MOTT MACDONALD

East Midlands Combined County Authority Regional Energy Plan

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CLAIRE WARD
MAYOR OF THE
EAST MIDLANDS

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COMBINED COUNTY
AUTHORITY

MIDLANDS
NET ZERO HUB



Contents

- **Glossary** 3
- **Executive Summary** 4
- **Introduction** 6
  - Introduction 8
  - Policy Landscape Shaping Local Energy 9
- **Approach and Methodology** 10
  - LAEP Development Process 11
  - Scope and Boundaries 12
- **Current Energy System** 13
  - Regional Context 14
  - Emissions And Energy Baseline 15
  - Electricity Generation And Consumption 16
  - Fuel Poverty 17
- **Future Pathways** 18
  - Exploring Future Pathways To Net Zero 19
- **Buildings & Heat** 20
  - Energy Efficiency in Buildings 21
  - Low Carbon Heating 24
- **Industrial Decarbonisation** 27
  - Industrial Process Loads 28
- **Electrification of Private Transport** 31
  - Electrification of Private Transport 32
- **Local Generation** 34
  - Local Generation 35
    - Rooftop solar PV potential 35
    - Role of Local Generation in the Energy System 36
    - Community Energy 36
- **Electrical Networks** 37
  - Electrical Network 38
- **Economic Assessment** 40
  - Economic benefits 41
  - Delivering the transition 43
  - Options to Pay for The Investment 44
- **Regional Delivery and Implementation Plan** 45
  - Regional Project Prioritisation 46
  - Regional Plan on a Page 47
  - Priority Projects 48
  - Phased Pathway 51
  - Regional Delivery Opportunities 54
  - Coordinated Enablers 55
  - Roles and Responsibilities 57
- **Risks** 58
  - Key Risks 59
- **Conclusion and Next Steps** 61
  - Conclusion 62
  - Next Steps 63

Glossary

Acronym	Definition
ADMD	After Diversity Maximum Demand
ASHP	Air Source Heat Pump
BUS	Boiler Upgrade Scheme
CAPEX	Capital Expenditure
CCS	Carbon Capture and Storage
CO_2e	Carbon dioxide equivalent
D2N2	Derby, Derbyshire, Nottingham and Nottinghamshire
DDCE	Derbyshire Dales Community Energy
DNO	Distribution Network Operator
EMCCA	East Midlands Combined County Authority
EPC	Energy Performance Certificate
ESC	Energy Systems Catapult
EV	Electric Vehicles
FPEER	Fuel Poverty Energy Efficiency Rating
GVA	Gross Value Added
GWh	Gigawatt-hour
ICE	Internal Combustion Engine

Acronym	Definition
kW	Kilowatt
ICE	Internal Combustion Engine
LAEP	Local Area Energy Plan
LEVI	Low Emission Vehicle Infrastructure
LAEP	Local Area Energy Plan
LGR	Local Government Reorganisation
LCT	Low Carbon Technology
LILEE	Low-Income Low Energy Efficiency
LSOA	Lower-layer Super Output Area
MEES	Minimum Energy Efficiency Standards
MSOA	Middle-layer Super Output Area
MW	Million tonnes of carbon dioxide equivalent
MW	Megawatt
NGET	National Grid Electricity Transmission
PV	Photovoltaic
RESP	Regional Energy System Planning
SEP	Small and Medium-size Enterprise
UK	United Kingdom



Executive Summary

Executive Summary

The East Midlands Combined County Authority Regional Energy Plan consolidates the outputs of eight Local Area Energy Plans (LAEPs) into a single strategic framework, aligning local priorities with regional objectives and national policy.

The analysis shows that achieving net zero is technically feasible but requires a coordinated, large-scale transformation across buildings, transport, industry and energy networks. Decarbonisation is driven by reducing energy demand, electrifying heat and transport, and increasing low-carbon generation.

Buildings are a central priority, with over 600,000 homes below EPC C, requiring significant retrofit to reduce demand, improve affordability and enable low-carbon heat deployment.

Delivery will require coordinated investment, place-based targeting and strong regional governance, supported by a blended funding model and alignment with electricity network planning.

The Regional Energy Plan provides a **robust evidence base and delivery framework**, enabling EMCCA and local authorities to move from analysis to implementation at scale. The scale of transformation requires **early action, coordinated investment and regional collaboration,** particularly to align retrofit, low-carbon heat, transport electrification and network reinforcement.

By aggregating priorities across the region, the Plan enables the development of **scalable programmes, investable propositions and coordinated infrastructure planning**, ensuring the transition is delivered efficiently and at pace.

A summary of the key infrastructure needs across the region by 2050 is shown below.

- **809,583** heat pumps installed in domestic buildings
- **370,985** light retrofits and **415,748** deep retrofits
- **50,656** heat network domestic connections
- **26,741** heat pumps installed in non-domestic buildings
- **70,143** publicly accessible chargers*
- **870,568 private** accessible chargers
- **2,355 GWh** local renewable generation from rooftop PV

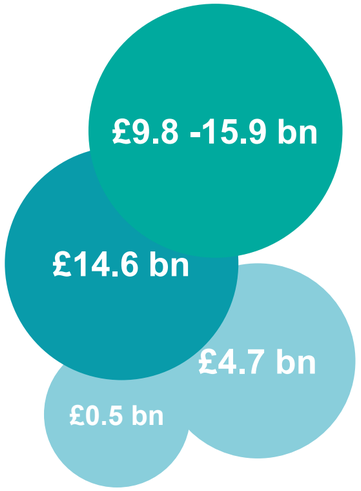
Delivery requires a coordinated, place-based approach aligned with infrastructure capacity, funding, and local need.



Discounted[1] capital investment across the region, in addition to baseline spend



Forecast baseline spend estimated to occur in any future, reflecting expectations for minimum net zero uptake and committed developments.



Benefits: Estimated values are £9.8bn -15.9bn Economic value of carbon savings realised or enabled; £4.7 bn savings on utility bills; £0.5 bn economic value of air quality improvements; and £14.6 bn aggregated Gross Value Added across the region to 2050.

1) This is additional capital expenditure (CAPEX) above baseline spend for energy and the built environment that is assumed to occur.



Introduction

Introduction

What is the Regional Energy Plan?

The East Midlands Combined County Authority (EMCCA) has made energy a central pillar in its strategy for sustainable and inclusive growth, recognising the sector's capacity to drive positive change for communities, businesses, and the environment alike. By placing energy at the heart of its vision, EMCCA seeks to ensure that the region is well-positioned to harness new opportunities, overcome challenges, and deliver benefits that will endure for generations.

This Regional Energy Plan builds on the eight Derby, Derbyshire, Nottingham, and Nottinghamshire Local Area Energy Plans (LAEPs), developed through a collaborative process involving local authorities, stakeholders, and technical experts. Collectively, the LAEPs provide a comprehensive and spatially detailed evidence base of current energy use, future demand, and opportunities for transformation across the region.

The Plan translates this detailed local analysis into a regional assessment of energy demand, infrastructure requirements and decarbonisation opportunities, while retaining place-specific insights and identifying opportunities for collaboration at a regional scale.

By synthesising evidence from all eight LAEPs, the Plan identifies shared priorities, common infrastructure needs and opportunities for coordinated delivery across local authority boundaries, supporting a more consistent and scalable transition to a low-carbon energy system.

Purpose of the Regional Energy Plan

The Regional Energy Plan has been developed to:

1. Bring together findings from the eight LAEPs into a single strategic framework that aligns local priorities with regional objectives and national policy.
2. Provide a consolidated evidence base at regional level, drawing on the LAEP analysis of energy demand, emissions, infrastructure requirements and technology deployment opportunities.
3. Support coordinated planning and investment in energy infrastructure across the region, particularly where network capacity, flexibility and system resilience could constrain delivery.
4. Identify common priorities and shared challenges where regional collaboration could accelerate progress and improve outcomes.
5. Provide a robust evidence base to guide decision-making, investment and delivery, supporting local authorities and regional partners to move from strategy to implementation.
6. Enable inclusive growth and wider community benefits, recognising the role of energy in supporting economic development, affordability, resilience and environmental outcomes.

Coverage

The Regional Energy Plan covers the eight LAEP areas across the EMCCA region:

- 1A Bassetlaw and Newark & Sherwood
- 1B Gedling, Broxtowe and Rushcliffe
- 1C Mansfield and Ashfield
- 1D Nottingham City Council
- 1E South Derbyshire and Erewash
- 1F Amber Valley, Derbyshire Dales and High Peak
- 1G Chesterfield, Northeast Derbyshire and Bolsover
- 1H Derby City Council

Important Note:
This document is supported by detailed technical analysis undertaken as part of the LAEP programme. For full details, including modelling assumptions, cost breakdowns, and comprehensive intervention analysis, readers should refer to the individual LAEP Technical Reports for each local authority area.

These documents are designed to be complementary. The LAEP Technical Reports provide detailed evidence and analysis at a local level. This Regional Energy Plan builds on that evidence to identify common priorities, regional opportunities and areas where coordinated action could support delivery across the East Midlands.

Introduction

The LAEPs, as set out in the individual reports, provide a comprehensive assessment of local energy systems. They map existing energy infrastructure and consumption across residential, commercial and industrial buildings, and identify priority decarbonisation projects, including low carbon technologies such as heat pumps, solar PV and energy storage. They also assess the potential for local generation and system flexibility, including the integration of renewable energy sources and smart systems.

This Regional Energy Plan adopts the same scope boundaries as the LAEPs. Accordingly, the analysis focuses on buildings, low-carbon heat, private road transport, local generation and storage, industrial energy use within the local energy system, and the implications for electricity networks. Emissions sources that sit outside the scope of place-based energy planning, including aviation and strategic rail, are not included within the analysis. Maintaining this alignment ensures that regional outputs remain directly traceable to the underlying LAEP results and supports consistent packaging and delivery of priorities across local authorities.

The Regional Energy Plan builds on this detailed technical evidence to present a consolidated regional view. It brings together the spatial priorities and delivery focus areas identified within each LAEP, highlighting common patterns, shared infrastructure requirements, and opportunities for coordinated delivery at scale. Importantly, it also assesses the social and economic impacts of the proposed interventions, ensuring that the energy transition Plan supports inclusive growth and contributes to the development of skills and jobs within the region.

Set against the backdrop of the UK's energy transition and the government's legislated net zero target, this plan is closely aligned with national policy frameworks, notably the Regional Energy System Planning (RESP) process. RESP encourages coordinated, place-based solutions to energy challenges, facilitating collaboration between regions and central government. Through this approach, the EMCCA Regional Energy Plan integrates local priorities with national strategies, ensuring that the unique strengths and needs of the East Midlands are reflected.

Furthermore, the Plan is designed to leverage a range of central government funding schemes, which are intended to accelerate investment in clean energy infrastructure, support innovation, develop the skills required for a low carbon economy, and provide an enabling environment for crowding in other sources of funding. By tapping into these resources, the region aims to catalyse change at scale, fostering prosperity, resilience, and environmental stewardship for all residents and businesses.

In summary, the Regional Energy Plan stands as a bold statement of intent, combining detailed local analysis with strategic vision and national alignment. Through supporting the local authorities to collectively move into delivery of the LAEPs, EMCCA is committed to unlocking the full potential of the East Midlands' energy system, driving progress towards net zero while creating opportunities for inclusive and sustainable growth.



The document provides an outline of:

- The **regional context** and aggregated characteristics of the energy system, drawing on the combined evidence base from the eight LAEPs.
- The **policy and strategic framework**, including alignment with national policy and the Regional Energy System Planning (RESP) process.
- **An overview of the scenarios** modelled across the LAEPs and how these translate into a coherent regional pathway.
- Key **findings and regional insights** across sectors, including buildings, heat, transport, industry and energy generation, presented in a clear and accessible way
- **Estimated costs** and investment requirements associated with delivering the transition.
- **A coordinated framework for delivery,** including the development of regional programmes and a phased pipeline of actions over time.

Policy Landscape Shaping Local and Regional Energy







The East Midlands Combined County Authority Regional Energy Plan is informed by national policy and legislation, regional strategies, and local planning and climate policy frameworks. Together, these establish the context for energy system planning, infrastructure coordination and delivery of EMCCA's net zero ambitions.

The Regional Plan has been developed within the context of broader regional energy planning, including alignment with the Regional Energy Strategic Planning (RESP) framework, recognising the importance of coordinating local energy planning with regional infrastructure development, network planning and system-level decision-making. The policy review focused on current legislated and adopted policies at all levels that influence East Midland's emissions and progress towards net zero. The policies referenced are not intended to be comprehensive but represent those most relevant at the time of the Regional Energy Plan development. Draft and emerging policies have been included where appropriate to reflect the evolving policy landscape, including recent updates where these provide relevant context, even where they have not directly informed the technical modelling.

These policy drivers shape the scope, ambition and delivery context of the East Midlands Combined County Authority Regional Energy Plan. The plan aligns energy system pathways with EMCCA's growth strategy, infrastructure planning and climate commitments, ensuring that decarbonisation is integrated with housing delivery, economic development and wider place-based objectives.

National	Regional	Local
UK 7th Carbon Budget (2025)	East Midlands Growth Plan	Local Plans (including emerging Local Plan updates)
Clean Power Action Plan (2024)	D2N2 LEP Energy Strategy 2019-2030	Local Climate Change or Net Zero Strategies
Great British Energy Act 2025	Derbyshire Spatial Energy Study	Housing Strategies and retrofit delivery programmes
Connections reform	Low Emission Vehicle Infrastructure (LEVI) Strategy	Transport strategies and Local Transport Plans
Planning & Infrastructure Act (2025)	East Midlands Local Retrofit Strategy	Economic development and growth strategies
Future Homes and Buildings Standard (2025) and Warm Homes Plan (2025)	East Midlands Combined County Authority Ambition for Greener Environment	Infrastructure delivery plans
Zero Emission Vehicle Mandate 2024	Hydrogen Road Map	
UK's Modern Industrial Strategy (2025)		



Approach and Methodology

LAEP Development Process

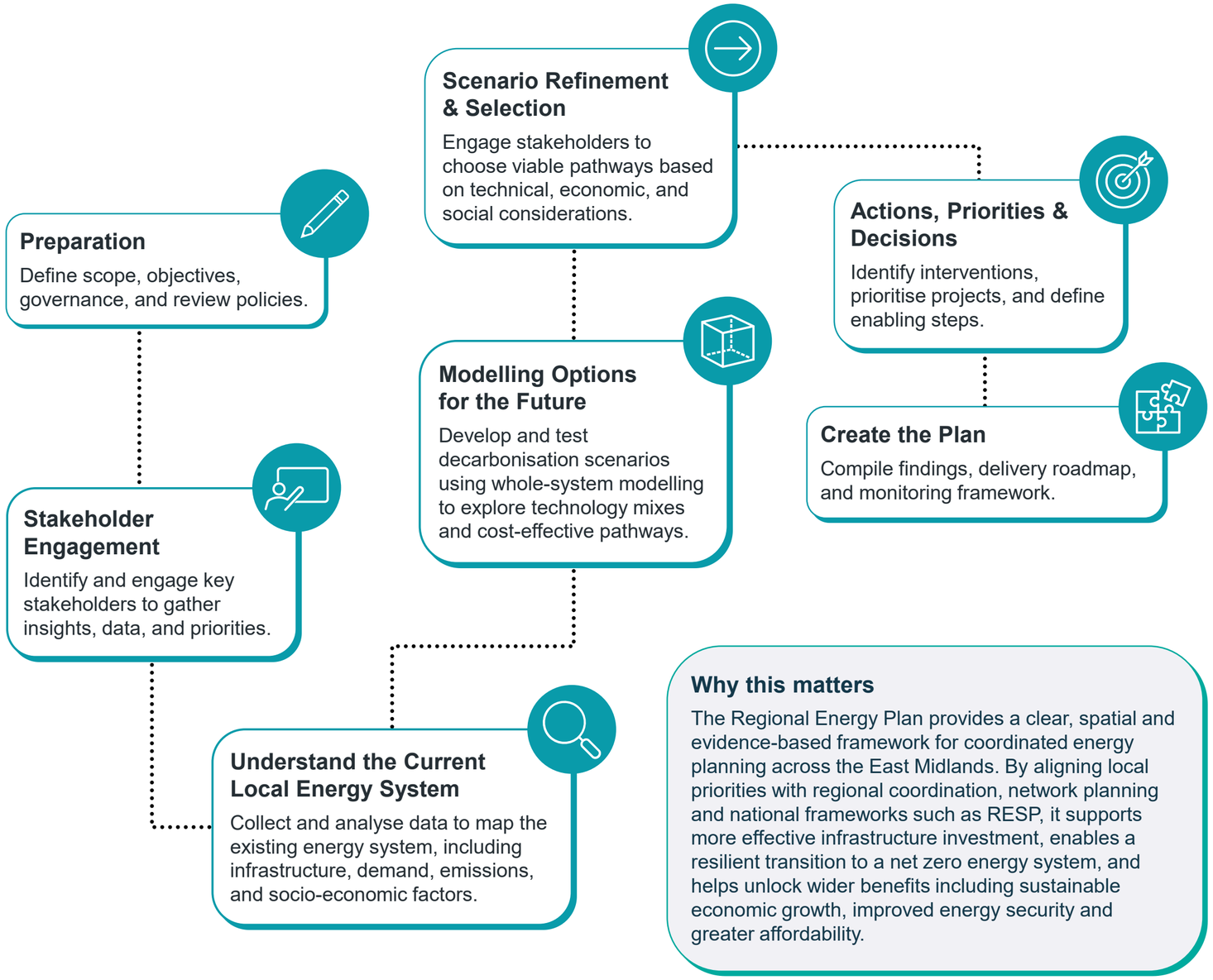
The approach underpinning the Regional Energy Plan aligns with the seven stages of Local Area Energy Planning, as defined by Energy Systems Catapult, and builds on the structured methodology applied across the eight LAEPs.

The LAEPs were developed through an evidence-led process to understand current energy systems, assess future pathways, and identify priority interventions to support the transition to net zero. This combines detailed data analysis and whole-system modelling of energy demand, carbon emissions and costs across buildings, transport, industry and energy networks, and structured stakeholder engagement, ensuring that outputs are both technically robust and grounded in local context.

Stakeholder engagement was embedded throughout the process to ensure that the analysis reflects local priorities, delivery constraints and opportunities. Engagement with local authorities, regional partners, infrastructure providers and other stakeholders has been used to gather data, validate assumptions, and inform decisions. This input is applied iteratively, shaping the development of pathways and the identification of priority actions.

The Regional Energy Plan brings together these stages to provide a coherent, aggregated view across the eight LAEP areas. By combining local evidence and stakeholder insights, it identifies common priorities, shared challenges and opportunities for coordination at scale, including alignment of infrastructure investment, development of regional programmes, and engagement with national policy and funding.

Maintaining consistency with the LAEP methodology ensures that regional insights remain directly traceable to the underlying local analysis, while supporting a more coordinated and efficient approach to delivery across the region.



Why this matters

The Regional Energy Plan provides a clear, spatial and evidence-based framework for coordinated energy planning across the East Midlands. By aligning local priorities with regional coordination, network planning and national frameworks such as RESP, it supports more effective infrastructure investment, enables a resilient transition to a net zero energy system, and helps unlock wider benefits including sustainable economic growth, improved energy security and greater affordability.

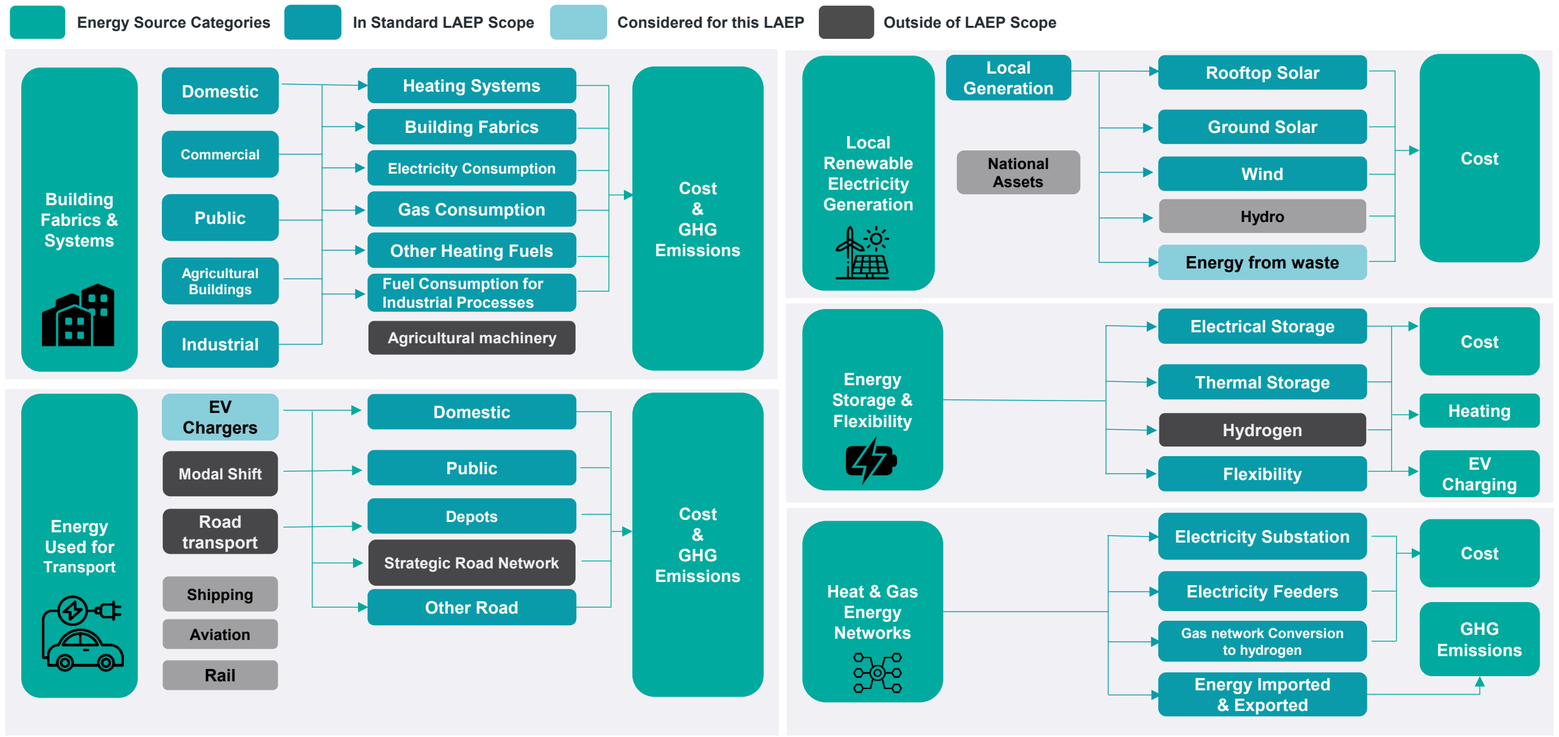
Scope and Boundaries

The scope of analysis was defined consistently across the eight LAEPs, enabling a coherent and comparable assessment of the local energy system across the East Midlands. This common scope formed the basis for the Regional Energy Plan, ensuring that regional outputs could be directly aggregated from the underlying local evidence.

Across all LAEPs, the scope covered energy demand, infrastructure and decarbonisation pathways for buildings, low carbon heat, private road transport, local electricity generation, energy storage, and industrial energy use within the local energy system. The analysis also considered the implications of these transitions for electricity networks, including capacity constraints, reinforcement requirements and the role of flexibility.

The scope focused on those aspects of the energy system where local authorities and regional stakeholders can influence planning, investment and delivery. Emissions sources that fall outside the remit of place-based energy planning, including aviation and strategic rail, were not included within the analysis.

Energy Source	Description
Buildings	Identifying priority areas for retrofitting domestic homes and public buildings to improve energy efficiency. Identifying priority areas for heat pump installation and other low-carbon heating solutions. Identifying opportunities for rooftop solar photovoltaic (PV) deployment and low-carbon, flexible energy technologies (e.g. battery storage) to reduce peak demand.
Transport	Identifying priority locations for electric vehicle (EV) charge point deployment based on projected EV uptake, particularly in areas without access to off-street parking.
Energy generation and networks	Identifying suitable sites for large-scale, low-carbon energy developments, including utility-scale solar and district heat networks. Providing evidence to support electricity distribution network operators (DNOs) in planning for additional capacity, reinforcement and new grid connections.
Local industry	Understanding the energy demand of local industry and identifying viable decarbonisation pathways, including fuel switching and efficiency improvements.





Current Energy System

Regional Context

Area Demographics

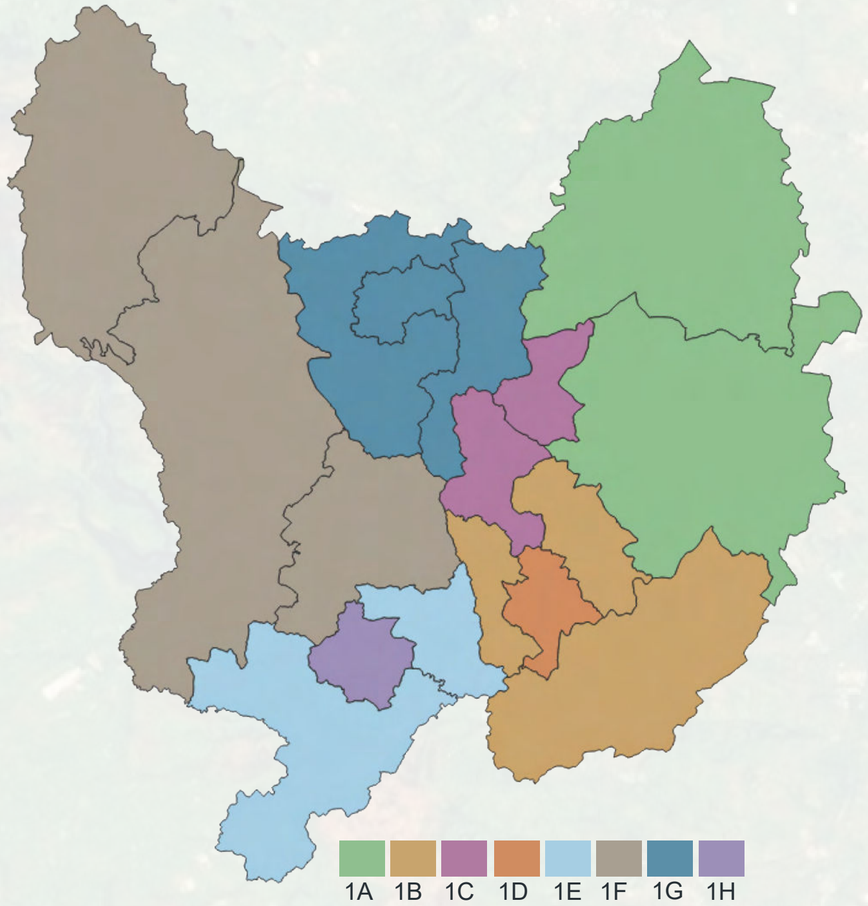
2.3 m
Population

470
Persons per km²

4,820 km²
Land Area

13.4 $MtCO_2e$
Territorial emission in 2023

11.7%
Households in fuel poverty in 2023



Baseline statistics (2025)

1.6% of domestic properties have heat pumps installed

45,200 electrically heated buildings, including heat pumps

1,780
publicly accessible chargers

28,150
private electric vehicles

890 MW
renewable generation capacity

All figures represent the current baseline (i.e. existing conditions) and are based on the latest available published data at the time of analysis. Values have been rounded to the nearest 10 or 100 for clarity.

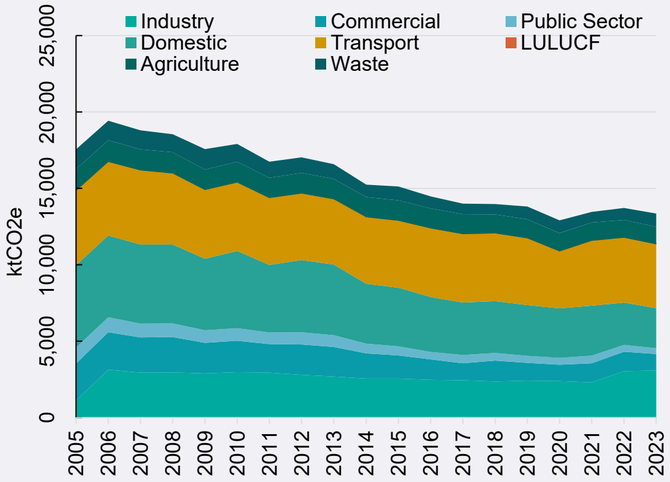
Source:
Population: Explore local statistics – ONS ; Publicly accessible chargers: electric-vehicle-public-charging-infrastructure-statistics-october-2025.ods ; Heat pump installed: The MCS Data Dashboard - MCS
Private electric vehicles: Vehicle licensing statistics data files - GOV.UK ; Renewable generation capacity: Embedded Capacity Register - ECR APR 2026 - National Grid's Data Portal

Emissions And Energy Baseline

Historical Carbon Emissions

Regional greenhouse gas emissions were approximately 14.5 $MtCO_2e$ in 2023, primarily arising from transport, industry and domestic energy use.

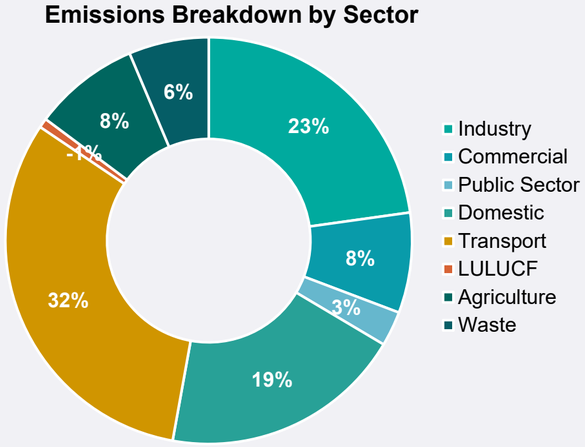
Emissions have declined over time, driven largely by the decarbonisation of the national electricity grid. However, progress varies across sectors, with transport, buildings and industry continuing to represent significant sources of emissions. Continued reductions will require coordinated action across all sectors, supported by targeted investment in low-carbon technologies, energy efficiency and infrastructure.

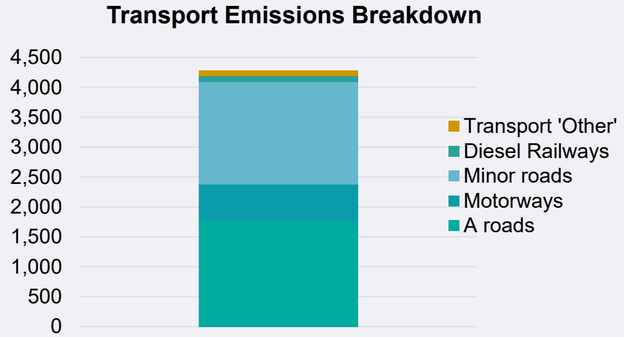


Transport, industry and domestic buildings are the largest contributors to regional emissions, highlighting priority areas for decarbonisation.

Emissions Breakdown by Sector

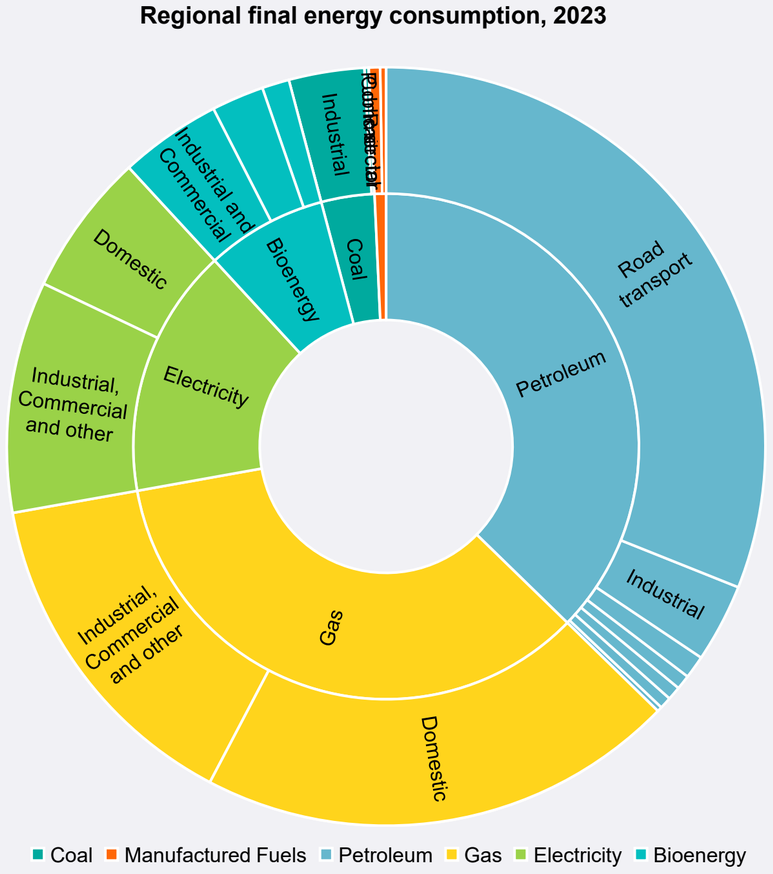
The regional emissions profile reflects a diverse energy system with significant contributions from multiple sectors. Transport accounts for approximately 32% of emissions, largely driven by road-based travel. This is followed by industrial and commercial activities, which contribute around 31% of total emissions, reflecting the region's strong manufacturing and economic base. Domestic emissions represent approximately 19%, primarily associated with space heating and hot water.





2023 Electricity and Gas Consumption by Sector

Total final energy consumption across the region is approximately 52 TWh per year, with demand distributed across domestic, commercial, industrial and transport sectors. Petroleum and natural gas remain the dominant fuels, while electricity plays an increasing role as sectors begin to transition towards electrification. The continued reliance on fossil fuels highlights the scale of transformation required to decarbonise the regional energy system.



Source: UK local authority and regional greenhouse gas emissions statistics, 2005 to 2023 - GOV.UK and Sub-national total final energy consumption - National Data Library

Electricity Generation And Consumption

Approximately 73% of electricity consumed in region is imported from outside the region, with the remaining 27% generated locally. Imported electricity is supplied via DNO substations connected to the national transmission network operated by National Grid Electricity Transmission (NGET).

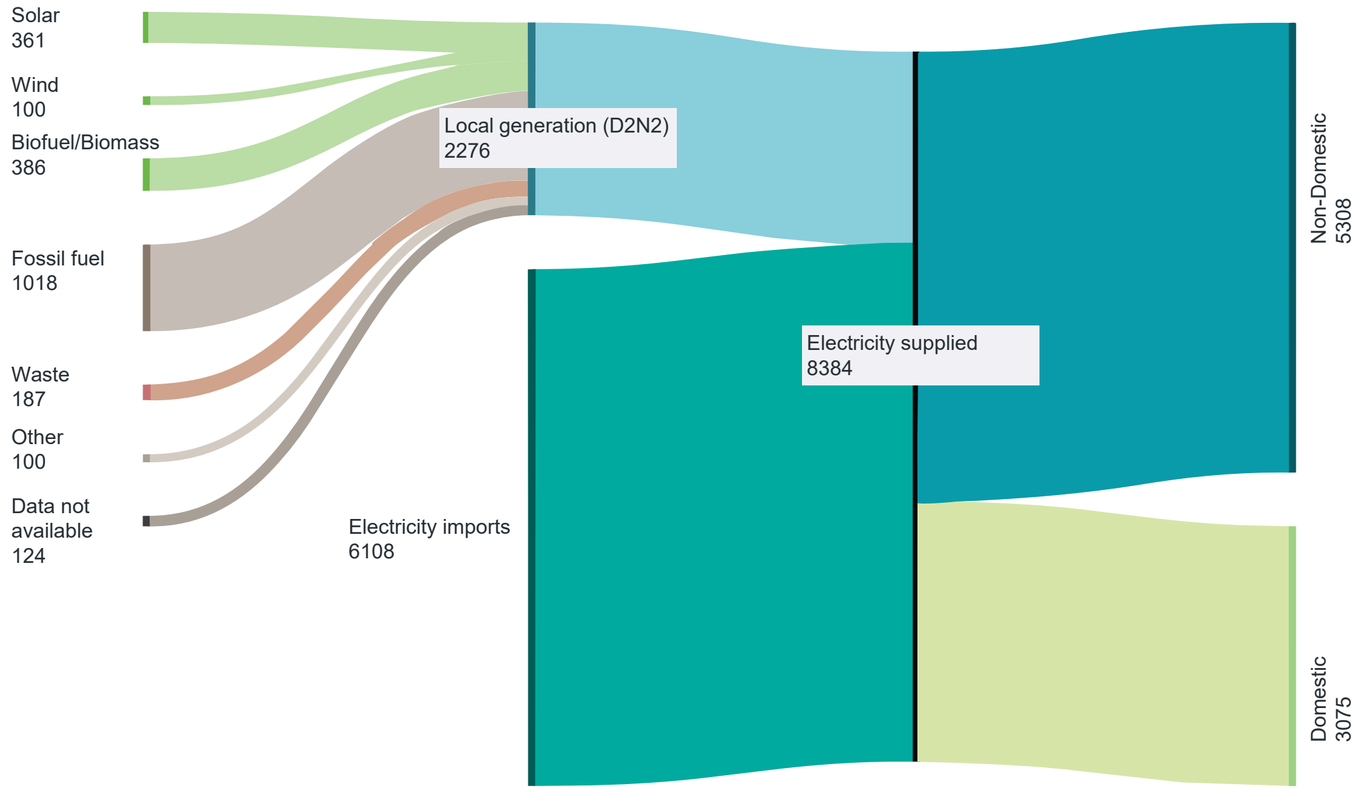
Local electricity generation is dominated by fossil fuel sources, accounting for **45% of total generation**. Low-carbon sources such as solar and biofuel account for 16% and 17%, respectively, alongside smaller contributions from wind and waste.

Electricity demand is split across domestic and non-domestic users, with non-domestic consumption accounting for a substantial share of over 63%, reflecting East Midland's commercial and industrial activity. This balance between locally generated electricity, imported electricity and end-use demand is illustrated in the electricity flow diagram.

Overall, the region is highly reliant on imported electricity to meet demand, with local generation currently playing a more limited role. As electricity demand increases over time, driven by the electrification of heat and transport, maintaining a balanced relationship between local generation, imports and consumption will become increasingly important for network planning and system operation.



Electricity Sankey Diagram (GWh)



Source: Total final energy consumption at regional and local authority level: 2005 to 2022 - GOV.UK and Embedded Capacity Register - ECR APR 2026 - National Grid's Data Portal

Fuel Poverty

11.7%
of all households are in fuel poverty

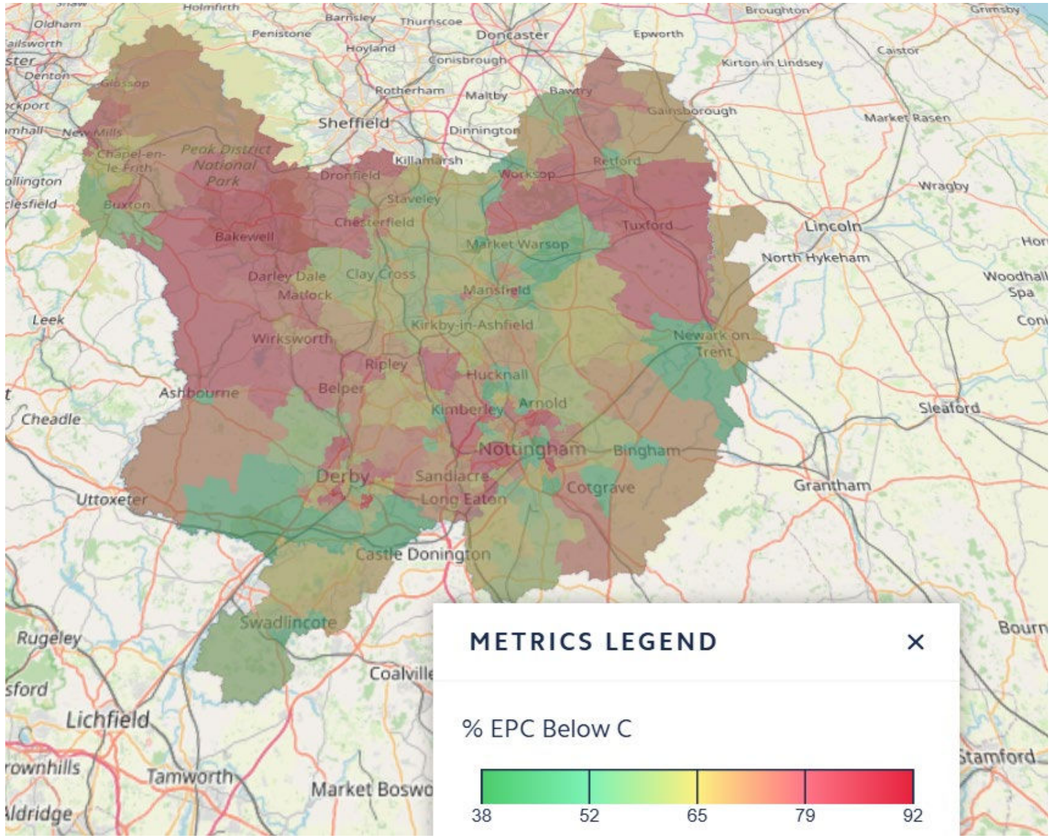
Fuel poverty is defined by the Low-Income Low Energy Efficiency (LILEE) indicator, which classifies a household as fuel poor if it has a Fuel Poverty Energy Efficiency Rating (FPEER) of D or lower and its income falls below the poverty line after spending the required amount to heat the home to an adequate level.

Fuel poverty is a persistent and spatially concentrated socio-economic challenge across all the region, closely linked to deprivation, poor housing quality, and energy affordability constraints. Across the East Midlands region, approximately 11.7% of households are fuel poor, slightly above the England average of 11.4%. Rates vary at local authority level, typically ranging from around **9.3%** to over **13.8%.** Fuel poverty is unevenly distributed, with certain neighbourhoods experiencing disproportionately high rates, often exceeding 20–30% of households.

The key drivers of fuel poverty are consistent across the region and include low household incomes combined with high energy costs, poor building fabric and energy performance (particularly homes rated EPC band E or below), and reliance on inefficient heating systems. These factors contribute to wider socio-economic impacts, including increased health inequalities linked to cold and damp homes, excess winter deaths, reduced productivity and school attendance, and ongoing financial stress for vulnerable households.

Overall, energy, housing, and socio-economic disadvantage are strongly interlinked. Fuel poverty presents both a significant challenge and a critical opportunity for intervention, with targeted retrofit and heat decarbonisation in high-risk areas delivering co-benefits such as reduced energy bills, improved health outcomes, and reduced inequality, while supporting the transition to net zero.





The maps highlight the proportion of homes below EPC C, identifying areas with lower energy efficiency. This supports targeted fabric-first interventions, such as insulation and efficiency upgrades, which can help reduce fuel poverty and lower household energy bills.

Source:
Sub-regional_fuel_poverty_statistics_2023.xlsx and IES Analysis of the EST Home Analytics Dataset



Future Pathways

Exploring Future Pathways To Net Zero

The East Midlands Combined County Authority Regional Energy Plan explores future pathways to net zero using scenario modelling undertaken consistently across the eight LAEPs. For each LAEP, three scenarios were modelled. These scenarios reflect different levels of ambition and policy context, ranging from minimal intervention through to accelerated decarbonisation. To ensure comparability across local authority areas, key economic parameters such as intervention costs, energy prices and discount rates were held constant across all scenarios. This supports sensitivity analysis and isolates the effects of policy ambition and technology uptake.

For the Regional Energy Plan, aggregated analysis uses the preferred scenario selected within each LAEP. Taken together, these preferred pathways represent the **collective preferred approach** across the region, providing an indicative view of the scale of transformation required over time. These pathways are not derived as a single optimised model output but instead reflect aggregated local selections and are used to illustrate the pace and magnitude of change required to reach net zero by 2040 or 2050.

The preferred scenarios selected across the region reflect differences in local authority context, policy ambition and the suitability of available interventions. These pathways should not be interpreted as formal local authority climate targets. Rather, they represent the preferred modelling scenarios selected within each LAEP to demonstrate the scale and pace of change required to achieve net zero outcomes. While some authorities have adopted more ambitious climate commitments, the preferred scenarios provide a consistent basis for assessing future energy system requirements and comparing pathways across the region.

List of preferred scenarios for East Midlands local authorities

LAEP	Local Authorities	Preferred Scenario
1A	Bassetlaw District Council; Newark & Sherwood District Council	Net Zero by 2040
1B	Gedling Borough Council; Broxtowe Borough Council; Rushcliffe Borough Council	Net Zero by 2050
1C	Ashfield, Mansfield	Net Zero by 2050
1D	Nottingham City Council	Net Zero by 2050
1E	Erewash Borough Council; South Derbyshire District Council	Net Zero by 2050
1F	Amber Valley Borough Council; Derbyshire Dales District Council; High Peak Borough Council	Net Zero by 2040
1G	Chesterfield Borough Council; North East Derbyshire District Council; Bolsover District Council	Net Zero by 2050
1H	Derby City Council	Net Zero by 2040

Do Nothing

Only decarbonisation activities between now and 2050 that are already legislated to happen. This scenario reflects what will occur without additional policy or infrastructure investment identified through the LAEPs and represents the most probable outcome if no further action is taken. It acts as the baseline from which carbon reductions and the cost of the LAEP can be assessed, demonstrating that emissions are reduced but a net zero outcome is not achieved.

2050 Net Zero

In line with national targets and guidelines including the 6th Carbon Budget to 2035 and Distributed Future Energy Scenarios. This scenario reflects a pathway to net zero greenhouse gas emissions by 2050, aligned with the UK Government's legally binding target. It incorporates national assumptions on technology uptake, retrofit and policy, providing a consistent benchmark for assessing local contributions to national climate commitments.

2040 Net Zero

Bespoke for the programme, set by EMCCA. Based on stakeholder preference and suitability of solutions. This scenario accelerates the transition relative to the 2050 pathway, enabling modelling of earlier decarbonisation through locally tailored interventions, including varying rates of retrofit, electrification and other technologies, to assess the feasibility, impacts and benefits of achieving net zero by 2040.



Buildings & Heat

Energy Efficiency in Buildings

12% of domestic properties not connected to gas grid

Domestic gas consumption **10,371 GWh**

Domestic electricity consumption **3,075 GWh**

Non-domestic electricity consumption **5,308 GWh**

Non-domestic gas consumption **8,318 GWh**

Improving the energy efficiency of the existing building stock is a foundational component of the regional transition. Analysis of the building stock indicates significant opportunity to deploy energy efficiency measures at scale, ensuring that both existing and future buildings contribute to improved performance and reduced emissions."

A substantial proportion of the existing housing stock currently falls below EPC C, resulting in higher heat demand, increased energy costs and greater exposure to fuel poverty. The stock is characterised by elevated space-heating demand and, in some areas, concentrations of older and harder-to-treat properties, including solid-wall homes, heritage assets and off-gas buildings.

At a regional level, the evidence base identifies approximately **616,000 domestic properties below EPC C**, many of which require either light or more extensive fabric interventions. The building-by-building methodology applied in the regional analysis enables retrofit measures to be targeted to the specific characteristics of individual properties, providing a strong basis for delivery.

The regional approach to building decarbonisation combines energy efficiency improvements with low-carbon heating technologies. Measures such as insulation, glazing upgrades and draught-proofing are prioritised to reduce heat losses and lower overall energy demand before, or alongside, the deployment of low-carbon heating systems.

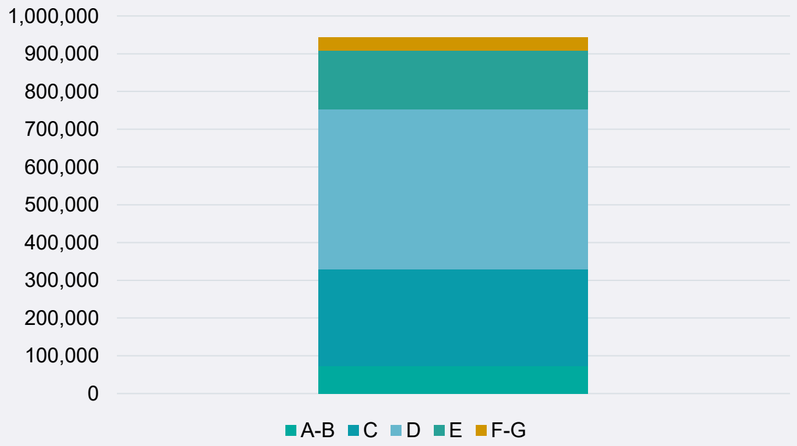
Improving thermal performance reduces energy consumption at source and underpins the effective operation of low-carbon heating technologies. In particular, fabric improvements support heat pump deployment by lowering peak heat demand, enabling smaller and more efficient systems, and reducing impacts on electricity networks as heating electrifies at scale.

While fabric improvements are a critical enabler, they are not assumed to be implemented in all cases prior to the deployment of low-carbon heating and may instead be delivered in parallel or as part of wider retrofit programmes.

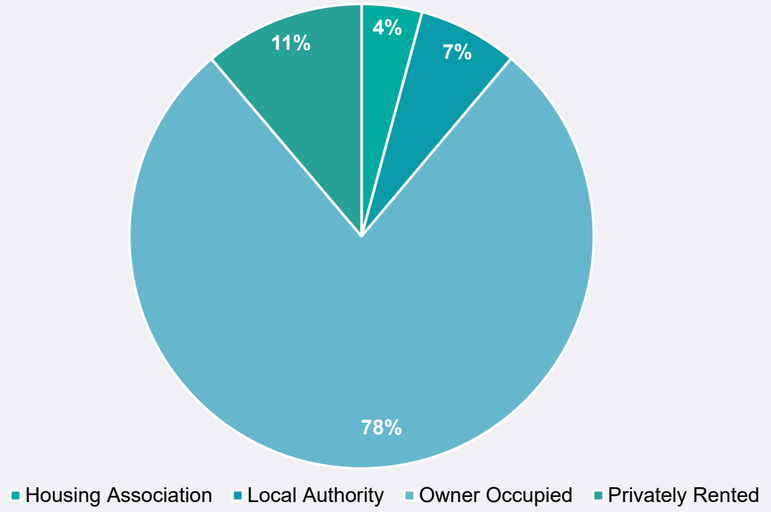


Source:
Total final energy consumption at regional and local authority level: 2005 to 2022 - GOV.UK and Subnational estimates of properties not connected to the gas network - GOV.UK

Domestic building stock EPC rating distribution



Total domestic building stock by tenure type



Energy Efficiency in Buildings

Scale of change

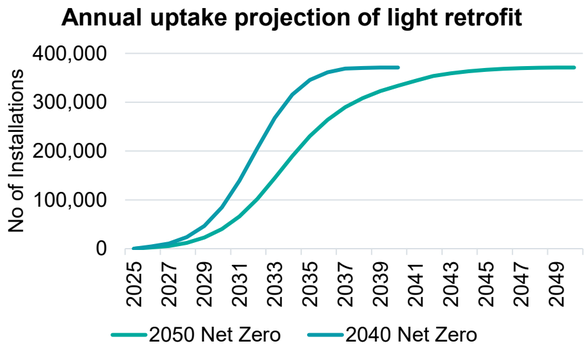
The scale of retrofit required across the region is substantial. Regional modelling identifies approximately **371,000** homes requiring **light retrofit measures, such as cavity wall and loft insulation.** These measures are relatively low cost and offer shorter payback periods compared with more extensive fabric interventions, making them a critical first step in reducing energy demand at scale. However, light retrofit alone is unlikely to be sufficient to meet regional decarbonisation targets. While low-carbon heating systems such as heat pumps can be deployed in less thermally efficient properties, this can lead to reduced performance and higher running costs. As a result, additional fabric improvements are required in some properties to optimise system efficiency, reduce operational costs and deliver long-term carbon savings.

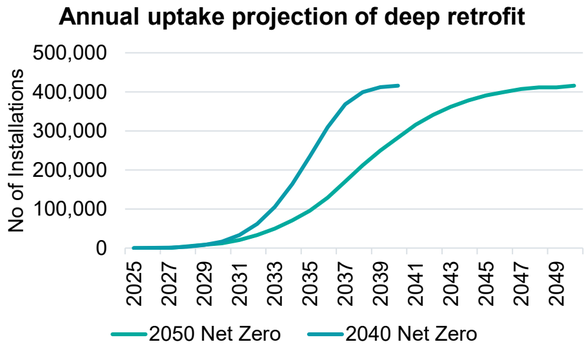
In parallel, the modelling identifies **415,748** homes requiring **deeper retrofit interventions, including solid wall insulation, glazing upgrades and floor insulation.** These measures are particularly relevant for older and harder-to-treat housing stock, which often includes solid wall construction, single glazing and suspended floors.

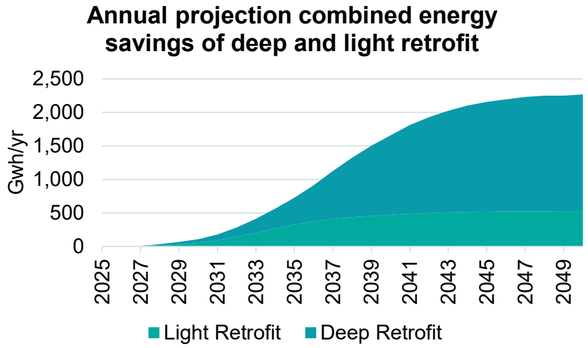
Retrofit activity is therefore expected to be widespread across all tenure types, requiring coordinated delivery across both public and private sectors. This will necessitate the development of targeted funding mechanisms and incentives, recognising that upfront capital cost remains the primary barrier to implementation. Retrofit measures will deliver multiple benefits, including reducing energy bills, improving health and wellbeing through warmer and more comfortable homes, and lowering overall energy demand.

Taken together, the delivery of both light and deep retrofit measures is expected to generate approximately **2,700** GWh of annual energy savings across the region. This represents one of the largest components of the overall transition in terms of both investment and delivery scale. As such, retrofit is not only a housing improvement programme, but a central element of the region's decarbonisation pathway and a critical enabler of low-carbon heat deployment.









Key challenges

The principal challenges are consistent across the region. Many properties will require upfront fabric improvements before low-carbon heating becomes technically and economically viable. Delivery costs are higher for older homes, solid-wall properties and buildings in conservation or heritage contexts, while fuel poverty means that the areas with the greatest need are often least able to self-fund improvements.

In rural and edge-of-network locations, additional barriers include lower contractor density, a greater prevalence of off-gas properties, and weaker local delivery markets. There are also practical challenges around coordinating delivery at scale, ensuring quality assurance, and aligning retrofit activity with local authority housing, regeneration and asset management programmes.

At the same time, retrofit is expected to support compliance with Minimum Energy Efficiency Standards (MEES), which require social housing and privately rented properties to achieve EPC C by October 2030. Prioritising properties below EPC C in the short term can therefore support both decarbonisation and regulatory compliance.

What needs to happen

A regionally coordinated retrofit programme is required, combining area-based delivery with targeted support for harder-to-treat stock and fuel-poor households. This should include a clear pipeline of light retrofit, deep retrofit and public estate decarbonisation programmes, backed by common delivery standards, strengthened skills and supply chain capacity, and closer alignment with local authority housing and regeneration priorities.

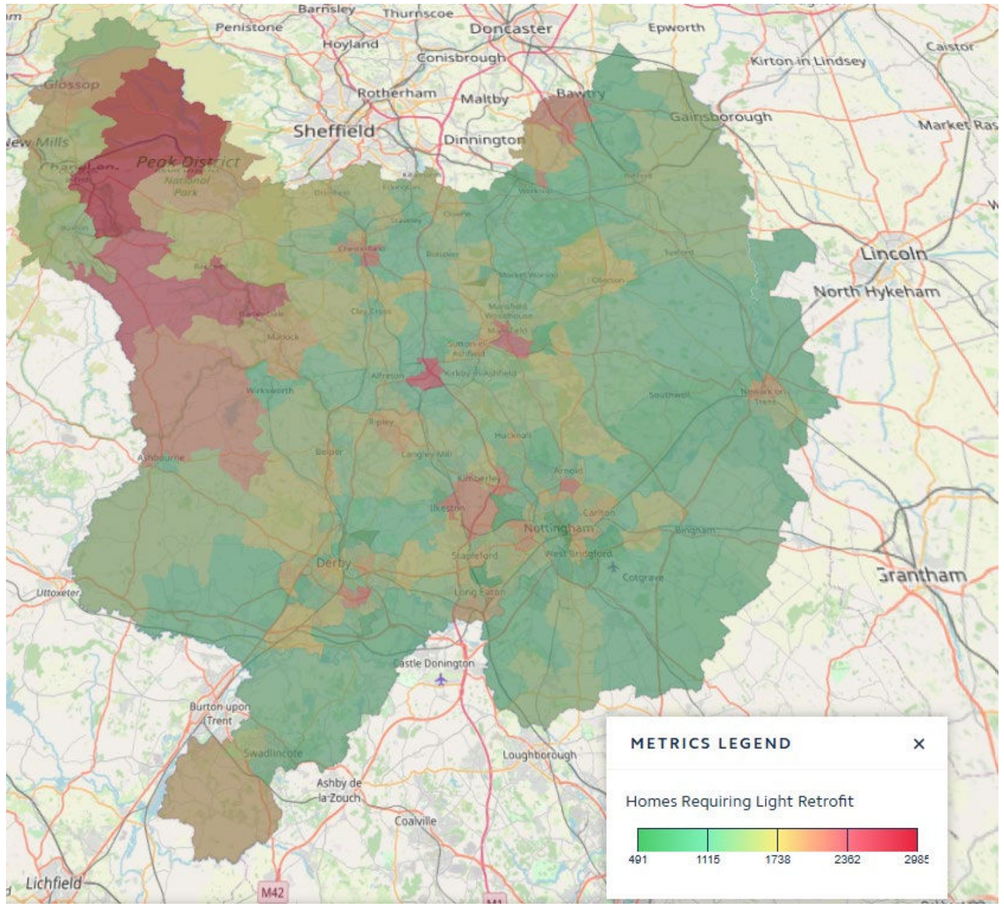
Continued support for intermediary delivery organisations and trusted local partners will be important to combine practical delivery with consumer advice, access to funding and longer-term strategic engagement. Public sector organisations, including local authorities and housing associations, have a key role in directly delivering fabric and heating upgrades across social housing and for vulnerable households, building on existing programmes and acting as a foundation for wider market delivery.

At a wider scale, neighbourhood-based retrofit programmes and group purchasing approaches can help achieve economies of scale, reduce costs and support more consistent delivery. These approaches also create opportunities for community engagement and can help drive uptake across different tenure types.

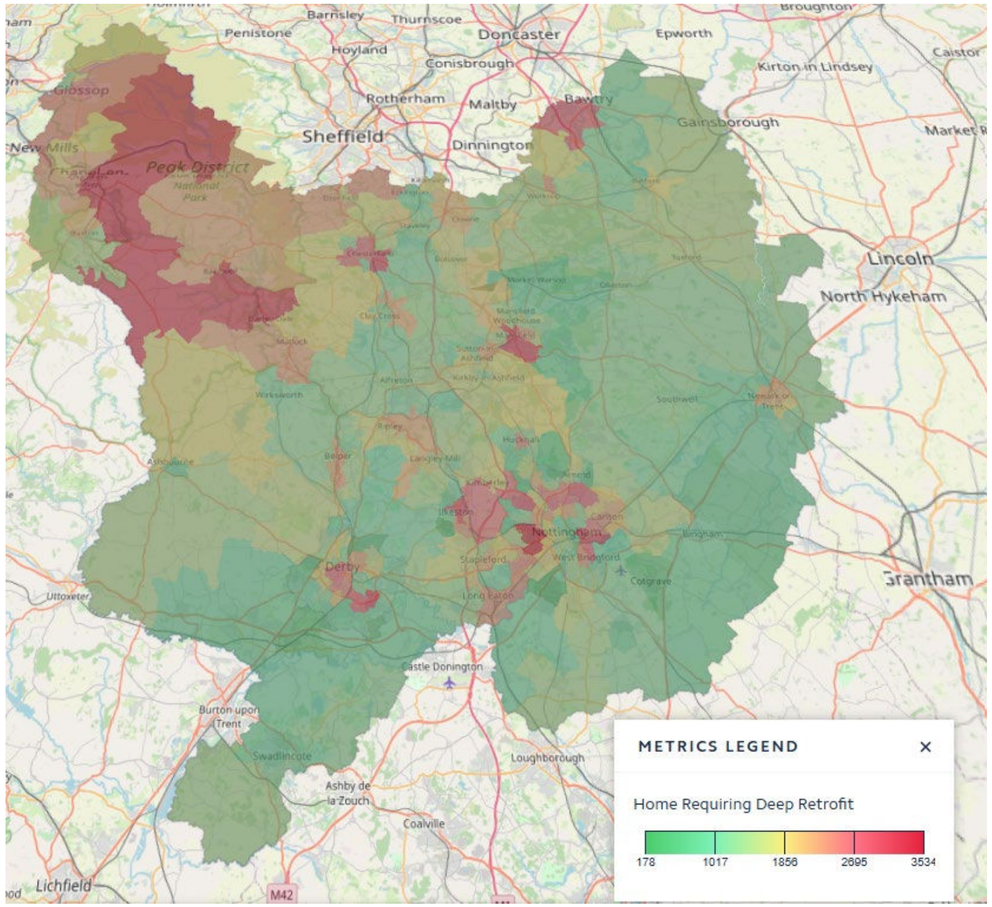
Delivering retrofit at the required scale will also depend on expanding local supply chains and workforce capacity, including engagement with regional contractors, investment in skills development, and scaling up training and apprenticeship programmes. Alongside this, sustained effort is needed to increase consumer awareness and engagement, building confidence in retrofit solutions and improving access to available support and funding.

Energy Efficiency in Buildings

Homes requiring light retrofits per MSOA



Homes requiring deep retrofits per MSOA



The maps shows the spatial distribution of homes requiring light (left) and deep retrofit (right) interventions across the region. Homes requiring light retrofit are more widely distributed and typically reflect areas where properties already have moderate energy performance, requiring targeted improvements. In contrast, homes requiring deep retrofit are more concentrated and align with locations with older or less efficient housing stock, where more comprehensive upgrades to building fabric are needed. This highlights a clear variation in retrofit need across the region, indicating that delivery will require a targeted, place-based approach, focusing more intensive interventions in areas with the greatest need.

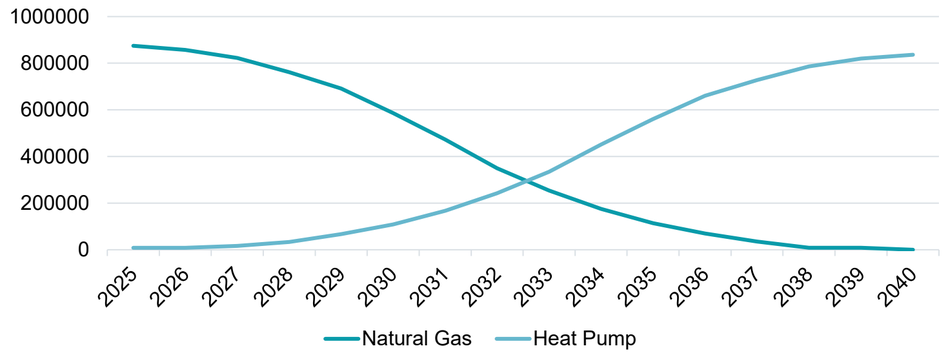
Low Carbon Heating

In addition to building fabric improvements, the decarbonisation of heating is a fundamental pillar of the regional transition. The approach across the East Midlands is based on a place-specific, whole-systems assessment of buildings, heat demand, network constraints and socio-economic factors, rather than a single technology pathway.

The evidence base indicates that the majority of buildings will transition away from fossil-fuel heating through the deployment of low-carbon electric heat, particularly air source heat pumps (ASHPs), where properties are technically and economically suitable. The transition to low-carbon heating represents one of the largest system changes within the regional pathway. It involves the replacement of a significant proportion of existing heating systems, alongside building upgrades and, in selected locations, the development of heat network infrastructure. Spatial analysis differentiates between housing types, density and existing energy performance, recognising that heat pumps perform most effectively in well-insulated buildings. As such, the sequencing of retrofit alongside or ahead of heating system replacement is critical to managing energy demand, affordability and network impacts. This pathway aligns with the national Clean Power 2030 objective, which assumes continued but stable reliance on gas-fired electricity generation in the short term, while enabling a longer-term transition away from fossil fuels, including natural gas.

The figure below illustrates the scale and pace of delivery required to meet the 2050 heat decarbonisation pathway, including a rapid reduction in gas boiler installations during the 2030s.

Heat electrification uptake required for 2040 scenario



At a regional level, approximately 809,000 domestic properties and 26,700 non-domestic properties are identified as having potential to transition to heat pumps. This is a system-wide transition rather than an incremental technology rollout. It will affect household energy demand, consumer behaviour, electricity networks, workforce requirements and long-term infrastructure planning. Delivery will therefore need to be carefully sequenced, ensuring that retrofit, heating system replacement and network reinforcement are aligned.

616,126 domestic buildings currently below EPC C and

809,000 heat pump installations to decarbonise heating in domestic buildings

26,700 heat pump installations required to decarbonise heating in non-domestic buildings



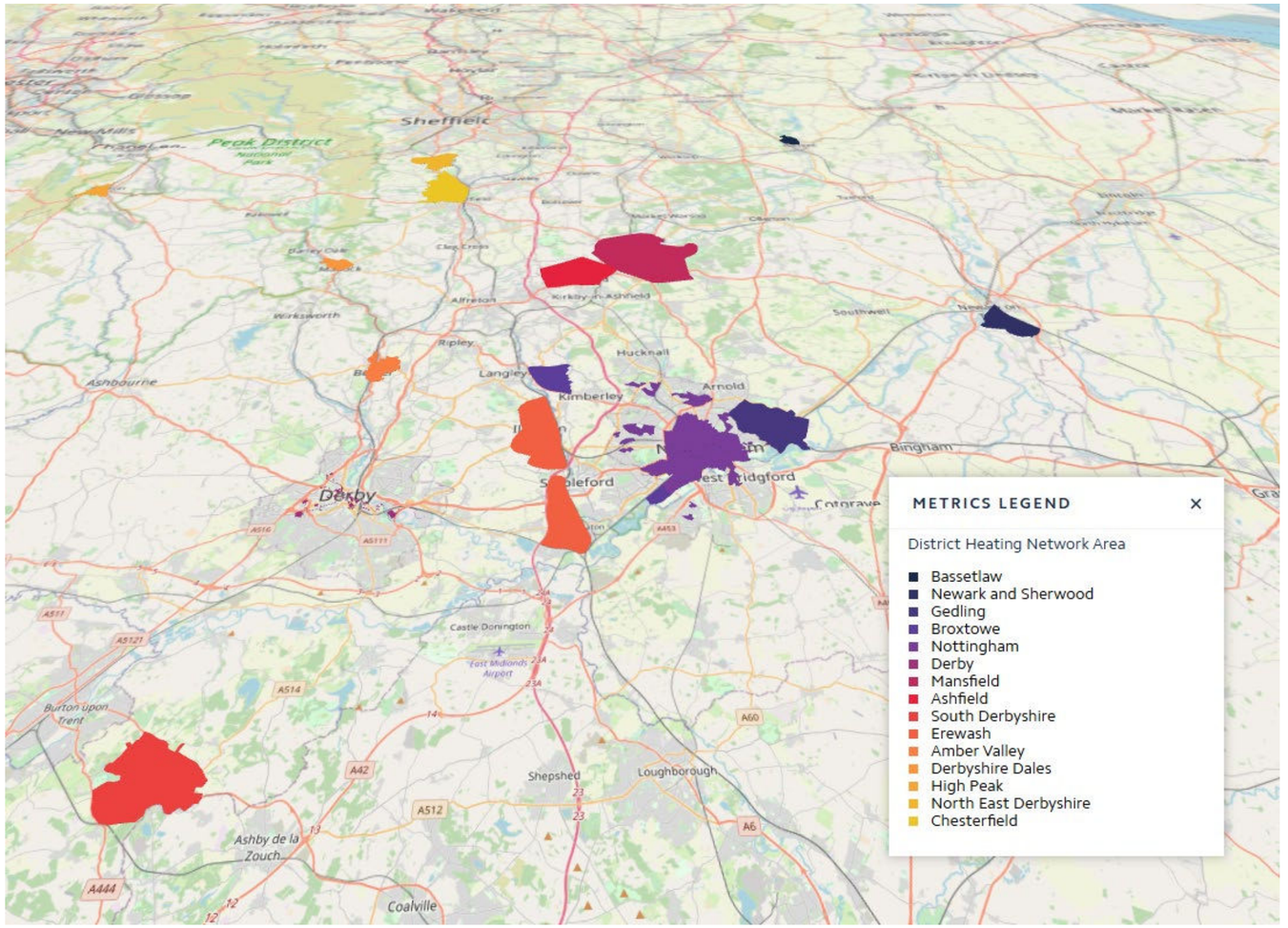
Low Carbon Heating(cont.)

Heat networks represent a targeted opportunity for decarbonising heat across the East Midlands, particularly in particularly in denser urban areas and clusters of public and non-domestic buildings where shared low-carbon heat sources can be deployedwhere heat demand is concentrated. Unlike individual building-level heating systems, heat networks use shared energy infrastructure to supply multiple properties, enabling access to low-carbon heat sources that may not be viable at a building scale. By using a centralised system to distribute heat to multiple connected properties, heat networks can benefit from economies of scale, reducing capital, operating and maintenance costs compared to individual building-level systems.In locations with sufficient demand density, this approach can reduce overall system costs, improve efficiency and create opportunities to connect additional buildings over time.

.Across the East Midlands, heat network deployment is currently limited and highly localised, with only a small number of district-scale systems in operation. Existing provision is concentrated primarily in urban areas, most notably Nottingham, where the established Environing heat network provides district heating to a mix of residential, commercial and public-sector buildings. Outside of these larger schemes, most existing systems are communal-scale installations serving individual developments rather than wider district networks.

The map highlights indicative heat network opportunity areas identified through the LAEP programme, based on factors including heat demand density, building type, proximity to potential low-carbon heat sources and overall network viability. Existing provision remains limited and highly localised, with the most established network located in Nottingham. Outside of these larger schemes, most existing systems are communal-scale installations serving individual developments rather than district-scale networks.

Heat networks are therefore expected to play an important but targeted role within the regional heat transition, particularly in town and city centres, large public-sector estates and mixed-use urban areas. While heat pumps remain the primary low-carbon heating solution across most of the region, heat networks offer a cost-effective alternative in locations where demand density supports shared infrastructure and long-term network expansion.



The map highlights indicative heat network opportunity areas identified through the LAEP programme. These locations have been selected based on heat demand density, the presence of potential anchor loads, and the suitability of local conditions for district heat network development. Opportunities are concentrated primarily in urban centres and areas with significant clusters of residential, commercial and public-sector buildings.

Low Carbon Heating (cont.)

Outside of these larger schemes, most existing systems across the region are communal-scale installations, typically serving individual developments or groups of buildings via a shared plant rather than forming part of a wider district network. These systems are generally constrained in geographic extent and do not yet operate at the scale required to significantly impact regional heat decarbonisation.
Overall, the proportion of households connected to district or communal heat networks remains very low across the region, typically well below 1% in most areas. Even in locations with established infrastructure, such as Nottingham, connections represent only a small fraction of total households, reflecting the early stage of deployment.

The current pattern of provision reflects the economic and technical requirements of heat networks, which are most viable in areas with high heat demand density, including dense urban centres, clusters of public-sector buildings, and mixed-use developments. As a result, existing and emerging opportunities tend to be spatially constrained and location-specific, rather than evenly distributed across the region.

In addition to existing systems, a number of potential heat network zones have been identified across the region, typically centred on areas with strong anchor loads and sufficient demand density to support network viability. These are generally at an early stage of development and require further feasibility assessment, planning alignment and investment to progress.

Key challenges

There are four key challenges: building readiness, affordability, delivery capacity and consumer confidence. Heat pumps require well-insulated buildings to operate efficiently, making the sequencing of retrofit and heating upgrades critical.

Heat networks depend on sufficient demand density, anchor loads and alignment with development timelines. Across both pathways, delivery is also constrained by network capacity, installer availability and ongoing access to funding mechanisms.

Consumer perception remains a barrier, particularly for heat pumps, where concerns around cost, performance and disruption can limit uptake. Evidence shows that peer-to-peer learning, demonstration projects and real-world examples can play an important role in building confidence and supporting adoption..

What needs to happen

A coordinated heat transition programme is required, combining fabric-first retrofit, large-scale heat pump deployment and targeted heat network development. Delivery should prioritise locations where technical feasibility, funding availability and network capacity align, supported by detailed energy profiling of building types and local areas to identify priority zones for intervention.

Heat decarbonisation must be closely coordinated with electricity network planning, workforce development and infrastructure investment to ensure the system can accommodate increased demand. This coordination should ensure that network reinforcement, skills capacity and delivery mechanisms are in place ahead of large-scale rollout, alongside clear sequencing between retrofit and heating system replacement to manage affordability and demand.

For the non-domestic sector, stronger engagement with building owners and landlords will be important, particularly where much of the stock is leased. Developing partnerships between local authorities, asset owners and occupiers can help identify barriers, unlock investment opportunities and support the rollout of both retrofit measures and low-carbon heating systems. Improved building performance transparency, including the use of operational performance data, can also support more informed decision-making and incentivise upgrades.

Public sector assets should play a leading role in early delivery. Targeted support for publicly owned buildings, including schools and civic buildings, can accelerate deployment, demonstrate best practice and provide visible examples of low-carbon heating systems in operation. This can also support wider community awareness and engagement.

Community engagement will be critical to building confidence and driving uptake, particularly for heat pumps, where low familiarity and perceived risk can act as barriers. Evidence from national initiatives shows that first-hand experience and peer-to-peer learning can significantly improve confidence, with demonstration programmes and local engagement helping households and businesses to better understand performance, costs and practical considerations.



Across all sectors, delivery will depend on strengthening regional supply chains and workforce capacity, alongside continued alignment between investment pipelines, infrastructure planning and policy support to enable delivery at scale.



Industrial Decarbonisation

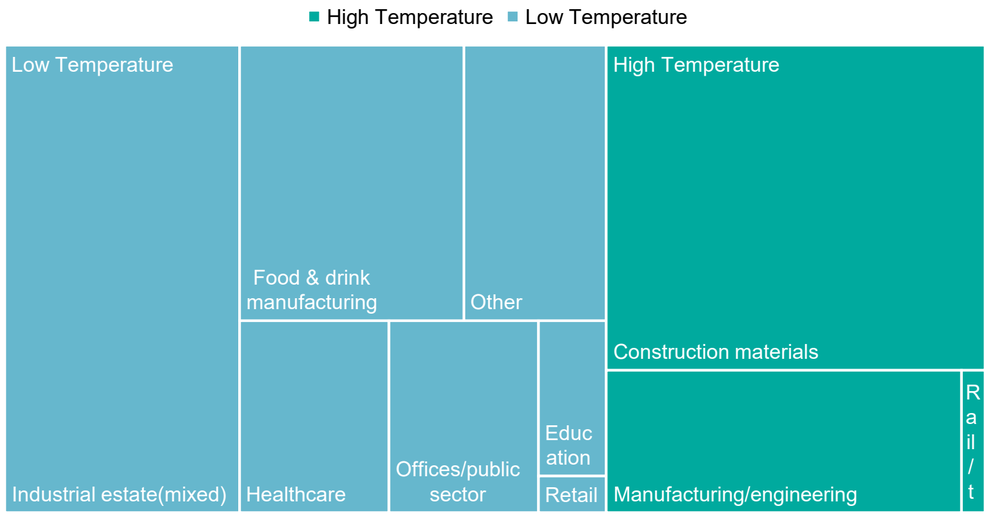
Industrial Process Loads

Industrial activity is a significant contributor to emissions across the East Midlands, accounting for approximately 9% of the region's total in-scope greenhouse gas emissions. This reflects the region's strong manufacturing, materials processing, food and drink, logistics and advanced engineering base. As with the wider UK, the majority of industrial emissions are associated with process heat rather than space heating, requiring a distinct decarbonisation approach. Industrial and commercial sectors also account for a substantial proportion of regional natural gas consumption. This means that targeted, site-specific interventions can deliver a significant share of emissions reduction.

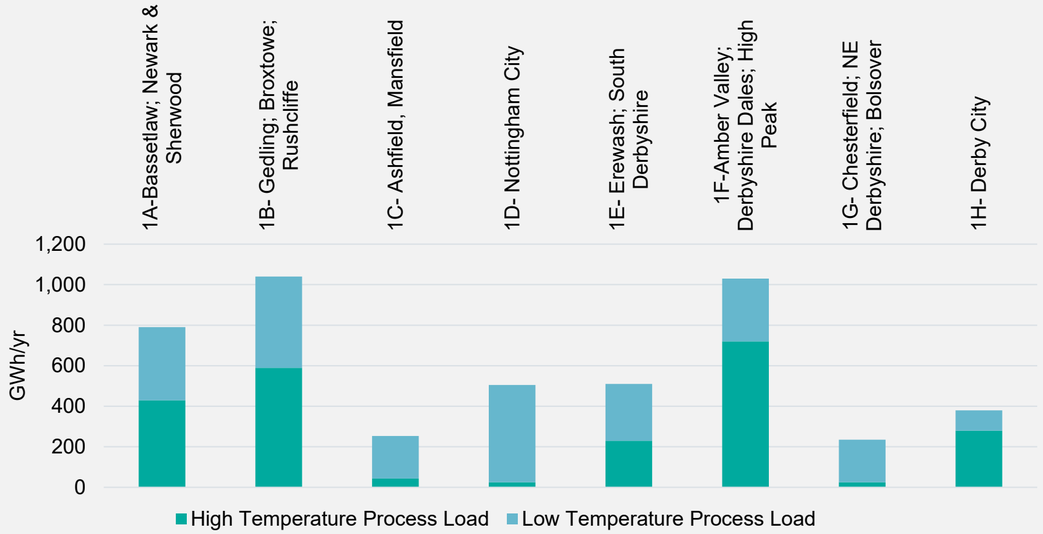
A proportion of industrial processes operate at low to medium temperatures (typically below 200°C), including food production, light manufacturing and specialist processing activities. These loads are generally suitable for electrification over time through technologies such as electric boilers, industrial heat pumps and electric furnaces, as solutions mature and become commercially viable. Electrification of low-temperature process loads is therefore identified as the primary decarbonisation pathway for industrial process emissions.

In contrast, high-temperature processes, typical in heavy industry, often operate above 200°C. These processes pose significant challenges for decarbonisation through electrification alone and are likely to require hydrogen or other low-carbon fuels. However, these applications are concentrated within a relatively small number of energy-intensive industrial facilities. For the majority of industrial sites, direct electrification remains the primary decarbonisation pathway, with hydrogen expected to play a targeted role in harder-to-abate sectors. Hydrogen deployment will depend on infrastructure availability, supply chain readiness, and supportive policy frameworks.

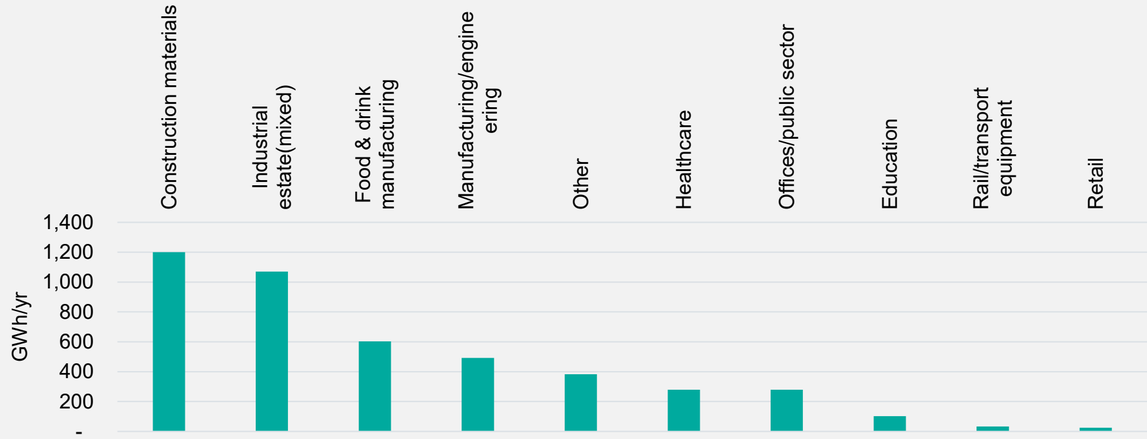
Breakdown of process loads by industry type



Industrial energy consumption in the East Midlands



Top 10 sectors by process load gas consumption



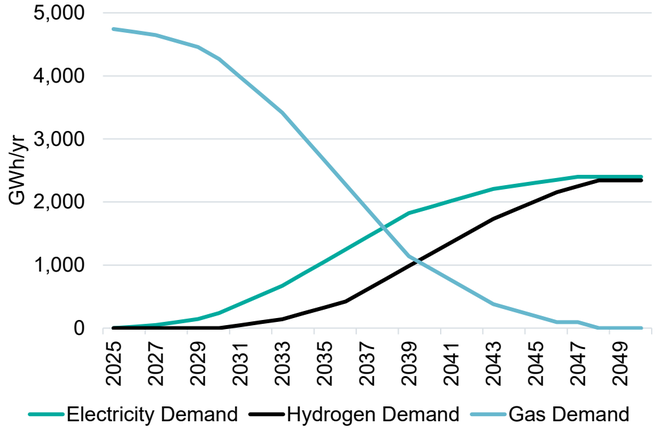
Source: GDN data and Mott MacDonald analysis

Industrial Process Loads

The scale of industrial transition is significant in both electricity and fuel infrastructure terms. A substantial proportion of current industrial gas demand is expected to transition toward direct electrification, making electricity the dominant decarbonisation pathway for most industrial processes. A smaller proportion of demand, associated primarily with a limited number of large, energy-intensive industrial facilities and high-temperature processes, is expected to require hydrogen or other low-carbon fuels.

The transition pathway follows a trajectory consistent with net zero scenarios, with industrial gas consumption declining over time as processes electrify. Electricity demand increases through the 2030s and 2040s, while hydrogen demand emerges more gradually and remains focused on applications where electrification is not feasible. This transition results in approximately 2,400 GWh of additional annual electricity demand by 2050, alongside 2,300 GWh of potential annual hydrogen demand. Industrial electrification will place significant additional demand on both distribution and transmission networks, requiring substantial increases in capacity, particularly in established industrial areas where infrastructure was not designed for high levels of local demand.

Process load energy consumption projection



The East Midlands is emerging as a strategic location for hydrogen production, distribution and use, supported by initiatives that aggregate demand across multiple industrial sites. This is closely linked to new and repurposed pipeline infrastructure intended to connect supply with energy-intensive users where alternative decarbonisation routes are limited. However, realising this opportunity requires significant infrastructure development and coordination across supply and demand.

Key Challenges

The scale of industrial transition presents significant infrastructure and delivery challenges. Industrial electrification is expected to place significant additional demand on both distribution and transmission networks. Around half of industrial decarbonisation is likely to rely on direct electrification technologies, requiring substantial increases in network capacity. This is particularly relevant in established industrial areas where legacy infrastructure was not designed for high levels of local demand.

For higher-temperature processes, electrification alone is often not feasible, requiring hydrogen or other low-carbon fuels. However, hydrogen deployment is constrained by uncertainty around supply availability, the need for CO_2 transport and storage infrastructure, and alignment with industrial investment cycles. Long asset lifetimes in industry further increase the risk of carbon lock-in if infrastructure and fuel choices are not coordinated.

Emerging clusters of low-carbon industrial development, such as the Peak Cluster and East Midlands Freeport, provide opportunities for coordinated decarbonisation, innovation and regional leadership. However, the infrastructure required to support large-scale transition is not yet fully in place and remains a critical dependency

In parallel, the development of a regional hydrogen economy introduces challenges related to locating hydrogen production, distribution networks, and demand aggregation across industrial sites, particularly where new pipeline infrastructure is required.



What needs to happen

The Climate Change Committee (CCC) advises that the most cost-effective routes to industrial decarbonisation vary by sector and site. Electrification and efficiency improvements are expected to deliver the majority of emissions reductions where feasible, while carbon capture and storage (CCS) and targeted use of low-carbon hydrogen are required for higher-temperature processes and applications with unavoidable process emissions.

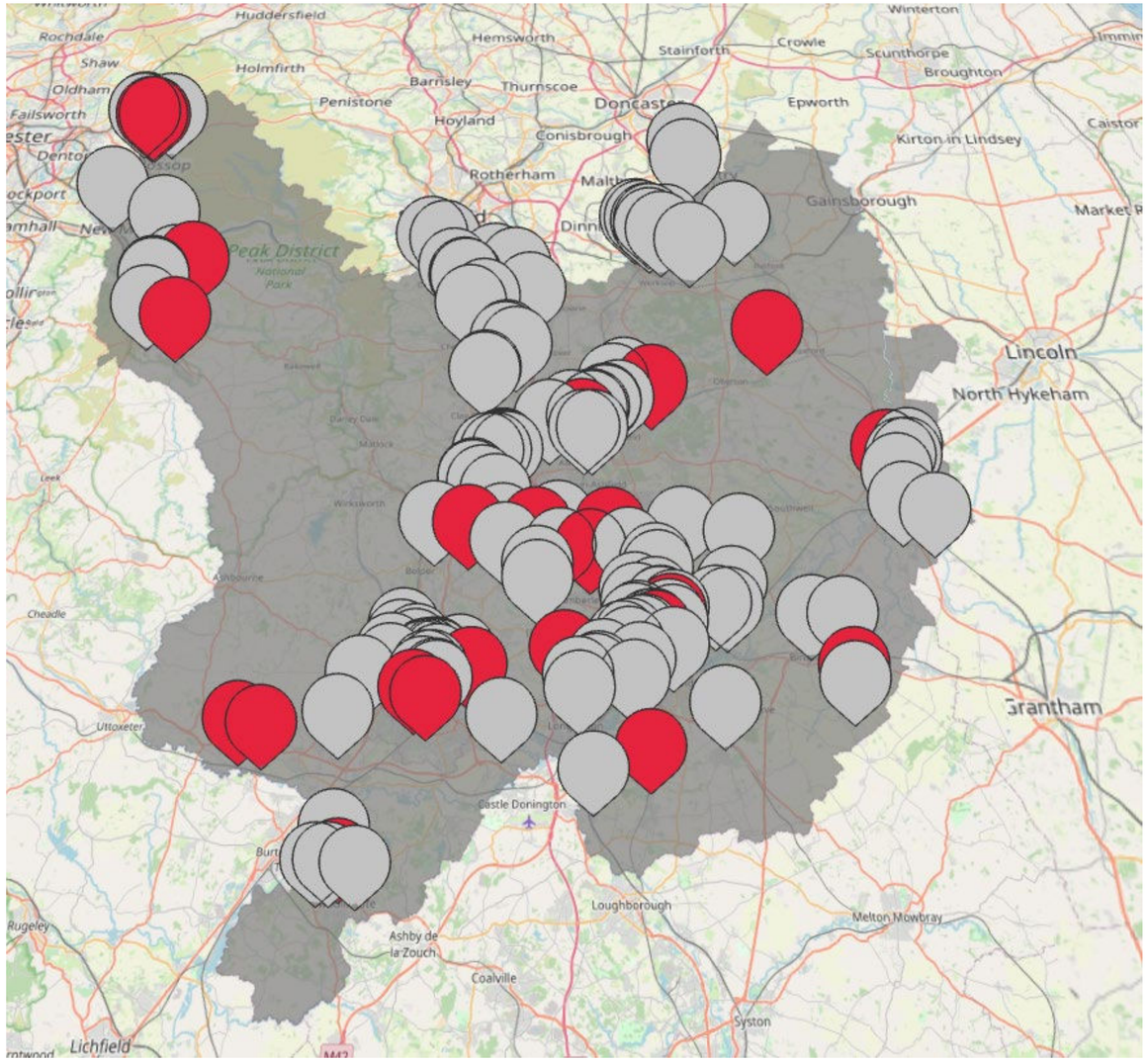
Delivering this transition requires coordinated action across infrastructure, policy, and investment planning. This includes aligning industrial demand with electricity network upgrades, hydrogen supply development, and CO_2 transport and storage infrastructure.

A coordinated regional approach is required to enable industrial decarbonisation at scale, supported by site-specific planning, infrastructure investment and continued technological development. Industrial process emissions could be reduced by up to massively through a combination of fuel switching, efficiency improvements and deployment of low-carbon technologies.

Priority actions include developing industrial decarbonisation plans by site and sector; coordinating with electricity network operators to ensure timely network reinforcement; planning hydrogen production and distribution infrastructure aligned with regional and national programmes; and implementing investment mechanisms and policy support to improve commercial viability.

Continued innovation, monitoring, and adaptive planning will also be required to respond to evolving technologies, costs, and market conditions. Regional and local authorities have a key role in facilitating coordination between industry, network operators, and infrastructure providers, helping to deliver a long-term investment programme that supports industrial competitiveness, productivity, and energy security.

Industrial Process Loads



The map shows the spatial distribution of industrial process loads across the region, distinguishing between high-temperature processes (red pins) and low-temperature processes (grey pins).

Low-temperature processes, typically operating below 200°C are generally well suited to electrification using technologies such as electric boilers, industrial heat pumps and electric furnaces.

High-temperature processes are concentrated within a smaller number of large, energy-intensive industrial facilities where direct electrification is often more challenging. These applications are expected to require low-carbon fuels, particularly hydrogen, which offers a viable decarbonisation pathway for many industrial heat applications. However, deployment will depend on the availability of hydrogen production and distribution infrastructure, supply chain readiness and supportive policy frameworks.

Overall, the mapping highlights that while hydrogen is likely to play an important role in decarbonising a small number of high-energy industrial sites, electrification remains the primary decarbonisation pathway for the majority of industrial processes across the East Midlands.





Electrification of Private Transport

Electrification of Private Transport

Transport is the largest contributor to in-scope carbon emissions across the East Midlands.

Road transport represents the dominant source of transport-related emissions and a significant proportion of total emissions across all sectors, making it a critical priority for decarbonisation within the Regional Energy Plan. The analysis focuses on emissions from local road networks, recognising that emissions from strategic infrastructure such as motorways and rail are largely outside direct local authority control.

Road transport accounts for over 25% of energy demand in the region, with the majority currently derived from petrol and diesel. As a result, decarbonising road transport will have a material impact on both the region's energy consumption profile and its emissions. Without further intervention, only limited reductions in emissions are achieved, reflecting continued reliance on internal combustion engine vehicles and slower rates of change in travel behaviour and infrastructure provision.

The Regional Energy Plan focuses on transport interventions with the greatest implications for future energy demand and electricity infrastructure. While wider transport decarbonisation measures remain important, private vehicle electrification is expected to drive the largest increase in electricity demand and charging infrastructure requirements across the region.

Electric vehicles (EVs) represent the primary route to decarbonising road transport across the region. The transition from petrol and diesel vehicles to electric alternatives is driven by changes in technology, policy and consumer uptake. Vehicle ownership levels are assumed to remain broadly stable over time within the modelling, with potential increases from population growth offset by modal shift and changes in travel behaviour.

The analysis focuses on private vehicles because this is the component of road transport most consistently modelled within the LAEP methodology and has direct implications for future electricity demand, network capacity and charging infrastructure. Public transport, freight, logistics, fleet vehicles, workplace charging and wider transport demand measures will require separate but complementary analysis through transport strategy and delivery planning. Private cars and light vehicles account for the majority of road transport activity within the region and therefore represent the most significant source of transport-related energy demand. As a result, electrification of the private vehicle fleet is expected to have the greatest impact on future electricity demand and charging infrastructure requirements.

Transport decarbonisation requires a broader set of measures than those assessed in this Regional Energy Plan. These include reducing vehicle miles travelled, supporting modal shift towards walking, wheeling, cycling and public transport, reducing the need to travel through improved digital connectivity, and aligning transport investment with land-use and spatial planning. These wider transport measures sit outside the core LAEP modelling scope but are essential to achieving wider transport decarbonisation. They should be addressed through complementary transport planning processes, particularly the Mayor's Transport Plan, which will provide the statutory regional framework for transport strategy, including electric vehicle infrastructure and wider measures to reduce car dependency. Public transport, freight, logistics, fleet vehicles, workplace charging and wider transport demand measures will require separate but complementary analysis through transport strategy and delivery planning.

Projected EV and EV infrastructure uptake

The uptake of EVs has been modelled using the Climate Change Committee's Seventh Carbon Budget, which assumes that declining costs enable widespread adoption. Under this pathway, approximately **97.5% of cars are expected to be battery electric by 2050**, with the remaining share comprising other low- or zero-emission technologies including hydrogen fuel cell vehicles and sustainable fuels. Across the region, the scale of infrastructure required to support the transition is shown below.

The average vehicle lifespan of around 17 years means that most vehicles currently on the road will be replaced by 2050. EV uptake is therefore expected to occur primarily through the natural turnover of the vehicle fleet, with internal combustion engine vehicles phased out over time.

Local Authority	Public chargers required	Private chargers required
1A- Bassetlaw; Newark & Sherwood	6,227	98,373
1B- Gedling; Broxtowe; Rushcliffe	8,927	141,047
1C- Ashfield; Mansfield	6,054	95,641
1D- Nottingham City	16,690	131,851
1E- Erewash; South Derbyshire	5,048	79,748
1F- Amber Valley; Derbyshire Dales; High Peak	6,451	101,932
1G- Chesterfield; NE Derbyshire; Bolsover	7,353	116,171
1H- Derby City	13,393	105,805
Total	**70,143**	**870,568**

1.1m
total number of electric vehicles

70,143
publicly accessible chargers

870,568
private chargers

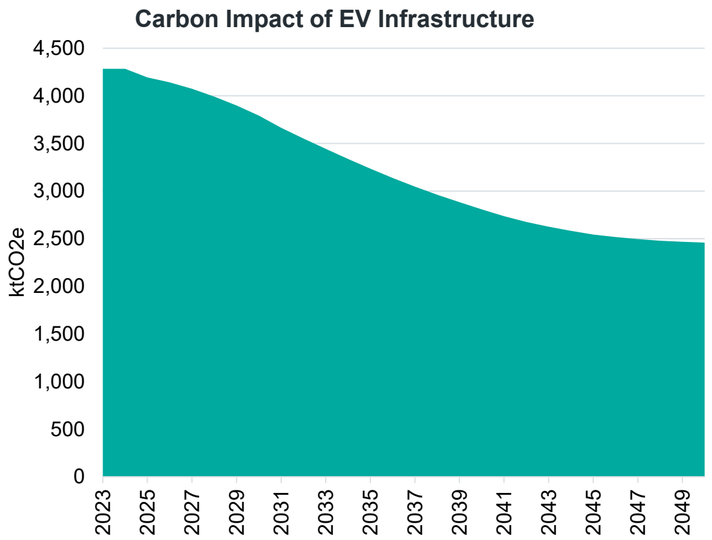


Electrification of Private Transport (cont.)

Across the East Midlands, widespread EV uptake is expected to deliver a substantial reduction in transport emissions, forming a key component of the regional net zero pathway. Given the scale of transport emissions within the region, the shift to electric vehicles represents a material contribution to overall decarbonisation, with further reductions expected as public, commercial and freight vehicles transition.

Analysis indicates that the electrification of private vehicles alone is projected to deliver a **43% reduction in transport-related emissions** across the region from the 2023 baseline, equating to a reduction of over 1.8 $MtCO_2e$. This reflects the decarbonisation of privately owned vehicles only and excludes additional emissions reductions that may be achieved through the electrification of buses, freight and commercial fleets, as well as wider transport interventions such as modal shift and demand reduction.

The results reflect abated emissions across the private vehicle fleet and are driven by two primary factors: increased uptake of electric vehicles and the ongoing decarbonisation of the electricity grid. Under the 2040 and 2050 scenarios, average emissions per vehicle are projected to fall to 59 $kgCO_2$/year and 46 $kgCO_2$/year respectively, from 1,641 $kgCO_2$/year in 2025. The slightly higher emissions intensity in the 2040 scenario reflects the higher assumed electricity grid carbon intensity compared with 2050.



Key Challenges

Barriers to EV adoption across the East Midlands relate primarily to charging accessibility, cost, and delivery at scale. While national policy is addressing some drivers, such as vehicle cost parity and phase-out of internal combustion engines, local factors will continue to influence the pace and distribution of uptake.

For most of the vehicle fleet, EV uptake is expected to occur through natural vehicle replacement over time. However, the transition is dependent on the availability of charging infrastructure, particularly for households without access to private charging.

Provision of public charging infrastructure across the region is uneven. Some areas perform strongly and are well-served relative to national benchmarks, particularly in urban centres, while other locations, including more rural and constrained areas, have more limited provision. Differences in settlement pattern, network capacity and demand mean that charging solutions will vary across the region, with rural areas likely to require a different mix of infrastructure compared to suburban and urban locations.

Access to convenient and affordable charging remains a key constraint for households without off-street parking. In these locations, reliance on public or shared infrastructure is higher, placing greater importance on the availability and distribution of local charging provision. Without targeted intervention, there is a risk that the transition reinforces existing inequalities in access to low-carbon transport.

The rollout of charging infrastructure will need to be coordinated with electricity network capacity and local delivery capability. Increasing electricity demand from EV uptake will require close collaboration with DNOs, alongside sufficient local authority capacity to plan, procure and deliver infrastructure at scale.

Areas with high projected EV uptake or existing electricity network constraints may require targeted reinforcement, flexibility services, battery storage and smart charging solutions to accommodate future demand efficiently and minimise system costs.

What needs to happen

Improving access to charging for households without off-street parking is a critical priority for the region. This will require a mix of public charging provision, on-street solutions and innovative delivery approaches such as cross-pavement infrastructure, with deployment targeted to areas of greatest need.

Delivery of EV infrastructure should be coordinated with the Mayor's Transport Plan, which provides the statutory framework for transport strategy across the East Midlands. This includes electric vehicle infrastructure alongside wider measures to support public transport, active travel, improved connectivity and reduced car dependency.

The East Midlands has a strong foundation for scaling EV infrastructure deployment, with a number of programmes already underway. The public charging network has established an extensive base of publicly accessible charging hubs across the region. This is being built upon through the Local Electric Vehicle Infrastructure (LEVI) programme, which will support the delivery of a significant expansion of residential charge points. This programme is helping to address key barriers to EV adoption, improve access to charging infrastructure, and provide a platform for wider deployment.

Public and rapid charging infrastructure should be strategically deployed to complement this rollout, supporting uptake in areas with limited private charging, enabling high-mileage users and commercial fleets, and ensuring that infrastructure provision reflects local demand and network capacity. A coordinated regional approach will be required to align local authorities, network operators and delivery partners. Infrastructure deployment should also consider the future requirements of freight, logistics, commercial fleets and public transport, recognising that these sectors have different operational, charging and network requirements to private vehicles.

Targeted financial support may support uptake in specific cases, particularly for priority user groups or fleet applications. However, the primary focus of regional intervention is on enabling infrastructure and creating the conditions for market-led adoption, rather than subsidising widespread private vehicle purchase.

Delivering EV infrastructure at the scale required will depend on coordinated regional delivery, clear prioritisation and alignment with existing programmes and funding streams. Infrastructure rollout should be informed by local context, including variations in settlement pattern, demand and network capacity, and sequenced to maximise impact and value for money. Ongoing delivery programmes across the region provide an important foundation, but scaling these approaches will require continued coordination between local authorities, EMCCA, network operators and delivery partners, alongside sustained investment and clear governance arrangements.



Local Generation

Local Generation

Local energy generation is a key lever for improving affordability, resilience and energy security across the East Midlands. With dispersed settlements, a strong industrial and logistics base, and increasing electricity demand driven by electrification, locally sited renewable generation provides a cost-effective way to meet growth while reducing reliance on national markets and transmission infrastructure.

Across the East Midlands, electricity demand is primarily met through the national electricity grid, while heat demand continues to be largely supplied by the gas network. As a result, the majority of energy consumed across the region is sourced externally, with comparatively limited local generation currently in operation.

Available regional datasets provide an indication of the current distribution of renewable generation technologies across the East Midlands. Solar photovoltaic (PV) forms the largest component of the deployed renewable generation mix, alongside smaller contributions from onshore wind and energy-from-waste facilities. Together, these assets demonstrate the increasingly decentralised nature of electricity generation across the region and the growing role of local energy resources in supporting the transition to net zero.

While overall deployment remains modest relative to regional demand, recent trends indicate steady growth in small-scale generation, particularly rooftop solar PV. Uptake has been increasing across both domestic and non-domestic sectors, supported by falling technology costs and improved accessibility, although deployment remains below the scale required to materially offset regional electricity demand.

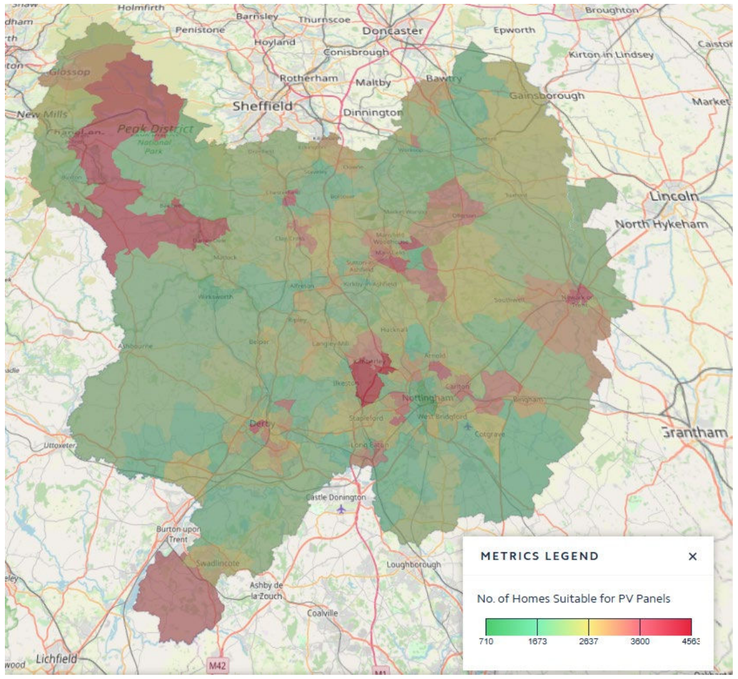
At a regional scale, there is significant potential for distributed generation, particularly rooftop solar, which enables households and businesses to reduce electricity costs and participate directly in the energy transition.

Rooftop solar PV potential

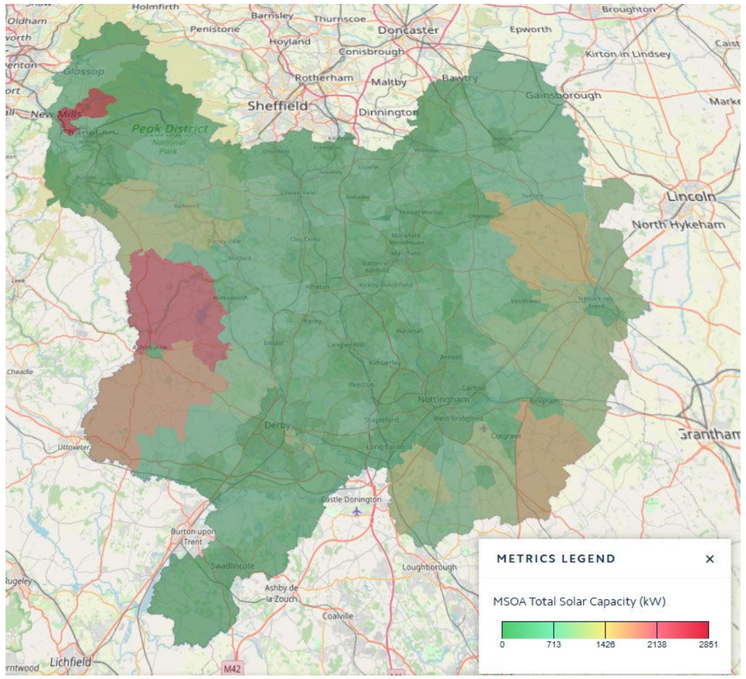
Rooftop solar PV represents one of the most accessible and scalable opportunities across the region, with an estimated **2,259 GWh** of potential annual generation, comprising **1,546 GWh** from domestic buildings and **713 GWh** from non-domestic buildings. Rooftop solar PV enables households and businesses to directly reduce electricity bills, increase energy security and participate in local decarbonisation. When combined with batteries, smart tariffs and flexibility services, rooftop PV can also support the wider electricity system by reducing peak demand and increasing self-consumption. At scale, coordinated deployment can improve affordability for households and businesses, reduce fuel poverty, and contribute meaningfully to managing regional electricity demand growth.

Modelling assesses the maximum technical potential for rooftop solar PV by assuming deployment across all suitable domestic and non-domestic buildings. This provides an upper bound of generation capacity, recognising that actual deployment will be lower in practice due to constraints such as asset ownership, financing, roof suitability, and wider practical and commercial considerations.

Number of homes suitable for PV



Total solar capacity by MSOA (kW)



Local Generation

Role of local generation in the energy system

Local generation plays an important role in supporting the wider energy system, particularly as demand increases through electrification of heat, transport and industry.

The East Midlands benefits from an extensive distribution network, active flexibility markets and a strong base of industrial and energy demand. Integrating local generation with storage and flexible demand provides an opportunity to optimise system performance, reduce network constraints and limit the need for costly reinforcement.

Coordinated planning across generation, demand and flexibility is therefore critical to enabling a lower-cost transition.

Delivering at scale

Looking at the opportunity at a regional scale enables a coordinated approach to delivery. By aggregating project pipelines across the eight LAEPs, EMCCA can act as a strategic interface with national programmes such as Great British Energy (GBE), supporting the development of regional programmes and investment opportunities.

This includes coordinating local authority, community and public-sector projects to unlock funding under initiatives such as the Local Power Plan and increase local and community ownership of energy assets.

Regional coordination also supports alignment with network planning, improves investment certainty and enables scalable delivery across the region.

Rooftop solar PV represents a particularly important opportunity within LAEPs, enabling households and businesses to directly reduce electricity bills, increase energy security and participate in local decarbonisation. When combined with batteries, smart tariffs and flexibility services, rooftop PV can also support the wider electricity system by reducing peak demand and increasing self-consumption. At scale, coordinated deployment can improve affordability for households and businesses, reduce fuel poverty, and contribute meaningfully to managing regional electricity demand growth.

Community energy

Community energy projects are developed, owned and operated by community-based organisations for local benefit, with financial and social value retained within the local area. These projects are usually distributed in nature and can include technologies such as solar PV, small wind, local heat networks, and energy efficiency upgrades, with benefits retained within the local area.

How can Community Energy support the Regional Plan?

Community energy plays a complementary role to large-scale renewable deployment by helping to unlock small- to medium-scale generation, particularly rooftop solar on schools, community buildings and third-sector assets that may not otherwise be prioritised through commercial routes. These projects can support local demand reduction, local balancing and public acceptance of renewable infrastructure, while contributing to a just and inclusive transition by directing benefits to local residents and organisations.

Community energy can also support flexibility and local energy management, enabling better alignment between generation, demand and storage at neighbourhood scale. National energy strategies highlight the increasing importance of consumer-led flexibility, with significant growth in residential demand-side participation required over the coming decade. Community energy initiatives can contribute to this through coordinated deployment of rooftop solar, batteries and vehicle-to-grid solutions, supporting participation in flexibility markets.

In practice, delivery will depend on access to suitable sites, viable financing models, and coordination with network operators and delivery partners. Regulatory and market barriers, including the ability to aggregate distributed assets and participate in energy markets, will need to be addressed to enable projects to scale effectively.

At a regional level, coordinated LAEP delivery provides an opportunity to support community energy through programme-level development, shared learning and investment alignment. By aggregating opportunities across local authority areas, EMCCA can facilitate engagement with national initiatives and funding mechanisms, helping to scale delivery, build local capability, and ensure that the benefits of the energy transition are shared more widely across communities.

Local authorities should:

1. Engage with communities on the implications of increased renewable development, particularly where projects may cluster or overlap at a regional or sub-regional scale.
2. Ensure that the evidence base remains up to date on landscape, ecology, heritage and amenity, particularly where renewable development pressures may concentrate across multiple neighbouring authority areas.
3. Support and encourage community-benefit and locally delivered renewable schemes where appropriate, ensuring that opportunities for local ownership and participation are considered alongside larger-scale deployment.



In Action: Derbyshire Dales Community Energy

Derbyshire Dales Community Energy (DDCE) is a community benefit society based in the Derbyshire Dales that develops local renewable energy and carbon reduction projects, retaining financial and social benefits within the communities it serves.

Alongside delivering and supporting solar photovoltaic (PV) and other low carbon installations, DDCE provides practical advice and guidance to support residents, community organisations and local authorities in progressing projects. This includes support across early feasibility, governance structures, funding routes and delivery partnerships

DDCE also plays a role in channelling investment into local action through community benefit activities and grant funding. It supports a wider network of community energy groups across Derbyshire through a hub-style model, enabling coordination, peer learning and access to shared resources.

Through this combination of project delivery, funded support and ongoing engagement, DDCE strengthens local capacity to develop investable community energy projects, improves access to trusted advice, and contributes to Derbyshire's wider decarbonisation and affordability objectives.



Electrical Networks

Electrical Network

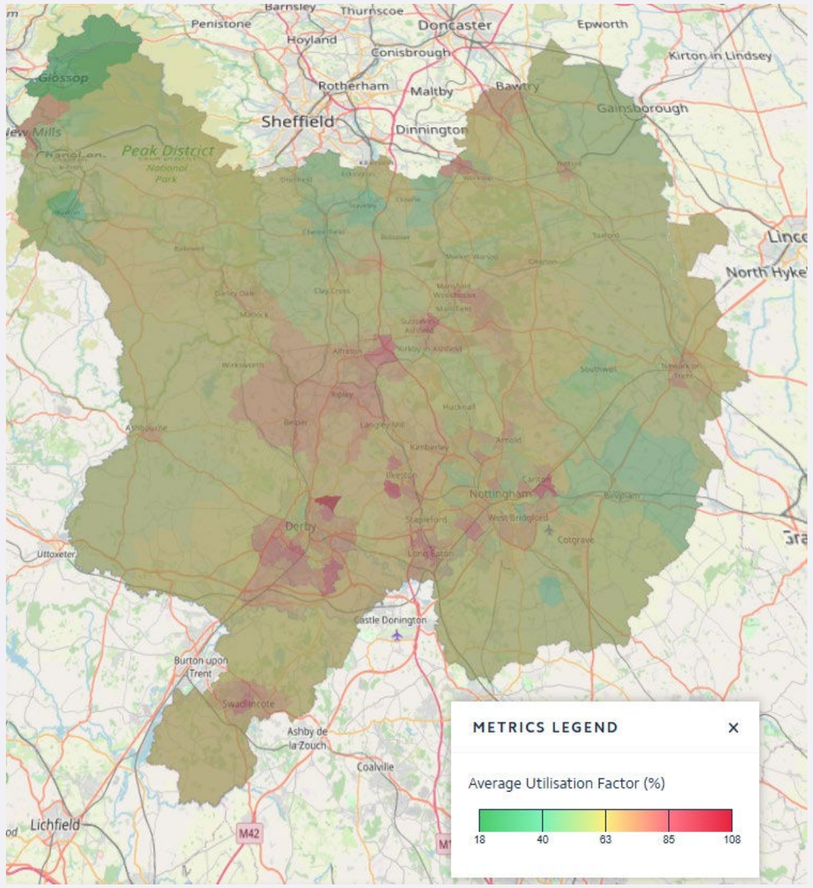
Across the region, electricity is supplied from the national transmission system into local distribution networks operated principally by National Grid Electricity Distribution, with some parts of the wider regional geography also interfacing with Northern Powergrid and Electricity Northwest. These operators are responsible for maintaining substations, cables and overhead lines, and for facilitating connections for new demand and generation.

The existing electricity network was largely designed around a centralised energy system with relatively stable demand profiles. As a result, capacity is already constrained in a number of locations, particularly at primary substations and in MSOAs where future electricity demand is expected to cluster. This is evidenced by high utilisation factors at secondary substations and constrained headroom across a number of urban and peri-urban areas, as shown in the maps included.

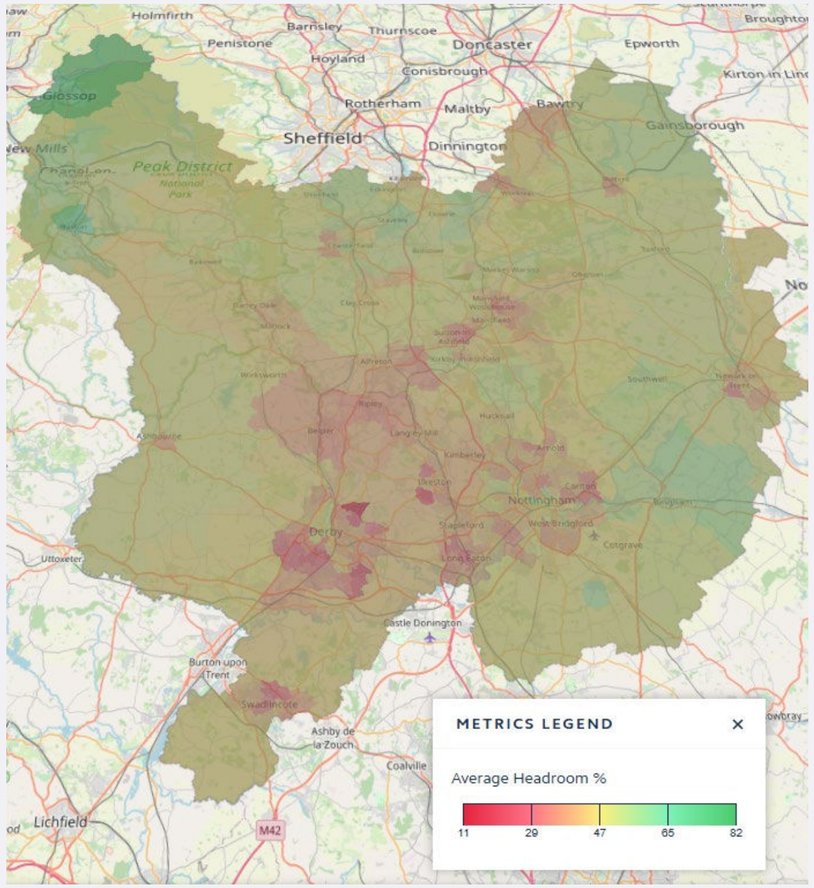
Average Utilisation Factor (%) and Network Headroom (%) maps highlight that network constraints are spatially uneven, with higher utilisation and lower headroom concentrated in key demand centres and growth corridors. These areas are likely to experience earlier and more acute capacity constraints under electrification pathways.



Average Utilisation Factor (%)



Average Demand Headroom per MSOA (%)



Electrical Network

The transition to a low-carbon energy system across the region is expected to result in a significant increase in electricity demand, driven by the electrification of heat, transport and industry. Under counterfactual conditions, demand growth is relatively modest, reflecting slower uptake of electric vehicles, limited deployment of low-carbon heating and continued reliance on fossil fuels. However, under net zero-aligned scenarios, demand increases rapidly from the late 2020s onwards as electrification accelerates.

At a regional level, modelling indicates that peak electricity demand could increase by around 8 GW by 2050. The largest contributors are heat pumps, EV charging and the electrification of industrial processes. After Diversity Maximum Demand (ADMD) refers to the estimated peak electricity demand on a network after applying diversity factors, reflecting the likelihood that not all connected loads operate at full capacity simultaneously. It is used as a key metric to assess network capacity requirements and infrastructure impacts. As shown in the ADMD table and the regional ADMD increase figure, all net zero-aligned scenarios result in substantial increases in peak electricity demand, with sharp growth emerging from the early 2030s onwards as electrification accelerates. The ADMD table quantifies the scale of additional peak demand (in MW) across scenarios, while the regional demand curve shows when these increases materialise. Together, these demonstrate that projected demand growth exceeds the capacity of the existing network in many areas.

This increase is spatially uneven. The greatest rises in ADMD are expected in areas of housing growth, urban centres, locations with high uptake of EVs and heat pumps, and industrial or commercial corridors. As a result, pressure on the network will be concentrated at specific substations and feeders rather than evenly distributed. In these locations, existing capacity is often limited, and additional demand may push parts of the system into negative headroom, where forecast demand exceeds available capacity. This creates a risk that new connections cannot be accommodated without reinforcement or demand management and may delay the rollout of key technologies or increase connection costs.

The mapped headroom data identifies priority ‘pinch points’ where reinforcement or flexibility interventions will be required to enable electrification at scale. Conversely, areas with higher available headroom represent opportunities for early deployment of electrification measures with lower network risk.

Managing these impacts will require a coordinated approach combining targeted network reinforcement with flexibility solutions, including storage, smart charging and demand-side response, to reduce peak demand and improve utilisation of existing assets. In practice, areas with high utilisation and low headroom should prioritise flexibility-led solutions (e.g. demand-side response, battery storage and smart EV charging) to defer reinforcement, while areas with higher headroom can support earlier deployment of electrification measures.

This reinforces the need for early and coordinated engagement with network operators so that infrastructure planning aligns with projected demand growth. A regional approach should prioritise reinforcement in high-growth areas, supported by better alignment with housing development, EV infrastructure rollout, industrial transition and local energy generation programmes, alongside increased use of flexibility to defer or avoid reinforcement where possible.

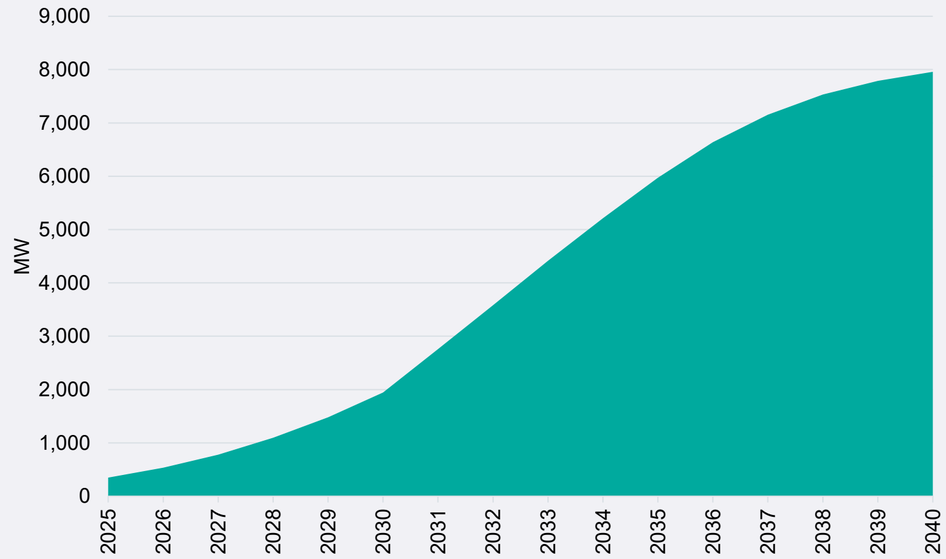
Ongoing engagement mechanisms (e.g. coordinated connection planning, DNO workshops and regional grid forums) will be required to align project delivery pipelines with network capacity and reinforcement timelines.



Estimated increase in ADMD across the region attributable to adoption of low carbon technologies (EV charging and ASHPs)

Scenario	2030	2035	2040	2050	Annualised Growth (MW)
Net Zero by 2040	1,943	5,971	7,959		507
Net Zero by 2050	1,750	3,732	5,901	7,959	305

Regional ADMD increase in the 2040 scenario (MW)





Economic Assessment

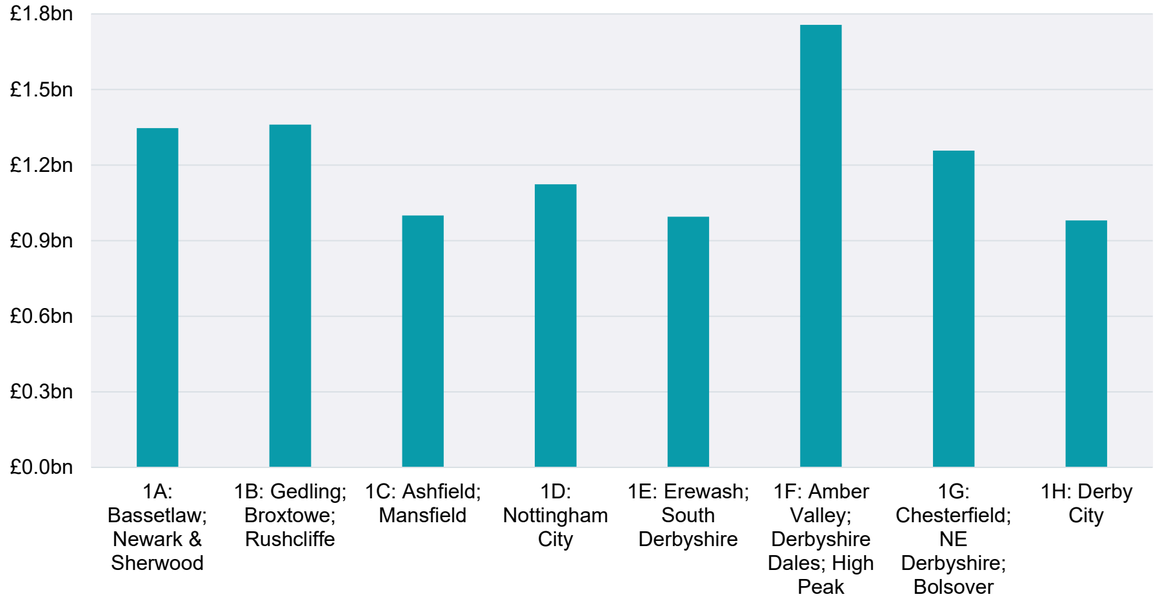
Economic Benefits

Substantial economic and environmental value is delivered across the region based on an assessment of the impact of decarbonisation investment to 2050. Benefits are realised through sustained reductions in carbon emissions, estimated energy cost savings ('bill savings'), and strong economic activity (Gross Value Added) over the 2030s and 2040s driven by investment in low-carbon infrastructure and supply chains.

Carbon savings increase rapidly through the 2030s as key interventions scale up, while estimated energy cost savings ('bill impacts') show a net reduction over the long term as improved efficiency and renewable generation create net bill savings.

These results are based on the preferred scenario selected for each local authority area, reflecting a regionally aggregated pathway that supports growth while lowering costs and emissions.

Valuation of carbon impacts, preferred scenario vs counterfactual, £m 2025, discounted



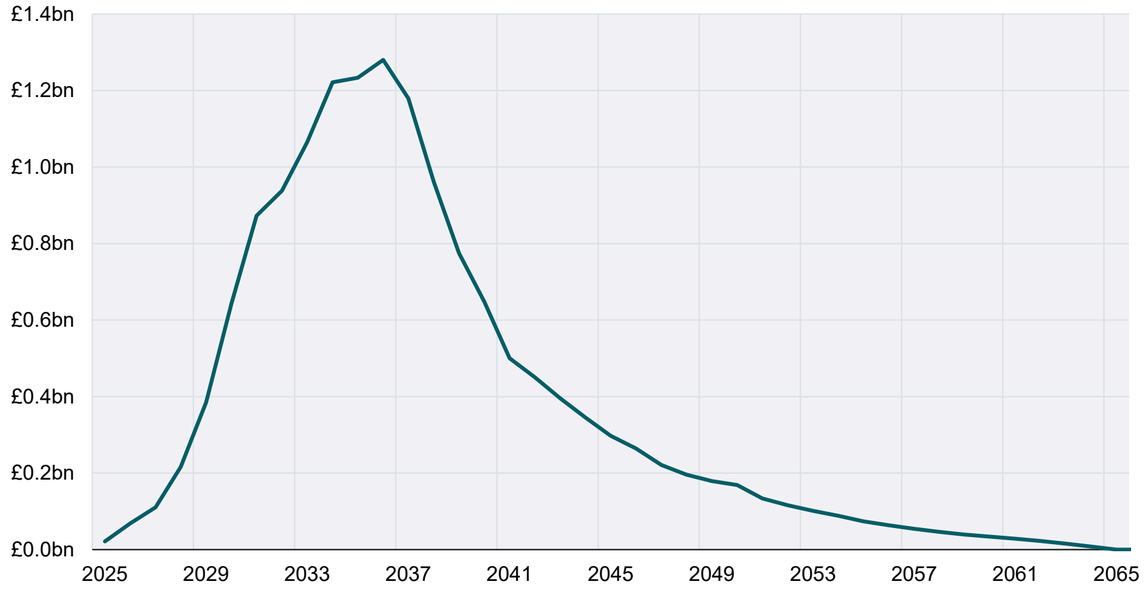
Carbon savings represent a significant benefit across all regions under the preferred scenario. The value of avoided carbon emissions ranges from approximately £1.0 billion to £1.8 billion relative to the counterfactual. 1F achieves the greatest savings with around £1.8bn in carbon savings.

Up to **£6bn** of additional carbon benefits could be achieved through EV adoption enabled by charging infrastructure. These benefits are excluded from the core results due to uncertainty around future EV uptake.

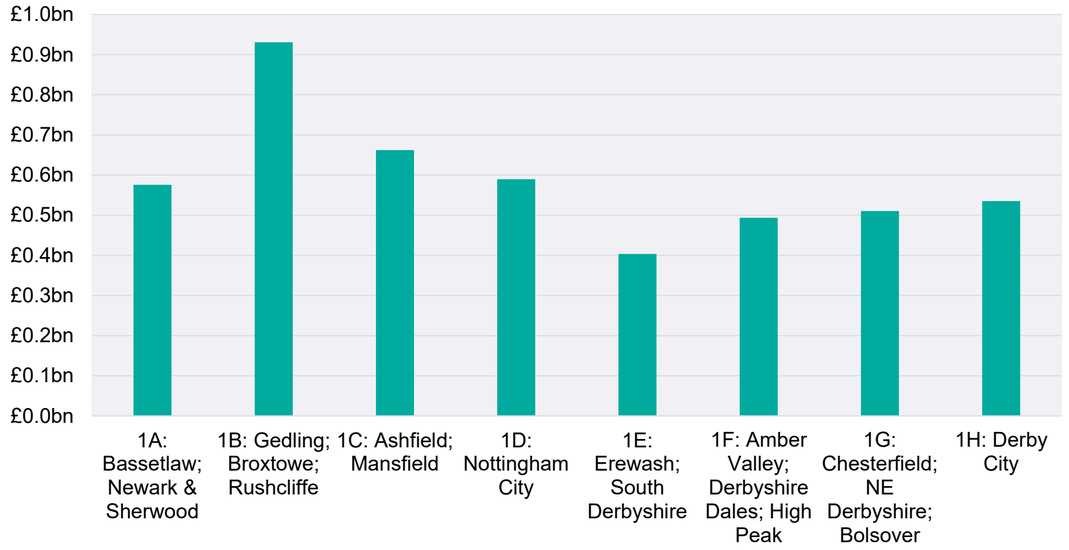
Economic Benefits

Bill savings are expected across all regions, generating discounted savings of approximately £0.4bn–£0.9bn relative to the counterfactual. Area 1B achieves the largest bill savings, while all areas benefit from lower energy costs resulting from the transition to low-carbon technologies.

GVA, 2025 to 2065, preferred scenario vs counterfactual, £bn 2025, undiscounted



Savings on bills, preferred scenario vs counterfactual, £m 2025, discounted



The rollout of low-carbon technologies and infrastructure supports substantial employment and supply chain activity. The associated economic output peaks at around £1.3bn per year in the mid-2030s before gradually reducing as the transition is completed.

£512 million in air quality benefits could be realised across the region under the preferred scenario.

Delivering the Transition

The undiscounted capital cost for the most preferred scenario is £38.6 billion (in today's prices). This reflects the total estimated cash cost to deliver the infrastructure and assets before inflation or financing effects.

The LAEP programme indicates how these costs may be funded under current market conditions. A significant share is expected to be met through national and regional funding, reducing the direct burden on local authorities and communities.

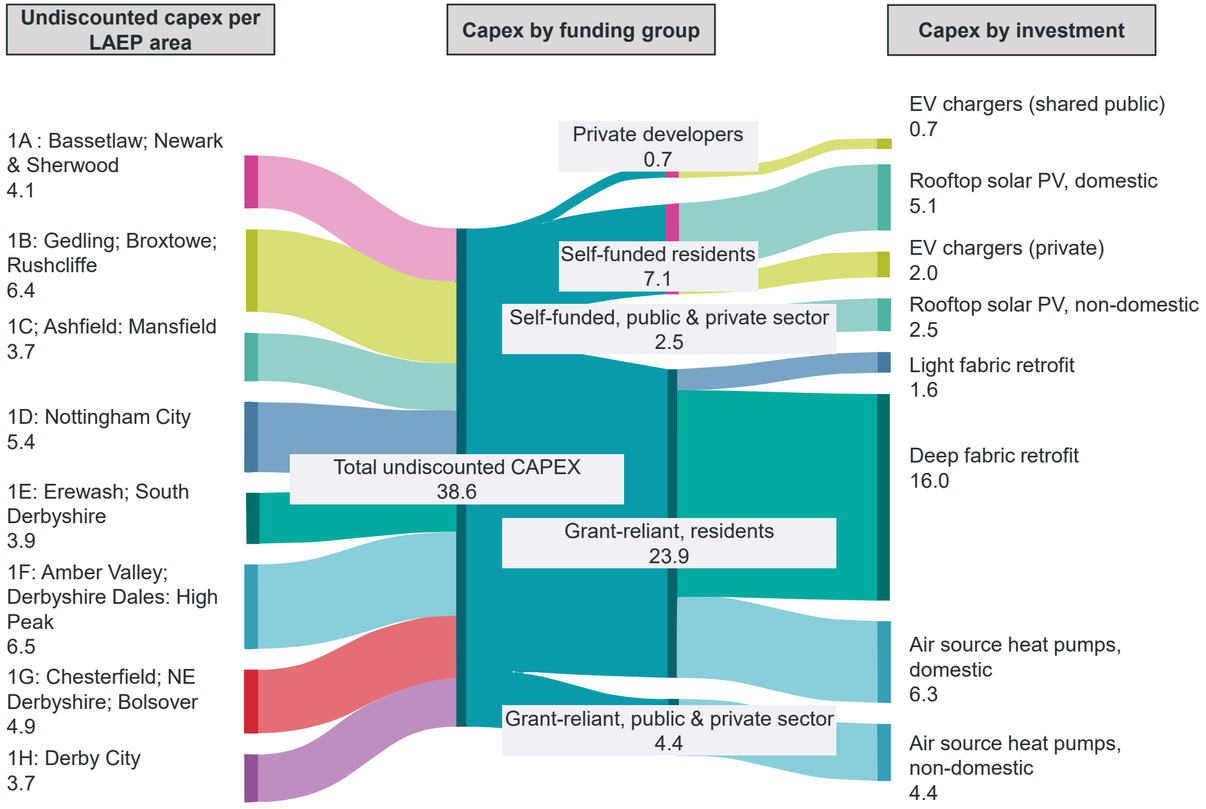
Delivery of net zero will be driven by a mix of commercial viability, asset ownership and policy support. In practice, this results in three broad funding routes:

- **Private investment**: Some measures are commercially viable and attractive to investors and can be delivered without public funding. In the Regional Energy Plan, this applies to EV charging infrastructure.
- **Self-funded delivery**: Some measures are financially attractive to households and businesses, such as rooftop solar and private EV charging. However, uptake depends on the ability and willingness to invest, so gaps may remain without targeted support. Tailored support (e.g. grants) is still required in some contexts.
- **Public funding**: Other interventions, particularly building retrofit and low carbon heating, are capital-intensive with weaker short-term returns and will continue to rely on public funding.

The Regional Energy Plan supports a coordinated approach to developing investment programmes aligned with national funding and infrastructure priorities. Aggregating opportunities across the eight LAEPs strengthens access to funding, improves alignment with network planning, and reduces fragmentation.

Overall, delivery will require a blended funding model combining private capital, household and business investment, and sustained public support.

Who might pay for what (undiscounted CAPEX, preferred scenario vs counterfactual) (£ billion)



Discounted capital investment totals **£27.3bn** across the region to deliver the identified benefits, above a baseline investment of **£5.7bn** assumed in any scenario. Undiscounted CAPEX represents the total amount spent over the programme, while discounted CAPEX expresses future expenditure in today's values. The discounted value of investment is used in the economic assessment to enable comparison with other discounted costs and benefits. All costs and benefits are presented in 2025 prices, with inflation excluded throughout the analysis.

Options to Pay for The Investment

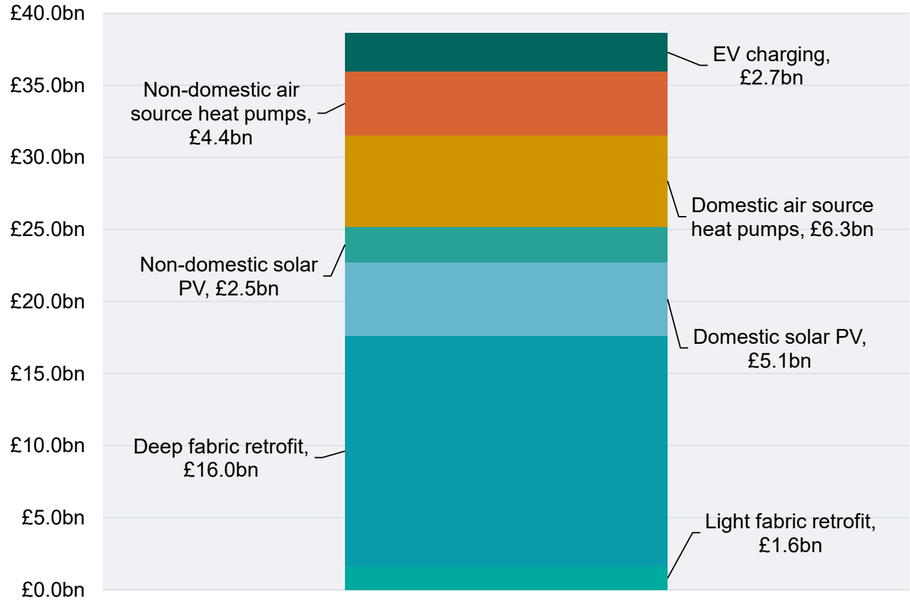
There are four broad routes to paying for the capital investment. First, non-repayable funding (e.g. grants) are suitable where projects are not commercially viable on their own. Second, repayable finance can be applied where future revenues or savings can support borrowing. Third, third-party delivery can reduce the council's upfront costs and transfer risk. Finally, councils can play an enabling role by helping businesses and residents invest directly through mechanisms such as group purchasing, loan funds and supplier coordination.

The options for capital investment are evolving to respond to the demands and constraints of the public sector, businesses and residents. Key routes are highlighted below, and the public sector will have an important role to work with financial institutions and suppliers to secure grants and best value financing, run pilots for financing innovations and sign-post funding and financing opportunities to businesses and residents.

Key funding and financing options for capital investment

Non-repayable funding	Repayable finance	Third-party delivery	Council enabling role
Great British Energy Community Fund *grants to support feasibility and development of community energy projects*	**Public Works Loan Board** *government lending to councils for capital infrastructure projects*	**Concession agreements** *private sector finances, delivers and operates assets under contract*	**Accredited supplier lists** *improve access to trusted providers and build market confidence*
Section 106 *developer contributions to fund local infrastructure linked to new developments*	**Green bonds** *bonds issued to raise finance for environmentally beneficial projects*	**Heat as a Service** *customers pay for heating outcomes rather than units of energy*	**Revolving loan funds** *low-cost loans recycled to support ongoing investment*
Boiler Upgrade Scheme (BUS) *grants to support installation of low-carbon heating systems*	**Community share offers** *local investment model enabling community ownership of projects*	**Pay As You Save** *upfront costs repaid over time through energy bill savings*	**Group purchasing** *collective buying to reduce costs of low-carbon technologies*

CAPEX, preferred scenario vs counterfactual, £bn 2025, undiscounted



Intervention	CAPEX, preferred scenario vs counterfactual, £bn, 2025, undiscounted
Light fabric retrofit	1.6
Deep fabric retrofit	16.0
Domestic solar PV	5.1
Non-domestic solar PV	2.5
Domestic air source heat pumps	6.3
Non-domestic air source heat pumps	4.4
EV charging	2.7
Total	**38.7**



Regional Delivery and Implementation Plan

Regional Project Prioritisation

Given the scale of transformation required, Local Authorities identified their priorities in order to determine the nature of early focus projects. It is important that the Local Authorities focus their efforts in areas where they have a reasonable level of control or influence. Across the board, three areas emerged as common priorities.

1. **Reducing fuel poverty**

   Ensures that early delivery focuses on households most exposed to high energy costs, delivering immediate social benefits while supporting a just transition to net zero

2. **Utilising accessible funding**

   Increases the likelihood of near-term delivery by reducing financial barriers and enabling councils and partners to act quickly and at scale

3. **Aligning with grid capacity**

   Helps ensure short-term interventions are deliverable without delay, while giving network operators time to plan and coordinate reinforcement for future phases

The areas for focus in the near-term have therefore been identified, with some variation across Local Authorities to account for the local context.

Fuel-poverty-led housing retrofit

An area-based, fabric-first retrofit approach targeting domestic buildings with low EPC ratings and high levels of fuel poverty, prioritising interventions that deliver immediate social benefits and support a just transition.

Owner-occupied retrofit enablement

A targeted programme focusing on areas with significant opportunity for light retrofit in owner-occupied housing, supported through engagement, advice, and access to finance mechanisms to enable delivery.

Domestic heat pump acceleration programme

An area-based delivery programme for the rollout of domestic heat pumps, prioritised in locations with available grid capacity and supported by targeted engagement to facilitate uptake.

On-street EV charging rollout

A targeted deployment of on-street electric vehicle charging infrastructure in areas with limited access to off-street parking, aligned with local electricity network capacity and leveraging available grant funding (e.g. LEVI).

Public estate and community buildings solar PV

A coordinated programme of solar PV deployment across public estate and community buildings, led by local authorities and community organisations to support local generation and decarbonisation objectives.



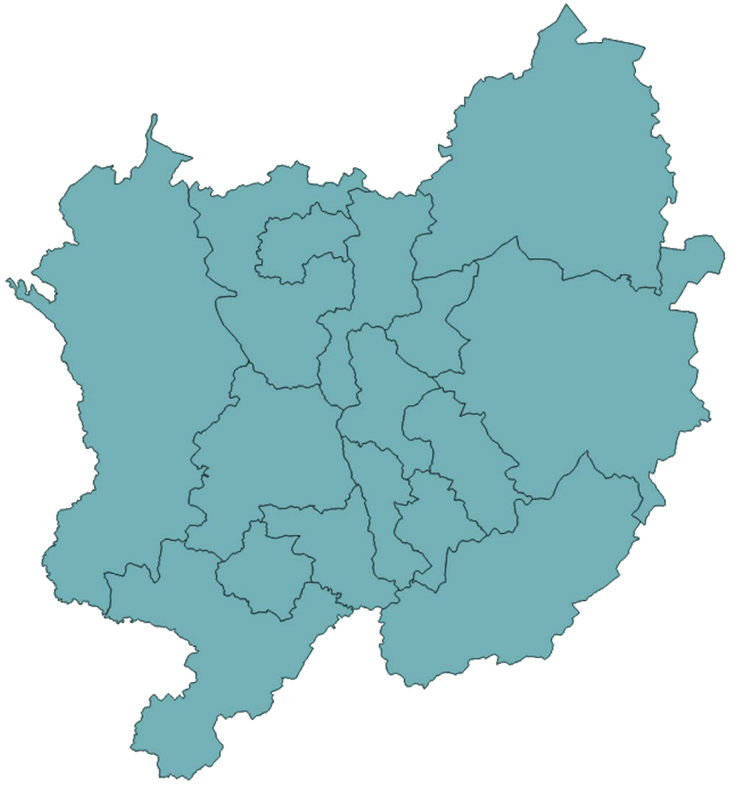
Alongside these tangible interventions that can constitute the first steps of delivery towards the at-scale transformation, enablers for the wider uptake of interventions and longer-term delivery are also identified. These are discussed further in the next chapter, which focuses on the opportunity for collaboration at the regional level to uplift the efficacy and impact of the transformation. This section therefore establishes the bridge between technical analysis and delivery-focused action across the region.

Regional Plan on a Page

Indicative delivery pathway aligned to modelled intervention volumes.

A summary of the key infrastructure needs for the recommended pathway is shown here, primarily focused on mature technologies only.

Further explanation on the pathways considered is provided within this section.



£27.3bn **Discounted capital investment across the region**

2,355 GWh potential annual generation from rooftop PV

72,836 publicly accessible chargers*

870,568 private accessible chargers*

1.1 million Private EV cars

371,985 light retrofits required

415,748 deep retrofits required

809,583 heat pumps installed in domestic buildings

50,656 heat network domestic connections

26,741 heat pumps installed in non-domestic buildings

2,400 GWh additional annual electricity demand in 2050 from electrification of existing low temperature processes

2,300 GWh potential annual industrial hydrogen demand in 2050 from conversion of existing high temperature processes

Priority Projects

Action 1: Fuel-poverty-led housing retrofit

An area-based, fabric-first retrofit approach targeting domestic buildings with low EPC ratings and high levels of fuel poverty. The programme prioritises interventions that deliver immediate social benefits and support a just transition.

Convening Lead
EMCCA, Midlands Net Zero Hub

Collaborators
Local Authorities, Housing Associations, Local Installers

Funding availability
Warm Homes: Social Housing Fund Wave 3.

Grid readiness
No material electricity network impact anticipated, as measures are primarily fabric-based.

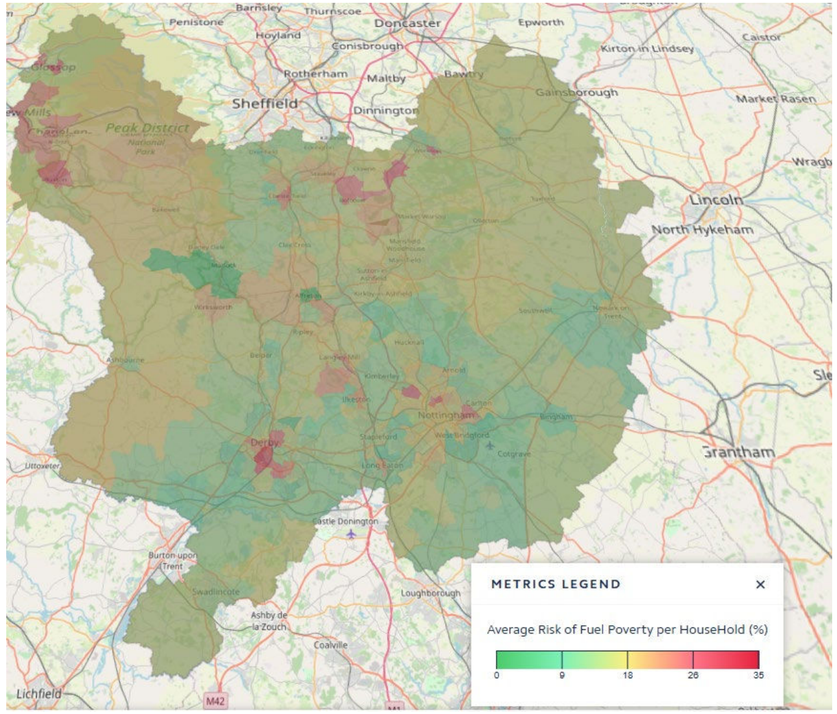
Risks & Dependencies
Insufficient funding availability. Shortage of competent and accredited installers.

Co-Benefits
Reduces fuel poverty and improves health outcomes.

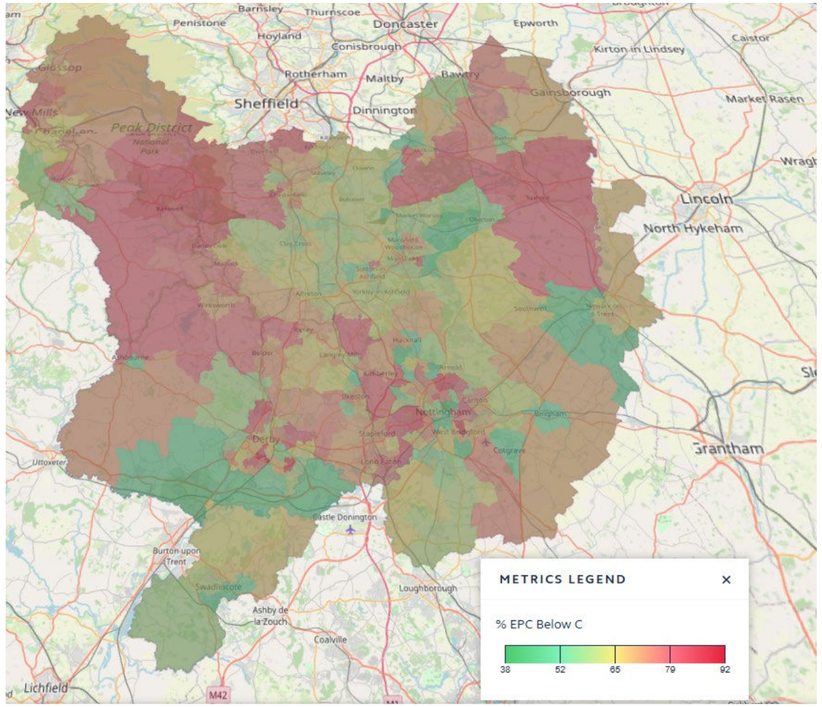
Short-term deliverability
Alignment with existing council programmes and scheduled works, enabling delivery alongside planned maintenance and regeneration activity.

Prioritised focus areas
MSOAs selected based on the concentration of suitable properties below EPC C and high levels of fuel poverty, supporting progress towards MEES compliance by 2030.

Average risk of fuel poverty for households per MSOA



Properties below EPC rating C per MSOA



The map presented (on the left) show the spatial distribution of fuel poverty within the region is uneven. This disparity underscores the urgent need for targeted interventions that address energy affordability and thermal comfort. Targeting retrofit programmes in high-priority zones delivers substantial benefits. Fabric-first measures such as improved insulation, airtightness and glazing, reduce heat loss, lower energy bills and enhance indoor comfort. These interventions also provide important social co-benefits, including reducing fuel poverty, improving health outcomes and easing financial pressures on vulnerable households. Further prioritisation within high fuel poverty areas can be achieved by focusing on properties with Energy Performance Certificate (EPC) ratings below C. The spatial distribution of these properties across the area is shown in the maps presented on the right. While local authorities have greater influence over housing association stock, much of the social housing in the region is managed by independent providers, which may affect delivery approaches.

Priority Projects

Action 2: Private Homes - Fabric Improvements (Owner-occupied and Private Rented)

A targeted programme focusing on areas with significant opportunity for light retrofit in owner-occupied housing, supported through engagement, advice, and access to finance mechanisms to enable delivery. The aim to reduce heat demand, improve comfort, and enable future low-carbon heat deployment. The project focuses on properties where basic insulation measures can be delivered without major structural intervention.

Convening Lead
EMCCA, Midlands Net Zero Hub

Collaborators
Local Authorities, Housing Associations, Local Installers

Funding availability
Warm Homes funding and successor schemes, including targeted support for low-income households and EPC C properties; regulatory drivers within the private rented sector also support uptake.

Grid readiness
No material electricity network impact anticipated, as measures are primarily fabric-based.

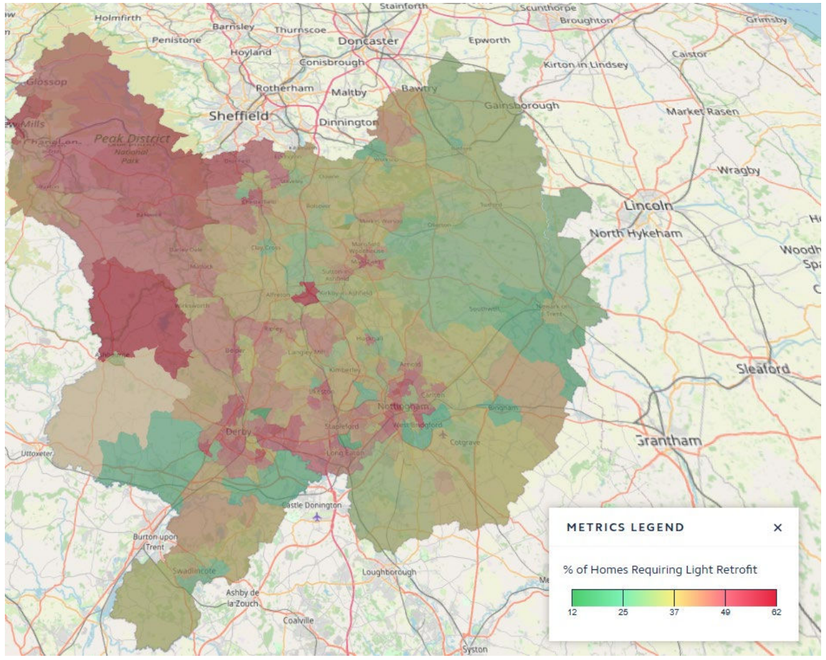
Risks & Dependencies
Homeowner uptake risk where retrofit measures rely on discretionary investment and require sufficient financial incentives, accessible funding, and trusted advice to drive participation.

Co-Benefits
Reduces fuel poverty and improves health outcomes.

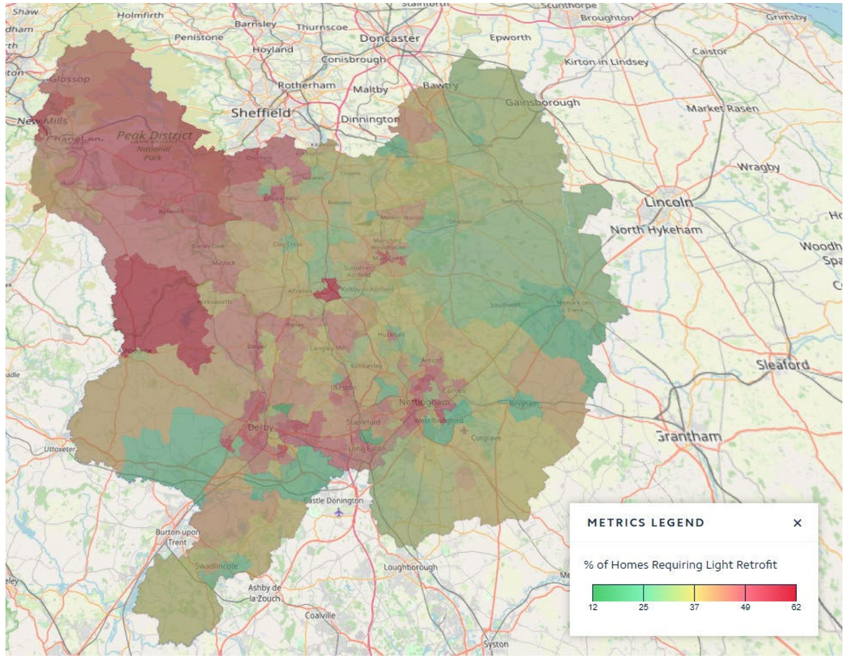
Short-term deliverability
Delivery enabled through existing advice services, grant funding, and enforcement mechanisms, with potential for one-stop-shop delivery models.

Prioritised focus areas
Areas with a high concentration of homes below EPCC.

Percentage of homes requiring light retrofits



Percentage of homes requiring deep retrofits



The maps presented highlight the spatial distribution of retrofit need across the region, distinguishing between areas where light retrofit measures are most appropriate and readily deliverable, and those where deeper interventions will be required over time. In the near term, the focus is on locations with a high concentration of homes suitable for light retrofit, where measures such as loft insulation, cavity wall insulation and draught-proofing can be delivered without major structural intervention, enabling faster rollout and higher uptake. This approach supports early progress by aligning with available funding mechanisms, including Warm Homes and successor schemes, as well as regulatory drivers within the private rented sector. As the measures are primarily fabric-based, no significant electricity network impacts are anticipated, meaning delivery can proceed without reliance on grid reinforcement in the short term.

Priority Projects

Action 3: Domestic Heat Pump Deployment

An area-based delivery programme for domestic heat pumps, prioritised in locations with available grid capacity and supported by targeted engagement to enable uptake. The programme targets properties assessed as technically suitable for heat pumps.

Convening Lead
EMCCA

Collaborators
Local Authorities, Housing Associations, Local Installers

Funding availability
Boiler Upgrade Scheme and successor national support mechanisms, alongside potential local or regional contributions.

Grid readiness
Requires consideration of local electricity network constraints; deployment should be prioritised where impacts can be managed within existing or planned capacity.

Risks & Dependencies
Insufficient funding availability. Shortage of competent and accredited installers.

Co-Benefits
Reduces fuel poverty and improves health outcomes.

Short-term deliverability
Deployment focused in areas with existing retrofit activity and installer availability, prioritising properties assessed as heat pump ready.

Prioritised focus areas
Areas with suitable building types and strong grid capacity, informed by LAEP network analysis.

Action 4: Public EV Charging in Areas with Limited Off-Street Parking

Expansion of public EV charging infrastructure in residential areas with limited access to off-street parking, supporting the transition to electric vehicles.

Convening Lead
EMCCA

Collaborators
Local Authorities, Local Installers

Funding availability
Local Electric Vehicle Infrastructure (LEVI) funding and other national support mechanisms.

Grid readiness
Requires coordination with electricity network capacity, particularly at low-voltage level.

Risks & Dependencies
Commercial model design, procurement complexity, and tariff structures to ensure consumer protection.

Co-Benefits
Supports EV adoption, particularly for lower-income households.

Short-term deliverability
Deliverable where coordinated with highways works and where network capacity is available or can be managed.

Prioritised areas
Residential areas with high on-street parking demand and limited private charging access.

Action 5: Rooftop Solar on Council-Owned and Public Buildings

Deployment of rooftop solar PV on council-owned and public-sector buildings to increase local renewable generation and reduce operational energy costs.

Convening Lead
EMCCA

Collaborators
City and District Councils, Existing Community Energy Groups, Developers, Existing businesses.

Funding availability
Public-sector capital funding and investor-led models, including access to grant or low-cost finance.

Grid readiness
Generally manageable at building scale, subject to local connection constraints.

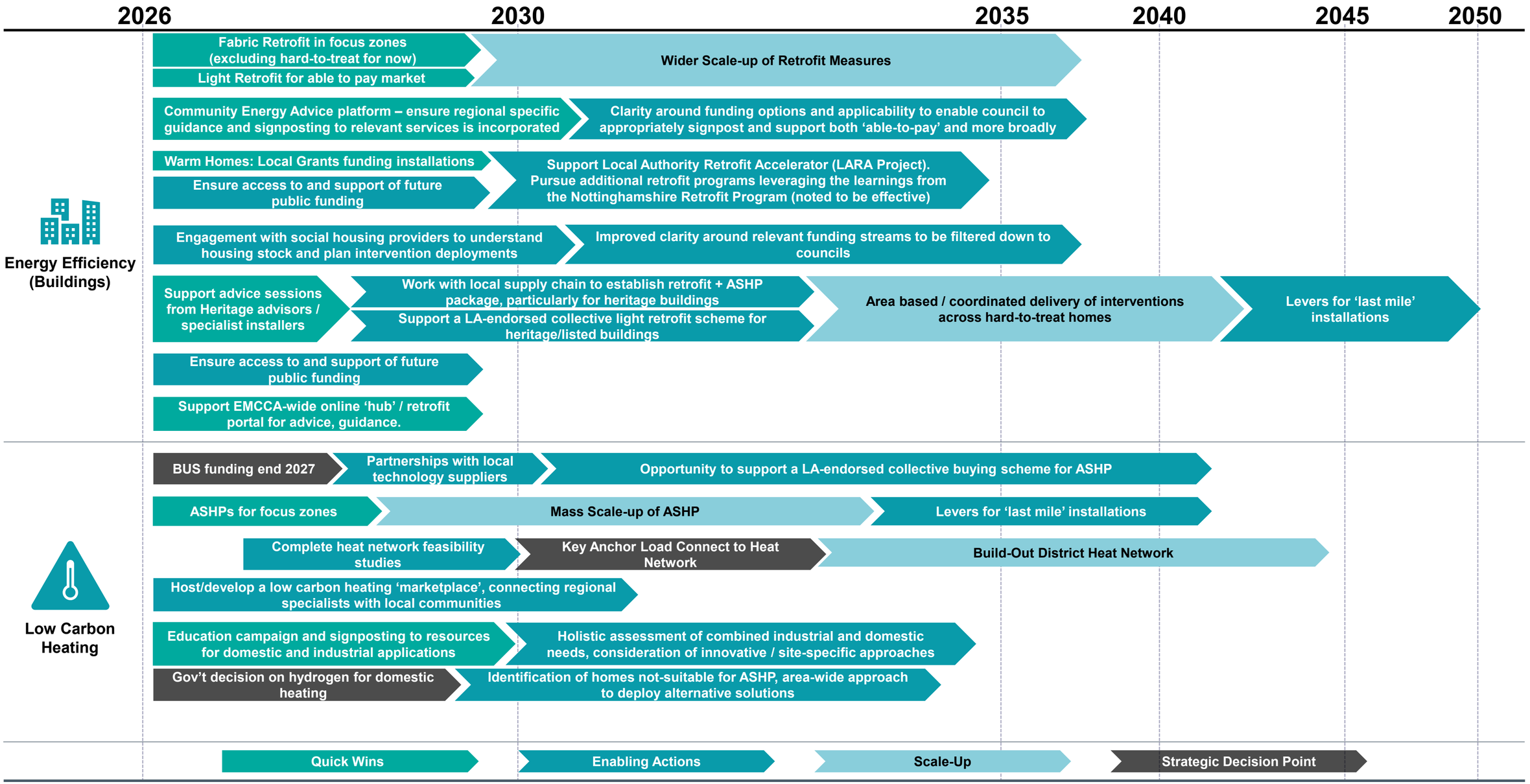
Risks & Dependencies
Supply chain capacity constraints; site suitability; variable business case viability; and availability of funding.

Co-Benefits
Reduces operational costs, increases local generation, and supports community engagement in the net zero transition.

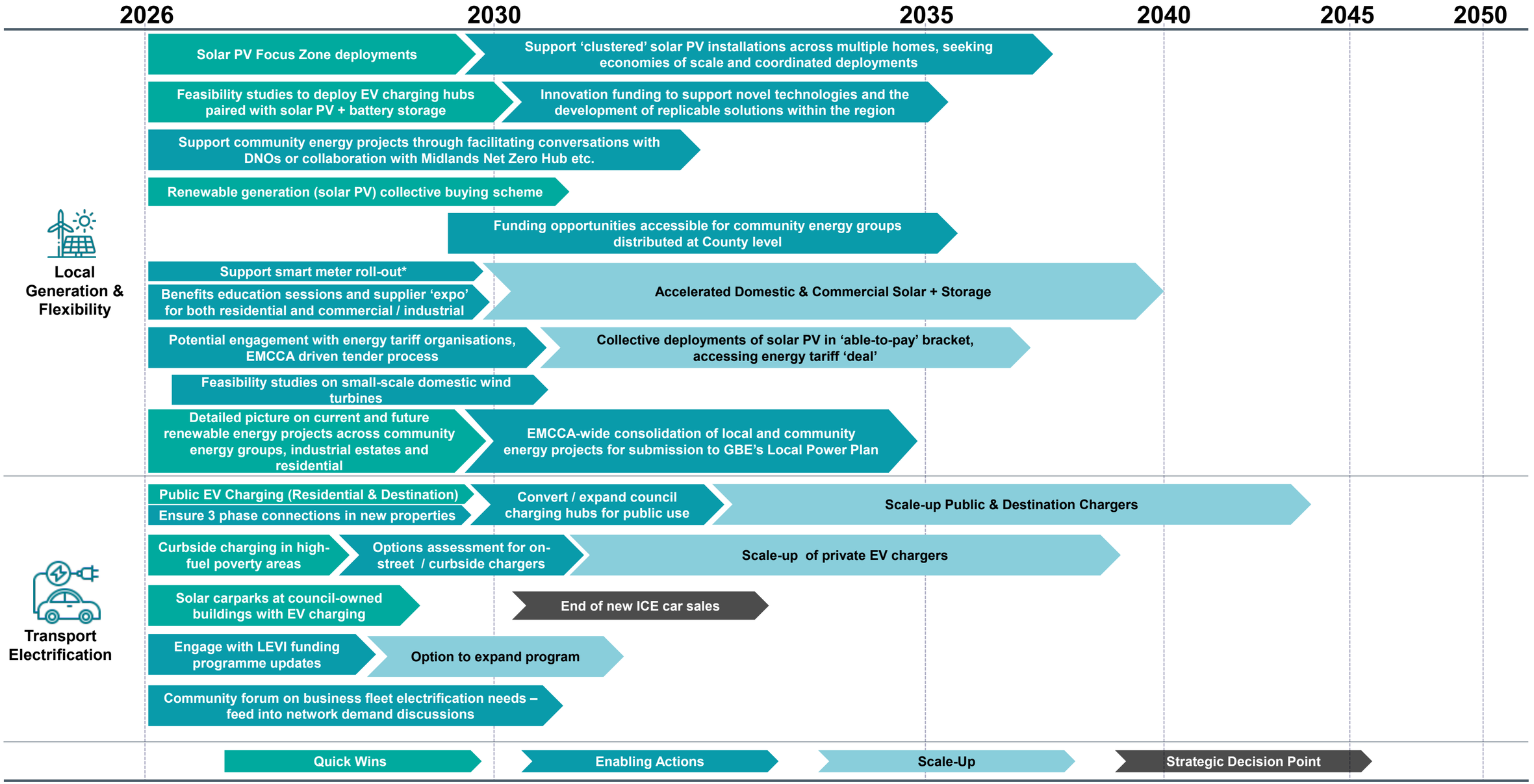
Short-term deliverability
High deliverability due to direct control over assets and alignment with planned maintenance programmes.

Asset selection logic
Assets selected based on roof suitability, demand profile and grid connection capacity.

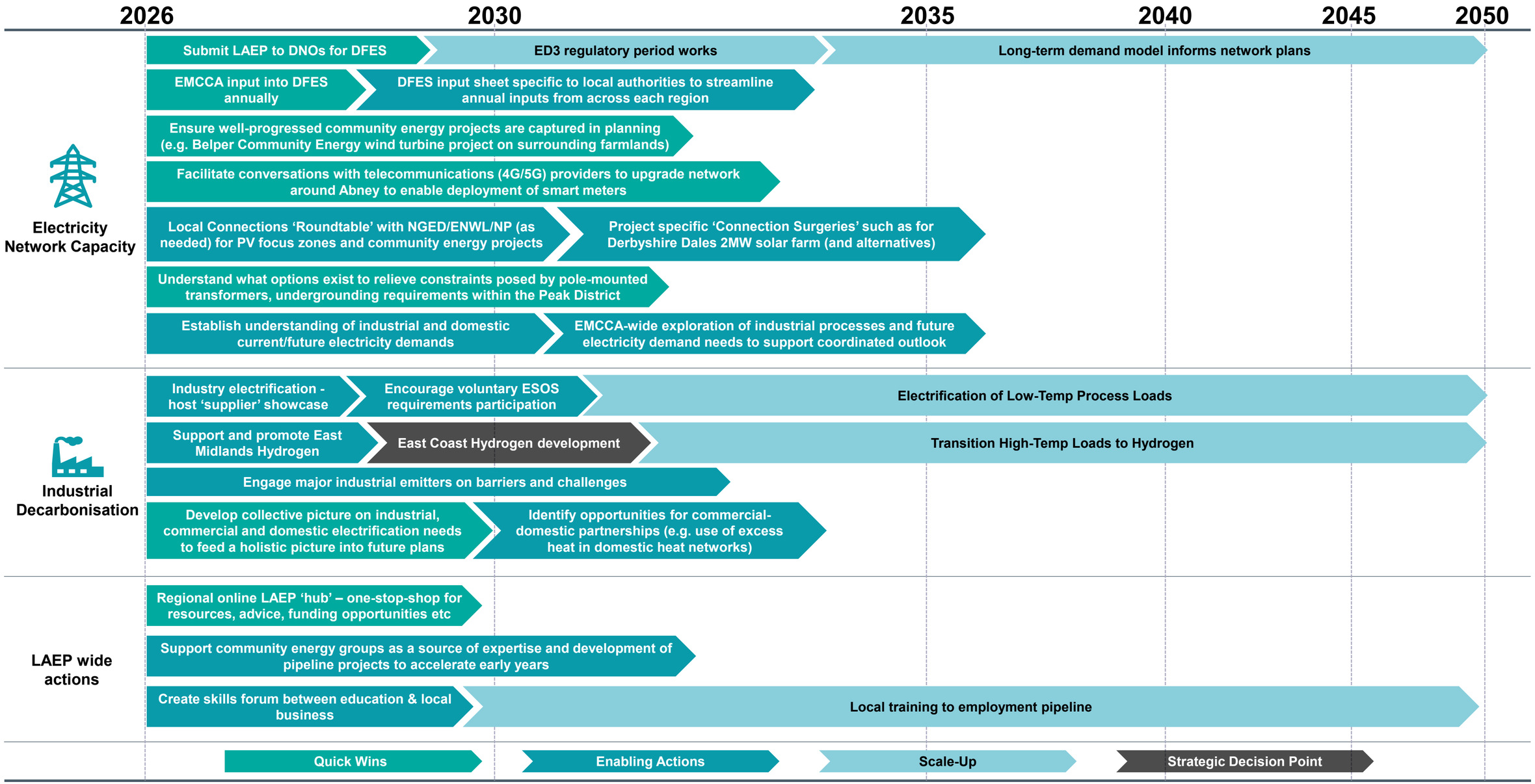
Phased Pathway



Phased Pathway (cont.)



Phased Pathway (cont.)



Regional Delivery Opportunities

The East Midlands Combined County Authority Area has articulated a clear strategic ambition to achieve net zero and accelerate the energy transition, recognising energy as an essential enabler of economic growth, resilience, and environmental stewardship. This ambition is anchored in collaborative efforts between regional planners, local authorities, and stakeholders, with the energy sector positioned as a foundational element in shaping the region's future.

Several strategic documents inform this regional direction. Previous spatial energy studies have provided vital baseline assessments and scenario modelling, shaped local energy priorities and identifying opportunities for decarbonisation. The Nottingham Strategic Energy Partnership exemplifies collaborative leadership in energy innovation, demonstrating the benefits of coordinated action and knowledge sharing.

Furthermore, the EMCCA Growth Plan integrates energy transition objectives with broader economic development, ensuring that net zero ambitions are embedded within the region's growth strategy.

Building on Current Progress

Local authorities across the East Midlands have already undertaken a range of initiatives, from district heat network deployments and large-scale renewable projects to energy efficiency programmes and community engagement campaigns.

Ongoing work includes the refinement of local area energy plans, expansion of low-carbon transport infrastructure, and active participation in regional partnerships to share best practice and leverage collective expertise. While the overall ambition is shared, there is variation in progress and approach among local authorities, reflecting differences in local priorities, resources, and capacities.

Some have advanced further in implementing energy transition measures, whereas others are at earlier stages, focusing on foundational planning or pilot projects. This diversity underlines the importance of tailored interventions and continued regional collaboration.



Shared Challenges

Across the LAEPs, several common challenges are identified.

- **Funding Constraints**: Securing sufficient long-term finance remains a significant barrier to scaling up delivery of projects, with many interventions dependent on grants or short-term funding streams.
- **Stakeholder Coordination**: Achieving effective collaboration between local authorities, private sector partners, and communities is complex and requires sustained engagement and clear governance structures.
- **Skills Shortages**: There is a lack of skilled workforce across key sectors such as retrofit, renewables, and low-carbon transport, which limits the pace and quality of intervention delivery.
- **Grid Capacity Limitations**: The existing electricity grid infrastructure often lacks the capacity to accommodate new renewable generation and electrification of heat, transport and industrial loads.
- **Planning and Regulatory Delays**: Lengthy planning processes and regulatory hurdles can slow down the deployment of infrastructure and technologies needed for net zero.
- **Community Engagement**: Gaining public support and participation is challenging, particularly where interventions impact local landscapes or require behavioural change.

These challenges underline the need for coordinated action and innovative approaches to achieve the region's ambitions. This presents a clear opportunity for EMCCA to add value by coordinating responses and creating consistency across the region

Coordinated Enablers

The Regional Energy Plan identifies a set of coordinated enablers that can address the shared challenges across the LAEPs and support effective delivery at scale.

Funding Constraints

Funding constraints could be alleviated through development of regional funding partnerships and exploring innovative financing models that pool resources from local authorities, private sector investment, and government grants to create stable, long-term funding. Diversifying income streams and developing revolving funds would also help reduce reliance on short-term grants and increase resilience to funding fluctuations.

Creating a centralised funding advisory service to support project developers in identifying financial mechanisms and preparing robust business cases could also significantly support the pace of roll-out. This service should offer expertise in grant applications and facilitate access to national and international funding opportunities, enabling projects to scale effectively.

An example of this approach in practice can be seen in the Greater Manchester Combined Authority's (GMCA) use of the Greater Manchester Environment Fund. This initiative blends public and private finance to support nature-based and low-carbon projects across the region, providing a template for how pooled funding and innovative mechanisms can unlock large-scale investment for sustainability interventions. Locally, Nottingham City Council's work to onboard a Strategic Energy Partner (SEP), represents a similar model.

Stakeholder Coordination

Developing formal governance frameworks and appointing dedicated regional coordinators would significantly help to clarify roles and responsibilities, streamline decision-making, and foster lasting collaboration between local authorities, businesses, and communities. Regular stakeholder forums and cross-sector working groups can also encourage knowledge sharing and collective problem-solving.

Implementing digital collaboration platforms to enable real-time communication, document sharing, and project tracking could also provide benefits in this area. These tools would help overcome geographical barriers and maintain consistent engagement, supporting alignment with regional objectives.

The West Midlands Combined Authority's Energy Capital partnership exemplifies this coordinated approach, bringing together local government, industry, academia, and community representatives to develop and deliver integrated energy strategies.

Skills Shortages

Investing in targeted training and apprenticeship programmes, focusing on emerging sectors such as retrofit, renewables, and low-carbon transport, will be key to addressing this challenge. This can be supplemented by collaborating with local colleges and industry partners to design curricula that address current and future workforce needs, prioritising upskilling and recruitment through outreach campaigns.

Nottingham College's Green Skills Centre provides an example of this approach, delivering specialist training in areas including low-carbon heating, renewable energy, energy storage, and electric vehicles. Developed using funding from the Local Skills Improvement Fund, the Green Skills Centre tailors its courses to sectors of regional importance, including construction, energy, automotive and facilities management.

Supporting further skills hubs across the region would help provide ongoing professional development and strengthen the talent pipeline for key interventions.

Nationally, initiatives such as the Retrofit Academy demonstrate how accredited training can directly address skills gaps and support delivery of retrofit programmes.

Coordinated Enablers

Grid Capacity Limitations

Strategic engagement with Distribution Network Operators, combined with alignment between infrastructure planning and local delivery plans, will be essential to ensure that interventions are deliverable within network constraints. Coordinated planning can support targeted grid reinforcement and timely connection of demand and generation projects.

Demand-side management and flexible energy solutions, including battery storage and demand response, can optimise network utilisation and reduce peak demand, supporting greater integration of renewable generation.

Projects such as the Energy Superhub Oxford illustrate how integrated storage, smart energy systems and EV infrastructure can alleviate grid constraints while enabling system-wide decarbonisation.

Community engagement

Effective delivery will depend on early and transparent engagement with communities, particularly where individual investment decisions and behavioural change are required. Providing accessible information, trusted advice, and clear delivery pathways will support informed decision-making.

Existing government tools provide a foundation for this. These include the:

1. Clean Energy Homepage
2. Find ways to save energy in your home
3. Check if a heat pump could be suitable for you
4. Find a heat pump installer

At a local level, participatory approaches, including consultations, workshops and co-design, can help build trust and secure buy-in for larger projects. Community liaison roles and local ambassadors can provide ongoing support and feedback channels, reinforce engagement and demonstrate local benefits. Initiatives such as the Brixton Energy solar projects highlight the value of community involvement in building long-term support.

Planning and Regulatory Delays

Dedicated planning support within local authorities could streamline application processes through early engagement, pre-application advice, and closer coordination with statutory consultees. The use of standardised digital tools and templates would further reduce administrative burdens and improve consistency. There is also a role for regional engagement with central government and industry to support regulatory reform, enabling clearer guidance and faster decision-making for low-carbon infrastructure.

Bristol City Council's dedicated City Leap planning team has demonstrated how targeted resource and streamlined digital processes can accelerate low-carbon infrastructure deployment. By providing early engagement and clear templates, they have significantly reduced planning times for energy projects.

Local Authority Sphere of Influence

Local authorities can use their indirect levers to advance LAEP delivery by shaping markets, reducing risk, and convening delivery partners. Through planning policy, asset strategies, and procurement frameworks, they can provide clear, long-term signals that support private sector investment.

Strengthening partnerships with organisations such as housing associations, network operators, industry bodies, and community energy groups will be critical. In this role, local authorities act as system integrators, aligning programmes, enabling scale-up, and linking local delivery to regional and national frameworks.

Industrial decarbonisation remains a particular challenge. Across the LAEPs, a lack of accessible data on industrial energy use and infrastructure requirements has been identified as a key barrier to investment. Addressing this through closer engagement with industry and improved information sharing will be essential to support transition planning and unlock private capital.

Roles and Responsibilities

At the regional level, it is important that roles and responsibilities across the coordinated enablers are clearly defined and effectively managed. This will help reduce duplication of effort and mitigate risks associated with coordination.

The UK Government is currently undertaking a reorganisation of England's local government, with the intention of establishing new single-tier unitary councils in areas where two-tier systems exist, such as across Nottinghamshire and Derbyshire. If implemented, this would see unitary authorities assume full legal powers in April 2028. It is recognised that this Local Government Reorganisation (LGR) has the potential to influence both how, and by whom, the recommendations outlined in this report are delivered.

However, the analysis underpinning this programme of work has been intentionally undertaken at MSOA level, such that, following any potential reorganisation, the data can be reconfigured at MSOA level to continue to provide an evidence-based decarbonisation pathway for local authorities.

Whilst LGR may require a reallocation of roles and responsibilities in delivering the projects identified in this report, the proposed restructuring is intended to deliver long-term simplification, stronger strategic leadership, and more effective cross-area collaboration, ultimately supporting more efficient delivery of projects.

Organisation	Role	Responsibilities
EMCCA	Strategic coordinator and enabler	• Provide regional strategic direction; convene and coordinate local authorities across differing political contexts. • Establish portfolio-level governance and programme-level procurement by asset class;. • Lead regional market engagement to improve credibility with private investors; standardise commercial terms and frameworks. • Support investment readiness and access to capital. • Represent the region in strategic energy governance forums (e.g. RESP). • Make the collective case for network and capacity investment (e.g. through informing the next DNO regulatory period, RIIO-ED3).
Local Authorities	Project originators and place-based delivery leads	• Identify and develop projects aligned to local priorities. • Lead community engagement and local stakeholder management. • Retain responsibility for project delivery, asset ownership, budgeting and financial decisions. • Manage long-term contracts and consumer demand. • Provide local data and intelligence into the regional framework;. • Implement delivery at pace where funding and capacity allow.
Education Institutions	Evidence partner and skills contributor	• Support development of roadmaps, evidence bases and analytical inputs (e.g. housing or estate decarbonisation pathways). • Contribute research capability and local insight. • Support skills, workforce development and supplier capability building relevant to regional delivery priorities.
Industry Partnerships	Delivery and market interface	• Participate in regional market engagement. • Contribute to scalable delivery models. • Support packaging of projects by asset class or programme to reduce construction and delivery risk. • Engage through consultations and structured procurement routes. • Help translate regional scale into investable opportunities.
Community Energy Groups	Local delivery and co-benefits partner	• Support delivery of smaller-scale and community-led assets. • Help demonstrate wider social, economic and place-based outcomes. • Engage communities and build local acceptance. • Contribute to diversified delivery routes aligned with outcomes-based logic models (e.g. learning from MNZH solar and schools' programmes).
Supply Chain	Project delivery and implementation	• Design, construct and operate energy assets. • Participate in regional procurement frameworks. • Invest alongside public sector where appropriate. • Contribute to local economic benefits through regional and local supply chains. • Support faster delivery through standardised approaches and repeatable models.



Risks

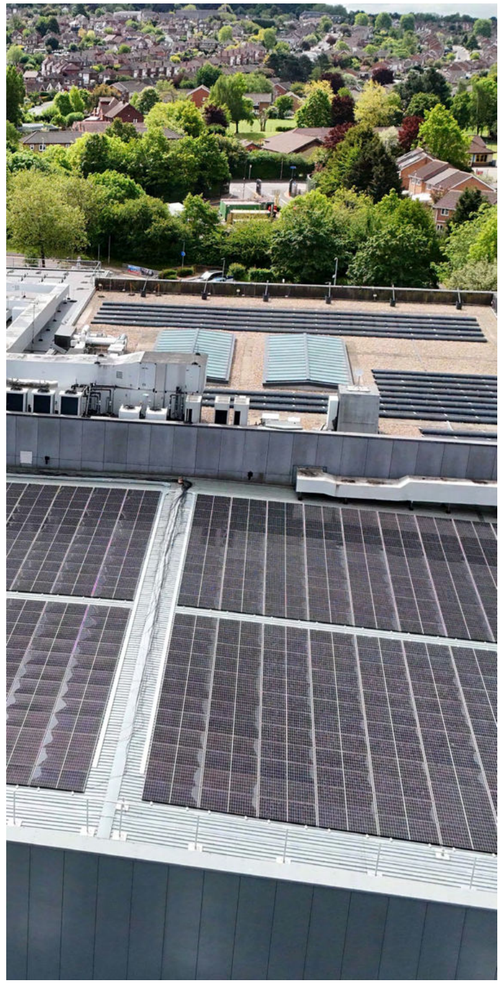
Key Risks

The East Midlands Regional Energy Plan identifies a range of technologies and transition pathways; each associated with specific risks and uncertainties.

These risks may influence the pace and cost of decarbonisation across the region. Delivery will depend on technical feasibility, infrastructure readiness, societal acceptance and the availability of funding. Ongoing monitoring will be required, as policy, market and regulatory conditions evolve over time.

Sector	Risk	Impact	Mitigation
Heating	National policy does not sufficiently rebalance energy costs or delays the phase-out of fossil fuel boilers.	Slower transition from gas to low-carbon heating, with continued reliance on fossil fuels and delayed emissions reductions across the region.	Continued alignment with national policy (e.g. Boiler Upgrade Scheme), and regional engagement to influence policy development
Heating	Reduction or removal of grant funding (e.g. Boiler Upgrade Scheme, retrofit support)	Lower uptake of low-carbon heating and retrofit, particularly in lower-income households, slowing delivery across the LAEPs	Development of regional funding mechanisms and blended finance approaches
Network	Electricity network upgrades do not keep pace with demand growth	Constraints on electrification of heat, transport and industry, leading to delays in project delivery and increased costs	Ongoing coordination with Distribution Network Operators (DNOs), aligned planning and use of flexibility solutions
Heating/ Network	New buildings are not constructed to high energy efficiency or low-carbon standards	Increased retrofit requirements post-construction and additional pressure on electricity networks from inefficient heating systems	Enforcement of Future Homes Standard and alignment with planning policy
Heating	Supply chain constraints limit delivery of retrofit and heat pump installations	Increased costs, delays to delivery, and reduced consumer confidence due to limited contractor availability	Regional skills programmes, training initiatives and supply chain development
Heating	Lack of engagement from non-domestic landlords	Continued high emissions from commercial buildings, with limited investment in energy efficiency and low-carbon heating	Strengthening regulatory frameworks and improving incentives for building owners
Heating	Delays to heat network development	Slower deployment of low-carbon heat in dense urban areas, increasing reliance on individual systems and raising system costs	Early-stage feasibility, anchor load development, and coordinated regional investment strategies
Heating	Limited consumer willingness to adopt retrofit and heat pumps	Reduced uptake due to perceived cost, disruption and complexity, resulting in slower transition and higher system costs	Targeted engagement, trusted advice, and area-based delivery models to improve confidence and uptake
Transport	Delay or reversal of national policy on ICE vehicle phase-out	Increased transport emissions and slower EV uptake, requiring more rapid change later to meet net zero targets	Local delivery of EV infrastructure and supporting measures to reduce reliance on national policy timelines.
Transport	Unequal access to EV charging (e.g. lack of off-street parking)	Inequitable transition, with lower adoption in disadvantaged areas and slower overall uptake	Targeted deployment of public charging infrastructure and financial support mechanisms

Key Risks (cont.)



Sector	Risk	Impact	Mitigation
Industry	Uncertainty around hydrogen availability and infrastructure development	Delay in decarbonisation of high-temperature industrial processes where electrification is not viable, leading to continued emissions and investment delays.	Regional engagement with hydrogen programmes; phased planning; prioritisation of electrification where feasible while reserving hydrogen for hard-to-abate uses
Industry	Insufficient data and visibility of industrial energy use and decarbonisation options	Increased investment risk and slower decision-making by industry and infrastructure providers	Strengthening data sharing, partnerships with industry, and development of site- or sector-specific decarbonisation plans
Industry	High upfront costs and uncertain business cases for industrial decarbonisation technologies	Reduced uptake of electrification, efficiency measures and low-carbon fuels, particularly in smaller or less capital-intensive industries	Development of targeted funding mechanisms, incentives and business models to improve commercial viability (e.g. blended finance, grants, industrial partnerships)
Renewables	Policy and funding uncertainty (e.g. changes to subsidies, planning policy or incentives)	Reduced investor confidence and slower deployment of renewable projects, particularly in early-stage or community-led schemes	Strategic spatial planning; prioritisation of public estate and brownfield sites; integration with local plans and development frameworks
Renewables	Challenges in scaling community energy and smaller distributed projects	Under-delivery of small-scale generation, reduced local participation and missed opportunities for social value and local ownership	Regional coordination of community energy programmes; access to financing, technical support and standardised delivery models
Cross-sector (Skills)	Insufficient skilled workforce to deliver interventions at required scale	Delays to retrofit, heat pump deployment, EV infrastructure and renewable projects, reducing the pace of decarbonisation across all LAEP areas	Expansion of accredited training programmes; support for local supply chain development; quality assurance frameworks
Cross-sector (Skills)	Limited capacity within local authorities to lead and coordinate delivery	Slower development of projects, weaker stakeholder coordination, and reduced ability to bring forward investable opportunities	Strengthening local authority capacity; shared regional resources via EMCCA; use of delivery partners and programme-level support
Cross-sector (Skills)	Insufficient consumer-facing skills (advice, engagement and delivery support)	Lower uptake of interventions due to lack of trusted advice, reducing effectiveness of programmes such as retrofit and heat pump deployment	Investment in trusted intermediaries, one-stop-shop services and community engagement programmes



Conclusion and Next Steps

Conclusion

The East Midlands Regional Energy Plan demonstrates that transitioning to a net zero energy system across Derby, Derbyshire, Nottingham and Nottinghamshire is both technically feasible and achievable within the region's wider ambitions for economic growth, resilience and improved social outcomes.

The analysis undertaken across the eight LAEPs shows that emissions reductions are driven by a combination of energy demand reduction, electrification of heat and transport, and the deployment of low-carbon generation and supporting infrastructure. However, this transition cannot be delivered through incremental change alone. It will require early action in key sectors, sustained investment, and coordinated planning of enabling infrastructure, particularly electricity networks and local energy systems. The scale of change identified highlights the need for a shift from individual projects to coordinated programmes of delivery, supported by clear governance, stakeholder alignment and robust investment frameworks.

The Regional Energy Plan provides a comprehensive and evidence-based framework to support this transition. By combining detailed local analysis with strategic regional coordination and alignment to national policy, it establishes a clear pathway to net zero that supports energy security, economic growth and improved outcomes for communities.

At a regional scale, coordinated action will be critical to achieving delivery at the pace and scale required. By aggregating priorities across the eight LAEPs, EMCCA is well positioned to enable this coordination, supporting investment, aligning stakeholders and accelerating delivery. This approach also strengthens the region's ability to engage with national funding programmes, network planning processes and private investment.

By maintaining a consistent, evidence-based approach and building on the outputs of the LAEPs, the region can deliver a transition that not only achieves net zero, but also supports economic growth, improved energy security, reduced costs and wider social and environmental benefits for communities across the East Midlands.



Building Efficiency

Improving the energy efficiency of the building stock is a fundamental requirement for achieving net zero. Across the region, a significant proportion of homes currently fall below EPC C, with substantial opportunities for fabric improvements to reduce energy demand and support the deployment of low-carbon heating. Targeted retrofit programmes, delivered at scale, will help reduce energy costs, improve comfort and enable more efficient use of electricity networks.



Low Carbon Heating

The transition away from fossil fuel heating is a critical component of the regional pathway. The LAEPs identify widespread applicability of low-carbon heating technologies, particularly heat pumps, supported by targeted deployment of heat networks in higher density areas. Delivering this transition will require coordination with building retrofit, alongside addressing barriers including upfront costs, supply chain capacity and consumer engagement.



Transport

Transport decarbonisation represents a major component of emissions reduction across the region. The transition to electric vehicles is expected to drive significant change in the energy system, supported by the rollout of charging infrastructure and continued replacement of internal combustion engine vehicles. Alongside electrification, there is a continued need to support modal shift and reduce overall transport demand.



Industry

Industrial and commercial sectors play a significant role in the regional energy system, particularly given the East Midlands' strong manufacturing base. Decarbonisation will be delivered through a combination of electrification, energy efficiency improvements and the targeted use of hydrogen for high-temperature processes, where appropriate. Coordinated planning and investment will be required to align industrial demand with infrastructure development.



Renewable Generation

Local energy generation, particularly rooftop solar PV, represents a significant opportunity to improve energy resilience, affordability and system flexibility. The LAEPs identify strong potential for distributed generation across the region, supporting reductions in grid demand and enabling participation in flexibility markets. Coordinated deployment and integration with storage and smart systems will be important to maximise system benefits.



Electricity Networks

Electricity network capacity is identified as a key constraint across multiple LAEP areas, particularly as demand increases through electrification of heat, transport and industry. Proactive engagement with distribution network operators, alongside investment in reinforcement and flexibility solutions, will be essential to enable delivery at scale and avoid delays to key interventions.

Next Steps

While individual Local Authority actions in the near term will differ across the region, depending on the existing level of capacity and capability within each organisation, there are several notable next steps that will benefit the entire region.

Delivery Framework Development

While Local Area Energy Plans (LAEPs) are effective at identifying priority focus areas for energy transitions, infrastructure investment and demand reduction, they do not in themselves deliver change. Each LAEP area therefore requires a clear delivery mechanism that sets out how analytical focus areas translate into implementable actions, investable propositions and funded programmes. Without this step, LAEPs risk remaining strategic documents rather than operating as practical delivery tools capable of influencing capital programmes, private investment and infrastructure provision.

A delivery framework provides the bridge between system insight and implementation by defining sequencing, ownership, dependencies and decision points. In practice, this involves moving from identified focus areas, such as heat transition zones, grid-constrained growth locations or retrofit priorities, to a structured pipeline of delivery activity, through:

1. translating focus areas into a defined set of investment propositions with clear scope, delivery routes and outcomes;
2. identifying appropriate delivery models (e.g. public delivery, public–private partnership, market-led);
3. setting out enabling actions such as feasibility studies, business cases, procurement routes and consents; and
4. clarifying roles, responsibilities and decision points across local authorities, network operators and delivery partners.

These propositions need to be shaped in a way that aligns with the requirements of funders, network operators, delivery organisations and internal capital planning processes, while remaining consistent with the spatial and system logic established through the LAEP.





EMCCA can play a critical coordinating role by providing a shared regional framework for the structure and development of LAEP delivery roadmaps. This does not require centralising delivery, but rather enabling consistency and efficiency across the region through:

1. common templates and staging for delivery roadmaps, from early concept through to investment-ready propositions;
2. agreed stage-gates and assurance requirements to support comparability and prioritisation;
3. shared approaches to business case development, investment readiness and data standards; and
4. coordinated engagement with network operators, government programmes and potential investors.

Adopting these shared approaches would reduce duplication, lower transaction costs and support more efficient engagement with delivery partners across all LAEP areas.

At a regional scale, this coordination enables EMCCA to identify opportunities for aggregation, for example by combining similar investment propositions across multiple LAEP areas to improve scale, attract private capital and align with regional funding bids. This will be critical to achieving the required pace of delivery while maintaining quality and consistency.

It also supports a clearer regional narrative on delivery readiness, allowing EMCCA to act as an effective intermediary between local ambition and national funding programmes, network investment planning and market-led delivery. In this way, coordinated LAEP delivery roadmaps become a practical mechanism for translating local plans into regional impact.

Next Steps



The Regional Digital Twin

As part of the LAEP development programme, a digital twin has been created by IES for each Local Authority area. This tool enables spatial visualisation of building-level data, including building age, energy consumption, and fabric characteristics. Additional geospatial datasets, such as fuel poverty rates at MSOA level, can be overlaid to support the identification of priority areas for delivery.

Each Local Authority has access to its respective digital twin, and EMCCA has established a central coordination role to oversee both the digital twin and wider LAEP data. This enables EMCCA to support Local Authorities in effectively leveraging the evidence base developed through the LAEPs to inform delivery roadmaps.

This capability will be particularly valuable during the Local Government Reorganisation process, as changes to geographical boundaries may require data to be reconfigured to reflect new administrative areas.

To support this, common working practices between Local Authorities and EMCCA should be established in relation to the use and maintenance of the digital twin. This will help ensure consistency of data across the region, recognising that updates made at a local level will directly inform the regional evidence base.

Nottingham Strategic Energy Partner

The Nottingham Strategic Energy Partner (SEP) is intended to enable Nottingham City Council to accelerate delivery of its carbon-neutral ambitions through a long-term partnership with a private sector organisation capable of bringing capital investment, commercial capability, and delivery capacity into the local energy system. The Council has explicitly identified constraints on its ability to fund large-scale decarbonisation directly, given competing statutory service pressures, and sees the SEP model as a mechanism to unlock additional investment while retaining strategic oversight of outcomes.

The SEP is scoped to focus on renewable energy, clean technologies and retrofit, with stated aims to accelerate decarbonisation, reduce air pollution, improve energy resilience, and lower energy costs. The partnership is framed as commercial but outcomes-focused, supporting a long-term roadmap to net zero while remaining viable for both parties. The SEP model is therefore positioned as a delivery-oriented alternative to piecemeal, project-by-project activity, which might otherwise act as the primary delivery route for LAEP actions within Nottingham City Council.

For other local authorities in the EMCCA area, the Nottingham SEP provides a clear example of how strategic energy partnerships can be used as a delivery mechanism, rather than solely a policy commitment. Key transferable lessons, which EMCCA can support in sharing across the region, include the value of early market engagement, clear scoping of assets and responsibilities, time-limited initial phases, and alignment of commercial incentives with net zero objectives. The approach demonstrates how councils can retain strategic control of outcomes while leveraging private investment and delivery expertise to progress decarbonisation at scale.



Version History

MOTT MACDONALD

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Document title	Authors	Checker	Approver	Date	Version	Purpose
East Midlands Regional Energy Plan	A Hibbert	L Sibanda	S McClay	08/05/2026	1	Draft for EMCCA review
East Midlands Regional Energy Plan	K Uchendu L Sibanda	S McClay	L Strickland	27/07/2026	2	Final Issue

East Midlands County Combined Authority Regional Energy Plan

Version 2 – 27.07.2026