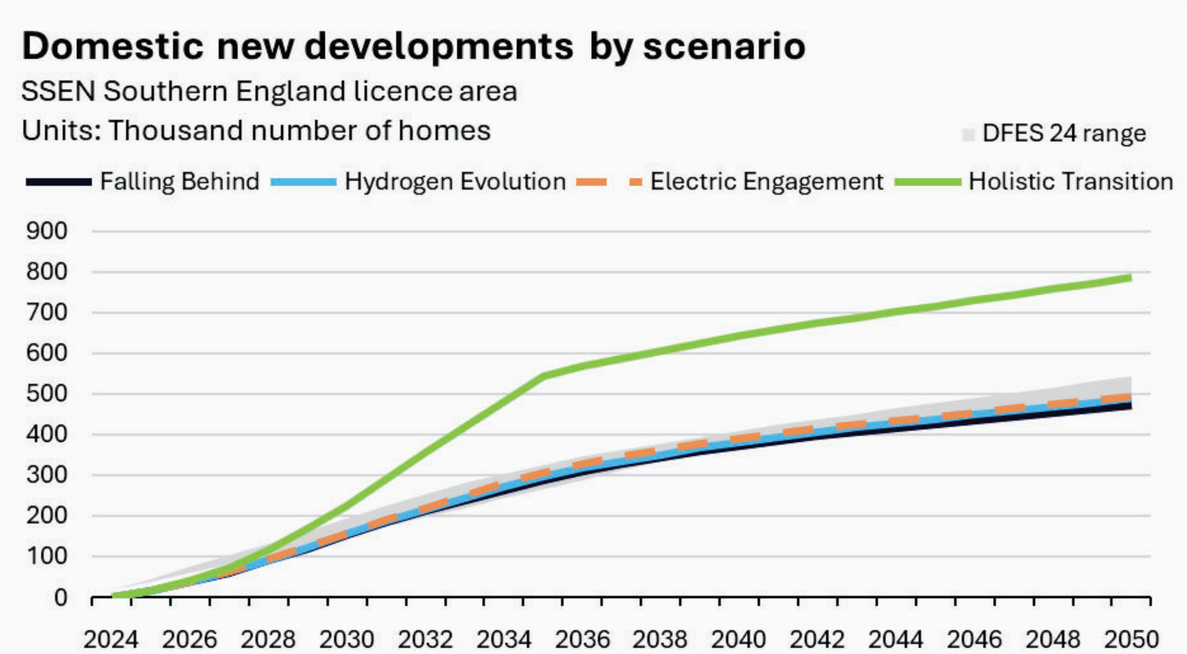
Comparison	Details
DFES 2025 to DFES 2024	In the near term, DFES 2025 projections are lower than DFES 2024, reflecting more limited sector development in the licence area. In the long term, DFES 2025 projections are based on DFES 2024 projections.
DFES 2025 to FES 2025	In the near term, DFES 2025 projections are lower than FES across all scenarios. In the medium and long term, however, DFES 2025 is significantly higher. The main driver of this difference is the method used to apportion capacity between licence areas. In FES, more than half of electrolysis capacity is allocated to just three licence areas in all net zero scenarios, with minimal capacity assigned elsewhere. By contrast, the DFES

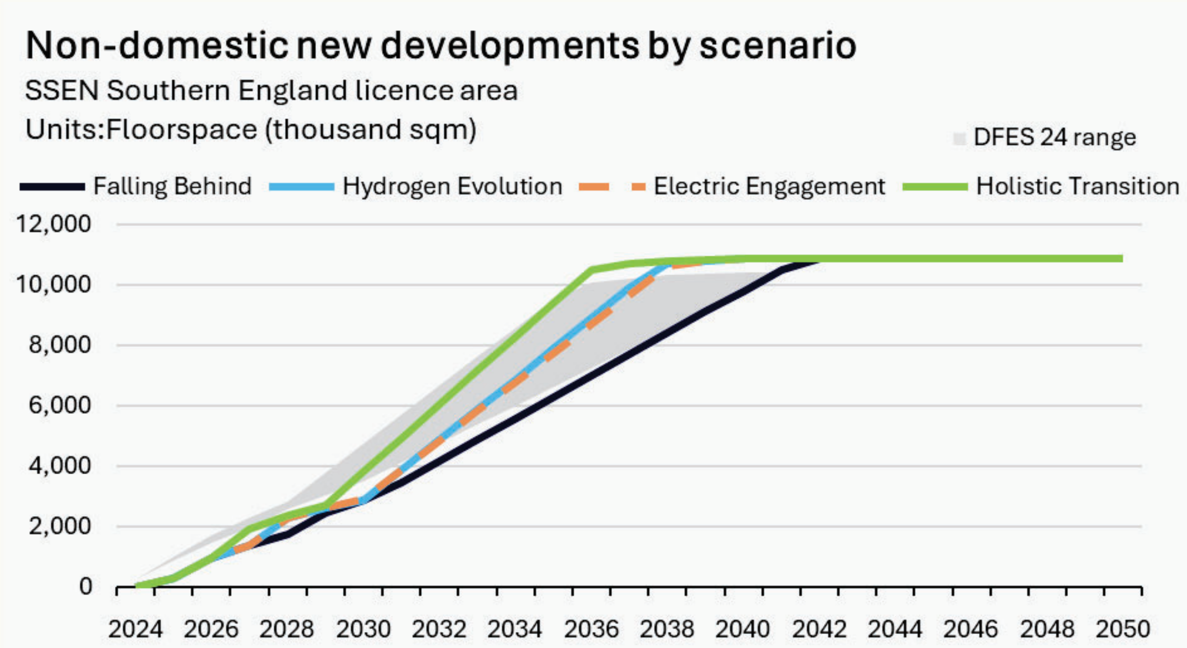
	analysis applies Regen's regional analysis of hydrogen supply and demand drivers, resulting in a more even distribution of capacity across areas where localised factors could drive project development. For the Southern England licence area, this approach produces higher DFES projections than FES in the longer term, while in the North of Scotland, the opposite is true, with DFES significantly lower than FES.

New property developments

Technical specification	Building blocks
Number of domestic customers	Dem_BB001a
Floor area of industrial and commercial customers	Dem_BB002b

DFES 2025 scenario projections





Baseline and pipeline

Status	Development status	Number of domestic sites *(homes)*	Changes since DFES 2024, sites *(homes)*	Number of non-domestic sites *(sqm)*	Changes since DFES 2024, sites *(sqm)*
Baseline	The analysis of new developments in the DFES focuses on additional future domestic and non-domestic buildings. Therefore, no baseline is defined.				
Pipeline	Total sites (No. of homes/sqm)	1,123 *(348,125)*	- 123 *(+ 181)*	965 *(10,875,632)*	+ 15 *(+ 424,116)*
Pipeline	Buildout provided by local authority (No. of homes/sqm)	966 *(302,484)*	- 216 *(- 28,120)*	266 *(2,920,480)*	- 65 *(- 747,756)*
Additional sites provided by the local authority with no buildout profile provided:					
Pipeline	Under construction	8 *(2,507)*	- 5 *(- 738)*	86 *(593,904)*	-47 *(- 245,594)*
	Granted	21 *(10,205)*	+ 12 *(+ 6,740)*	96 *(748,717)*	+ 25 *(+ 173,171)*
	Outline or reserved matter	4 *(707)*	+ 2 *(+ 441)*	16 *(259,002)*	No Change
	Submitted	4 *(684)*	+ 4 *(+ 684)*	6 *(44,193)*	+ 2 *(+ 29,183)*
	Allocated/pre-planning	97 *(28,449)*	+ 60 *(+ 18,395)*	158 *(1,355,797)*	+ 98 *(+ 417,625)*
	No information	7 *(3,539)*	+ 4 *(+ 1,750)*	305 *(4,745,336)*	- 30 *(+ 841,079)*

Local authority data

New development type	Local authorities that updated their data registers	Changes compared to DFES 2024

The DFES projections for new developments focus on data for new homes and non-domestic floorspace provided by local authority planning departments, including the location, size and buildout rates for new housing developments, alongside the type of property for non-domestic developments.		
Domestic properties	64%	Through our 2025 local authority engagement process 22% fewer LAs provided updated registers compared to DFES 2024.
Non-domestic floorspace	55%	Similarly, 19% fewer local authorities updated the pipeline data relating to new non-domestic floorspace compared to DFES 2024.

Post-pipeline projections

Post-pipeline projections are only modelled for domestic new developments, as there are no reliable data sources for non-domestic building targets.

Scenario	Changes compared to DFES 2024
Holistic Transition	By 2050, DFES 2025 projects 786,000 new homes built in the Southern England licence area under this scenario. This is an increase of 242,000 new homes, driven by the ambitious UK housing targets.
Electric Engagement	By 2050, DFES 2025 projects between 461,000 and 483,000 new homes built in the Southern England licence area under these scenarios. There is no significant difference when compared to DFES 2024 in these scenarios.
Hydrogen Evolution	
Falling Behind	

Modelling factors

Factor	Impact	Changes compared to DFES 2024
Post-plan developments	Uptake modelling	DFES 2024 used 2018 ONS household projections, by local authority, to inform post-pipeline projections for all scenarios. In DFES 2025, the UK government housing targets were applied to model near-term projections for local authorities in the licence area under the **Holistic Transition** scenario only. This reflects the ambitious UK government target of 300,000 new homes a year. The housing targets were only used until the end of CP30 delivery (2035). After this, ONS projections were used out to 2050.

Reconciliation

Comparison	Details
DFES 2025 to DFES 2024	The DFES 2025 domestic new developments model aligns with the DFES 2024, except for the increase in new domestic housing under the **Holistic Transition** scenario, referencing the ambitious UK housing targets up until 2035. The DFES 2025 non-domestic projections under the **Falling Behind** scenario have a more delayed buildout when compared to DFES 2024. This is due to the increased number of sites where no buildout rate was provided by local authority planning departments.
DFES 2025 to FES 2025	There is no variation for future housing growth under the four FES scenarios. The equivalent of non-domestic floorspace is also not modelled within the FES framework. Therefore, the new development outputs have not been reconciled against the FES 2025 data.

tRESP comparison annex

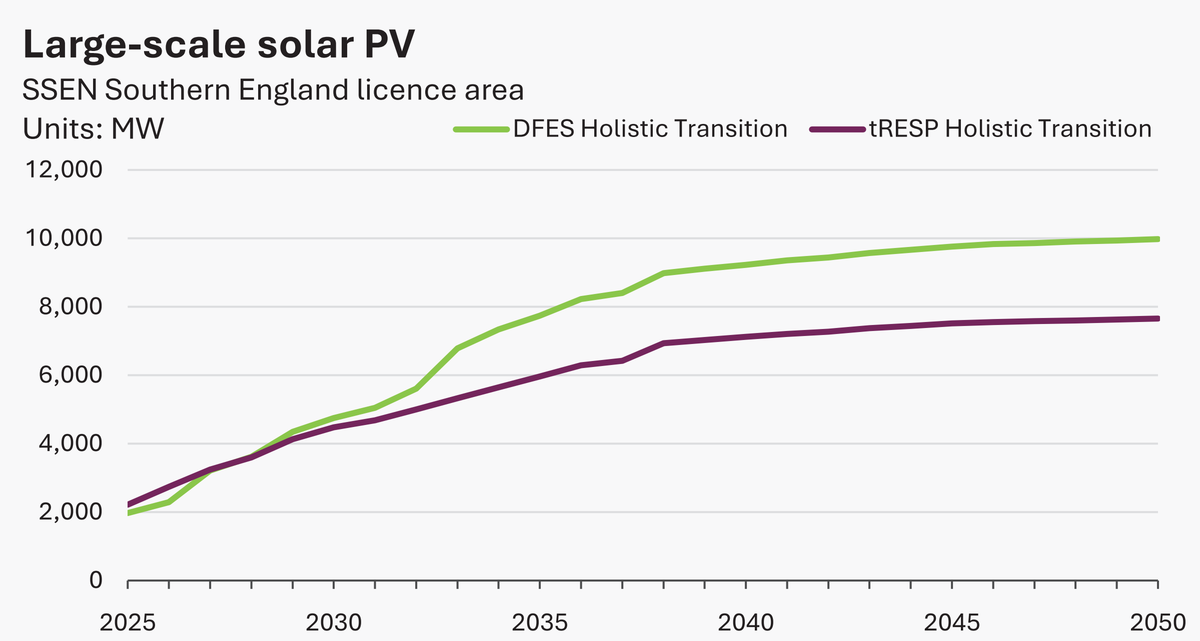
tRESP comparison

This annex has been included to provide a comparative assessment of DFES 2025 outputs and the transitional RESP (tRESP) pathways following the publication of tRESP in early 2026. It presents a technology-by-technology comparison of projections at licence area level, using the technology building block classifications applied within the DFES.

Comparison method

tRESP has been published in fiscal years (April to March) whilst SSEN DFES is published in calendar years (January to December). For the purposes of this comparison, tRESP fiscal years have been compared to SSEN calendar years. For example, DFES 2025 (Jan to Dec 2025) is compared against tRESP 2025 (Apr 2025 to Mar 2026). For technologies like onshore wind, large-scale solar and large-scale storage this may drive some near-term discrepancies, where large projects are energised in the same month but this is tagged to different years.

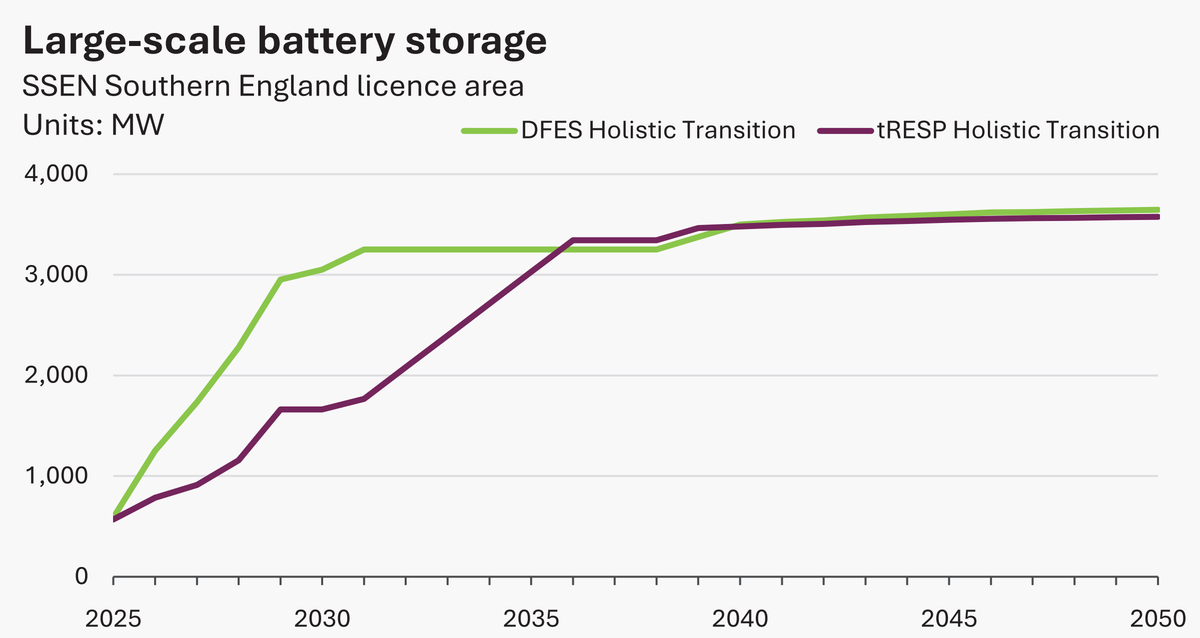
Large-scale solar PV



Comparison	Details
DFES 2025 to tRESP	DFES 2025 and tRESP pathway outputs are broadly aligned. By 2050, DFES 2025 projects an additional 30% compared to the tRESP pathway. The reason for this variance is unknown, but the tRESP modelling was finalised after the production of DFES 2025 and therefore reflects more

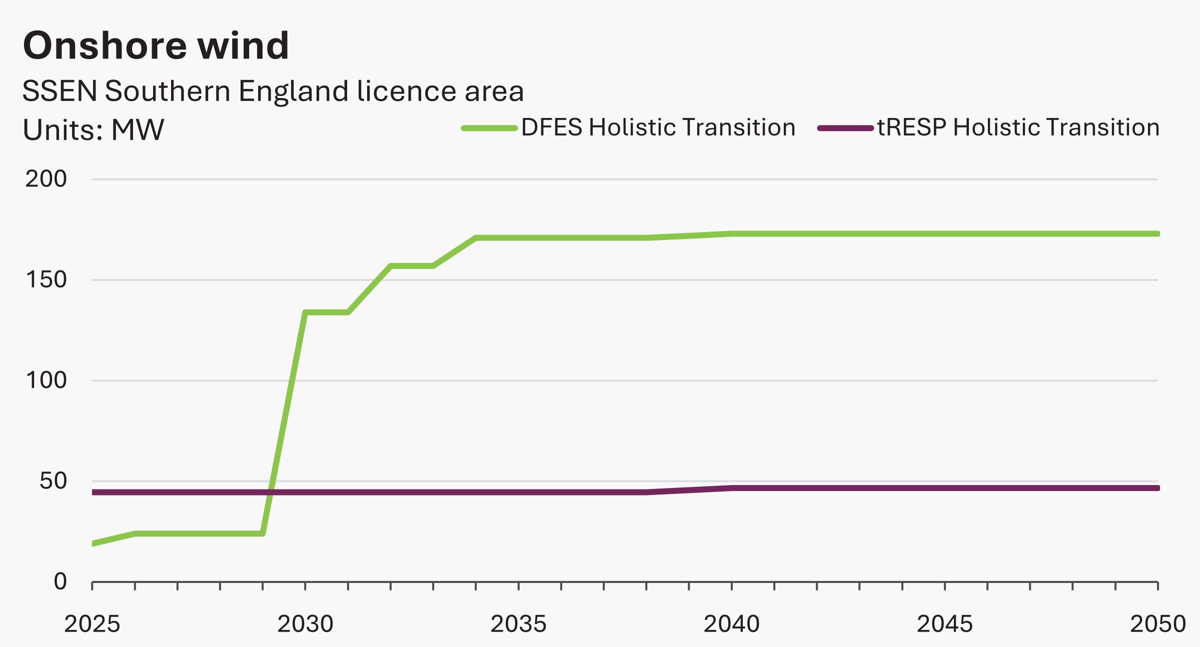
	up-to-date outcomes for the connections pipeline, particularly with regards to Connections Reform status. This may have resulted in fewer large-scale solar projects receiving Gate 2 offers (including for Phase 2, to 2035) than was projected in the DFES modelling.

Large-scale battery storage



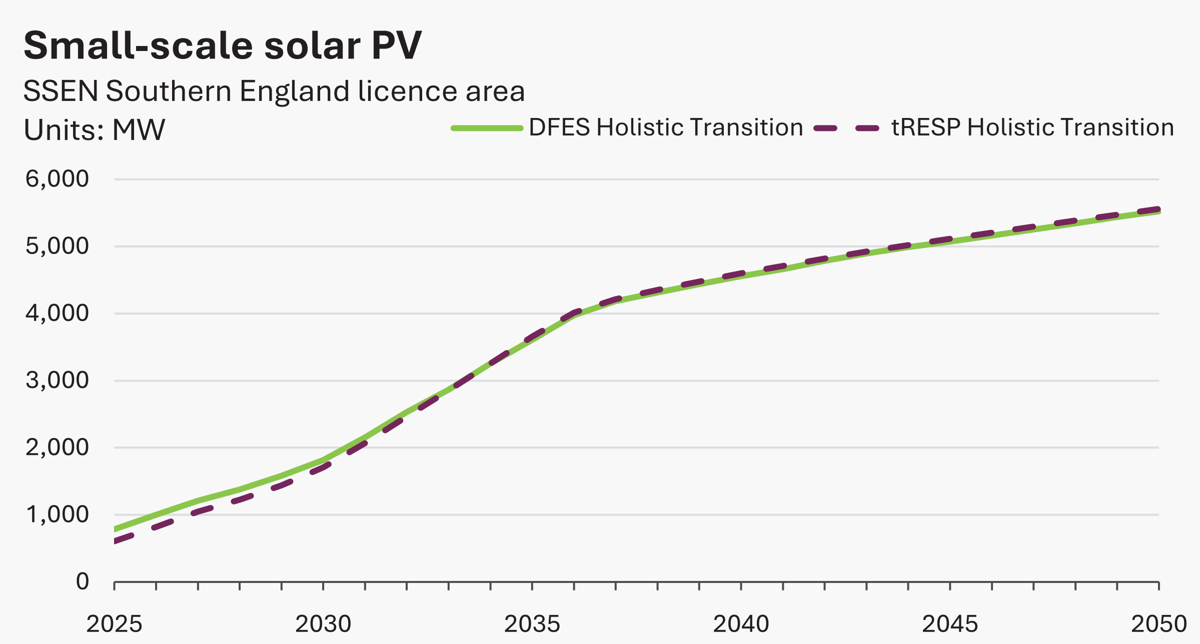
Comparison	Details
DFES 2025 to tRESP	In the long term, the DFES 2025 and tRESP Holistic Transition pathways are closely aligned. In the near term, however, the tRESP shows a slower uptake of battery storage capacity than the DFES. The reason for this variance is unknown, but the tRESP modelling was finalised after the production of DFES 2025 and therefore reflects more recent information on the connections pipeline, particularly with regards to Connections Reform status. This may have resulted in fewer battery storage projects receiving Gate 2 offers or different connection years than was projected in the DFES modelling.

Onshore wind



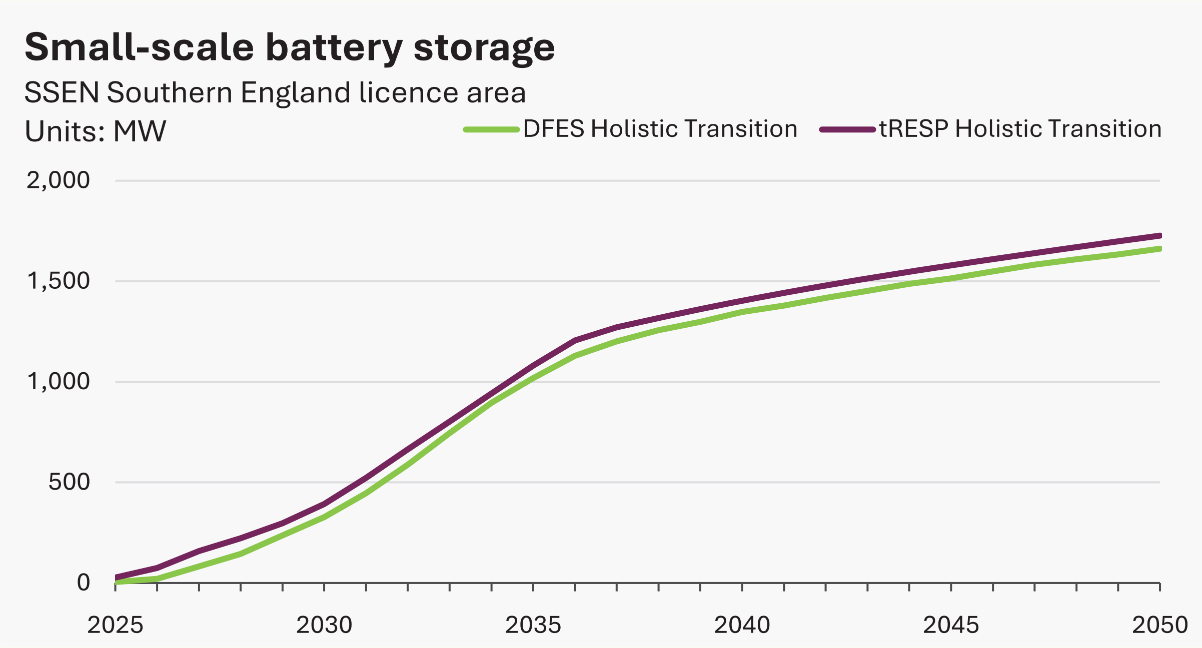
Comparison	Details
DFES 2025 to tRESP	There is a large difference between DFES and tRESP for onshore wind in the Southern England licence area. The reason for the difference in the baseline capacity could be related to differences in connections data. The driver of the variance in the longer term, where tRESP has only marginal increase in onshore wind capacity by 2050 is unknown.

Small-scale solar PV



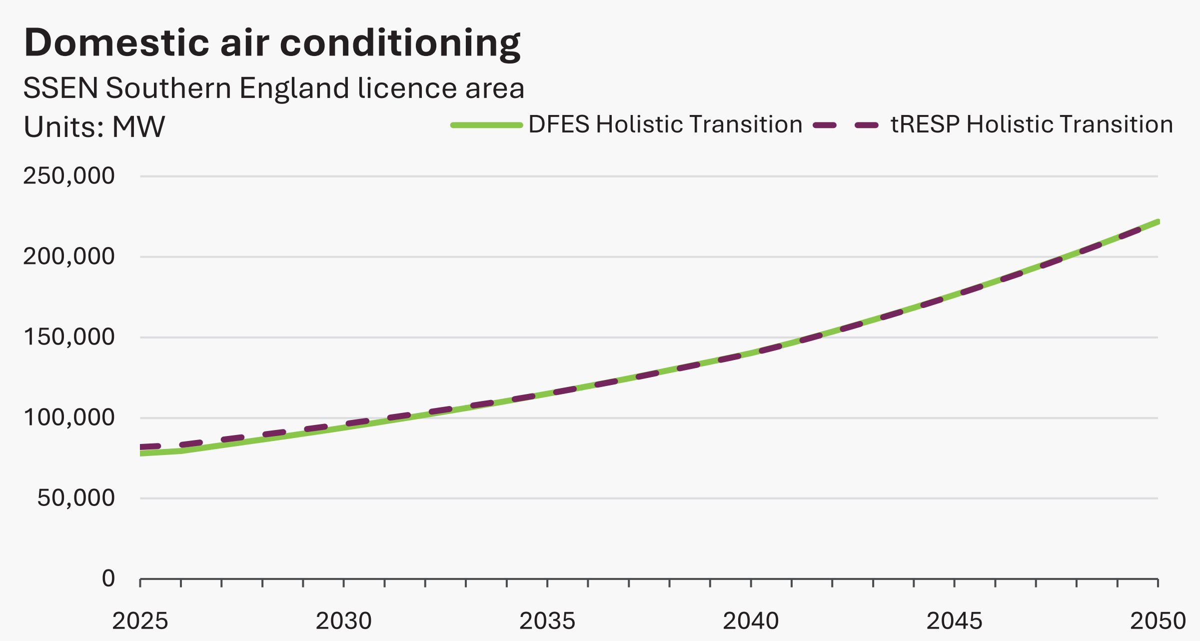
Comparison	Details
DFES 2025 to tRESP	Small-scale solar PV is closely aligned across the DFES 2025 and tRESP Holistic Transition pathways.

Small-scale storage



Comparison	Details
DFES 2025 to tRESP	Small-scale battery storage is aligned across the DFES 2025 and tRESP Holistic Transition pathways. The tRESP pathway is slightly higher throughout the projection period, particularly in the near-term. The reason for this is unclear.

Air conditioning



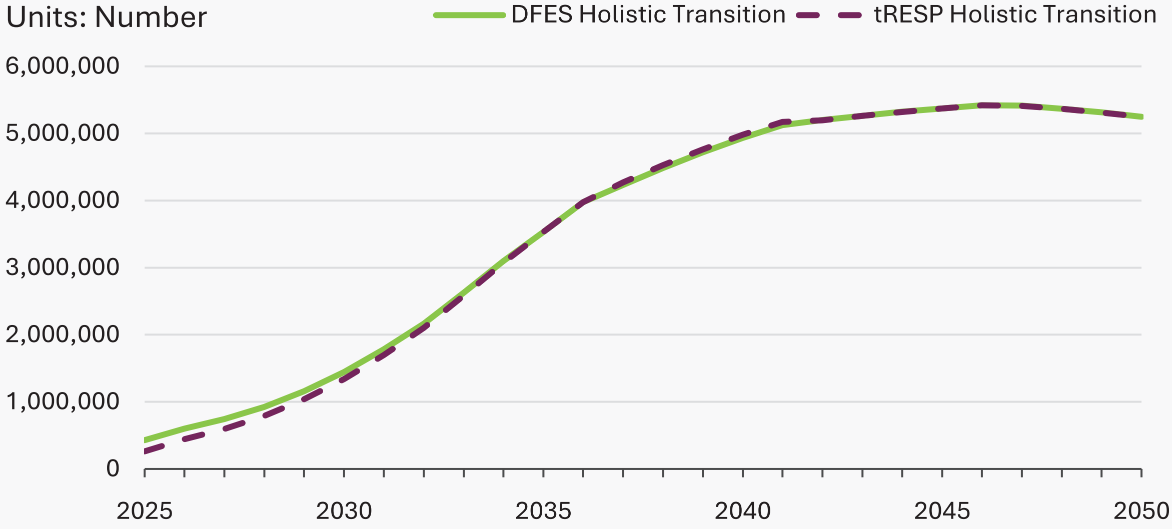
Comparison	Details
DFES 2025 to tRESP	Domestic air-conditioning uptake is very closely aligned across the DFES 2025 and tRESP Holistic Transition pathways.

EVs and EV chargers

Plug-in cars, LGVs and motorcycles

SSEN Southern England licence area

Units: Number

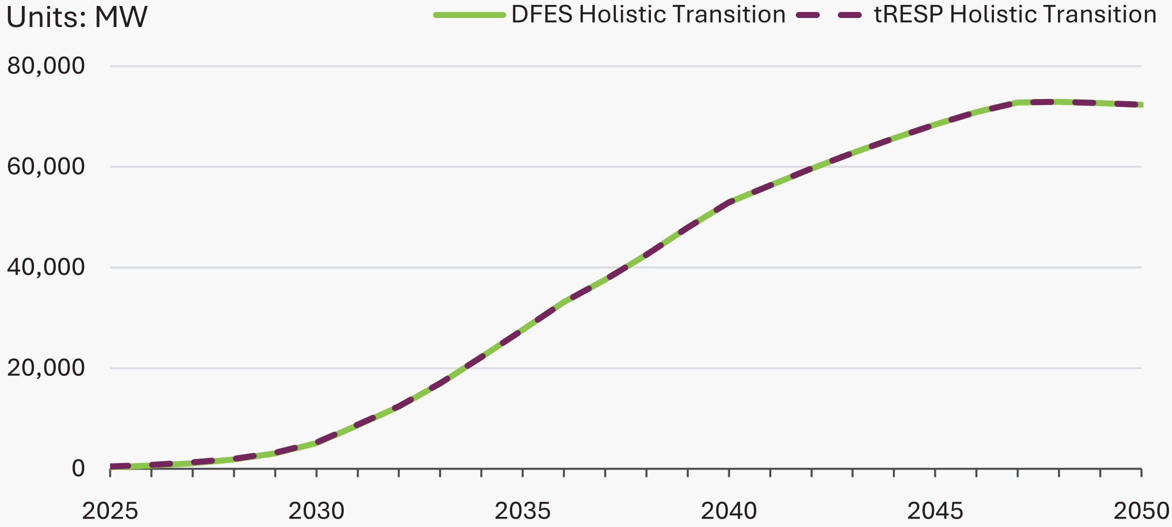


Comparison	Details
DFES 2025 to tRESP	Uptake of plug-in cars, LGVs and motorcycles is closely aligned across the DFES 2025 and tRESP Holistic Transition pathways. The tRESP has a slightly lower baseline, likely reflecting differences in methods for deriving the number of existing plug-in vehicles.

Plug-in buses and HGVs

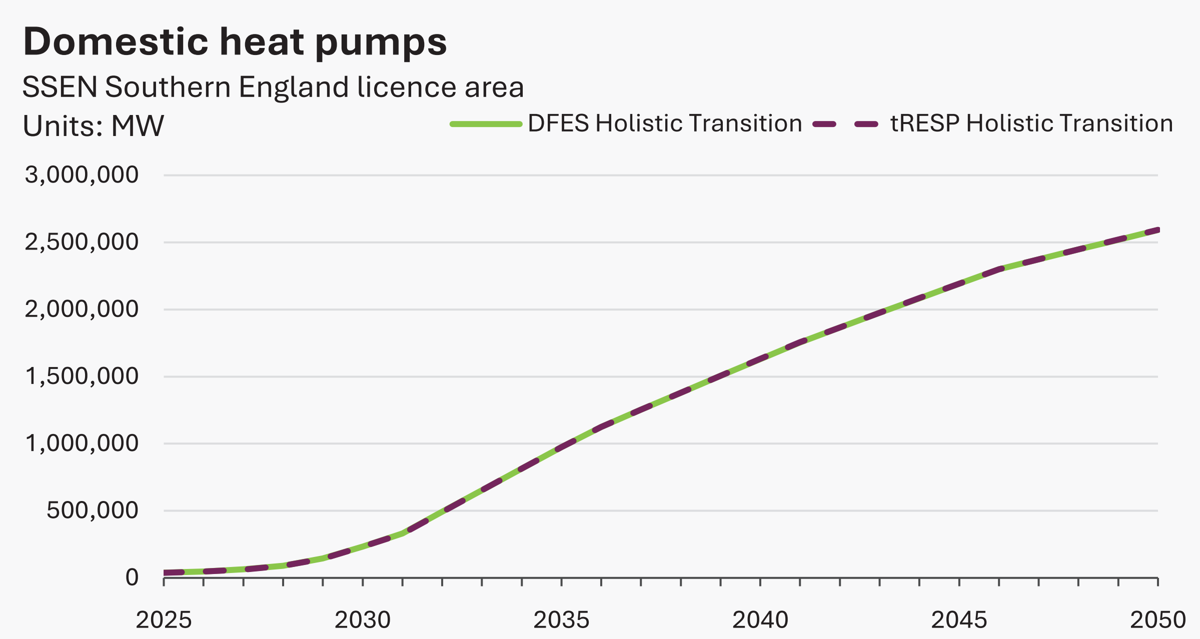
SSEN Southern England licence area

Units: MW

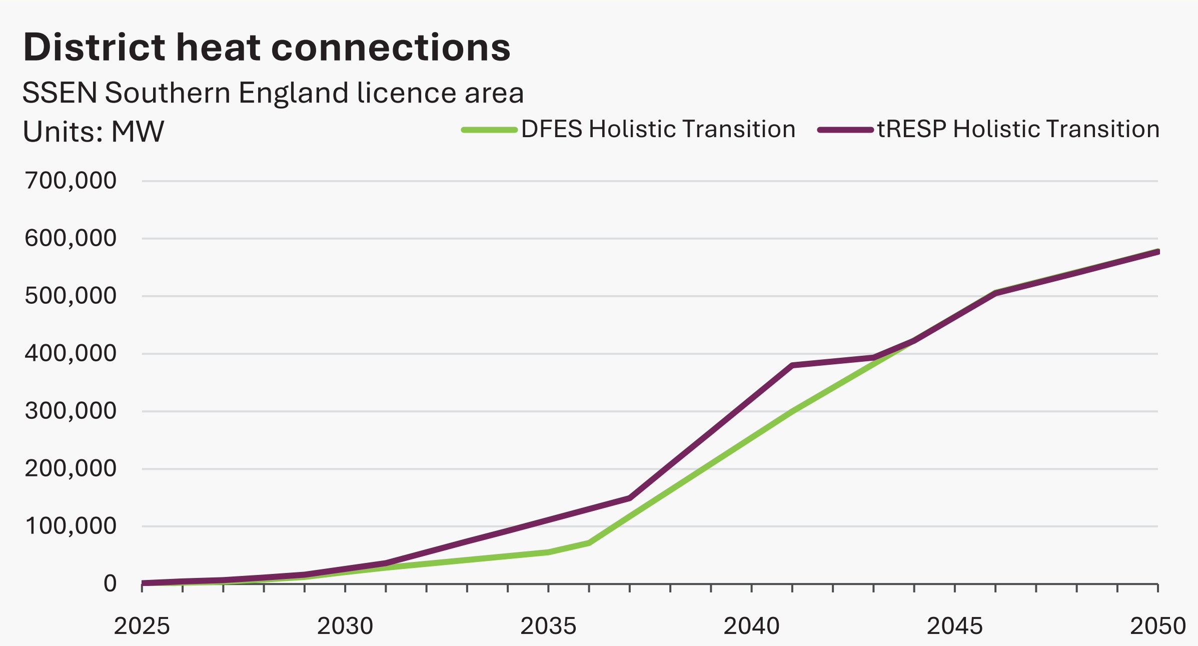


Comparison	Details
DFES 2025 to tRESP	Uptake of plug-in buses and HGVs is nearly identical across the DFES 2025 and tRESP holistic transition pathways.

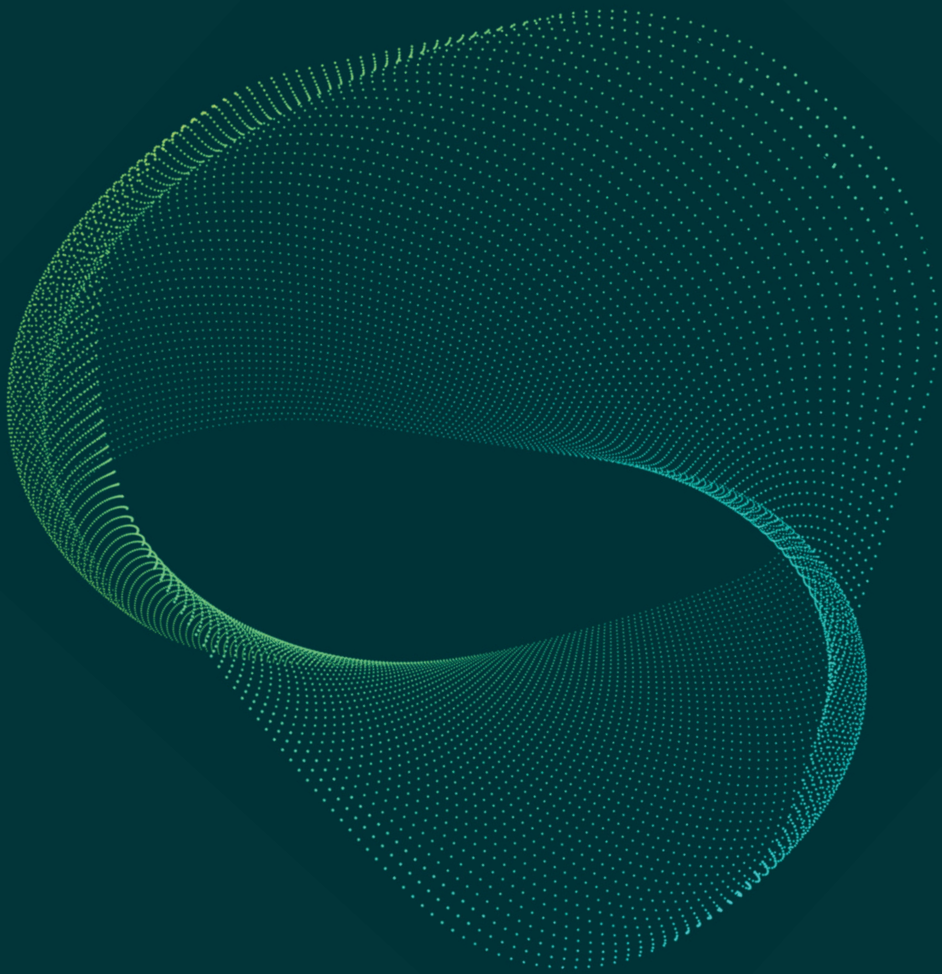
Heat in buildings



Comparison	Details
DFES 2025 to tRESP	Domestic heat pump uptake in the DFES 2025 and tRESP Holistic Transition pathway is almost identical for the Southern England licence area.



Comparison	Details
DFES 2025 to tRESP	The number of district heat connections is broadly aligned across the DFES 2025 and tRESP Holistic Transition scenarios in the near term and by the early 2040s. In the early 2030s the tRESP sees a more accelerated deployment of heat network connections than the DFES.



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