Bournemouth, Christchurch & Poole Local Area Energy Plan

This report was produced by City Science

Introduction to the Document

This is the summary report for the Bournemouth, Christchurch, & Poole (BCP) Local Area Energy Plan (LAEP), prepared by City Science for BCP Council. This document comprises the four main sections shown below, after (1) Executive Summary and (2) Introduction.

This LAEP was prepared through significant stakeholder engagement, adhering to the Energy Systems Catapult guidance[1]. The Local Context and Energy System chapter provides a comprehensive overview of the current energy system in the BCP area. Following this, the Pathway to Net Zero Carbon and Key Interventions and Focus Zones chapters consider multiple prospective future energy scenarios, and the nature of the potential energy system changes required. Finally, the Action Plan sets out the actionable steps for the Council, with the primary goal of achieving net zero carbon by 2045.

This summary report delivers key technical insights in an accessible format and can be read in conjunction with a technical report, that provides further detailed information.

3. Local Context and Energy System

This is an overview of the local context (such as demographic and socio-economic factors), and the current energy system. The information provides a benchmark against which net zero progress can be measured.

4. Pathway to Net Zero Carbon

A vision for the future energy system across the BCP area, outlining the Net Zero Pathway, which was used to inform and support the interventions and the detailed Action Plan.

5. Key Interventions and Focus Zones

Key interventions that can be applied across the energy system to reach net zero. It also identifies Focus Zones which are areas where an intervention is suitable on a large scale or could be prioritised.

6. Action Plan

The Action Plan provides a clear direction, for BCP Council to focus on decarbonisation initiatives though collective action, and to achieve a net zero carbon future.

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1. Executive Summary

Executive Summary

The BCP LAEP presents a comprehensive vision for the BCP area's future energy system, highlighting the key elements it needs to achieve an area-wide net zero energy system by 2045. This includes specific topic areas for local energy demand, generation, and reduced emissions within domestic and non-domestic buildings, transport and mobility, energy generation and energy infrastructure.

What is a Local Area Energy Plan?

Local Area Energy Planning provides an evidence based, spatial plan that identifies the changes required to the local energy system to achieve net zero by the Council's net zero target date. The resulting Net Zero Pathway and Action Plan in the LAEP can be used to guide BCP Council's long term strategic thinking, planning and investment but requires subsequent detailed design work to deliver the suggested actions and projects.

A LAEP defines a long-term vision for an area but should be updated approximately every 3 – 5 years (or when significant technological, policy or local changes occur) to ensure the long-term vision remains relevant.

BCP Council declared a climate and ecological emergency in 2019, committing its operations and assets to be carbon neutral by 2030 and net zero across the BCP area by 2050 – later revised to 2045[1]. Although challenging, it is achievable through local authority collaboration with communities, individuals and stakeholders. A net zero energy system is explored in this LAEP, presenting significant economic opportunities and regional co-benefits.

Stakeholder Engagement

A robust stakeholder engagement programme was embedded throughout each stage of the LAEP development. Local sessions were held including interviews, technical validation meetings, workshops and focus groups to ensure the final outputs reflect the needs and ambition of local stakeholders.

Key Project Stakeholders

- BCP Council
- South West Net Zero Hub (SWNZH)
- Scottish & Southern Electricity Networks (SSEN)
- Southern Gas Network (SGN)

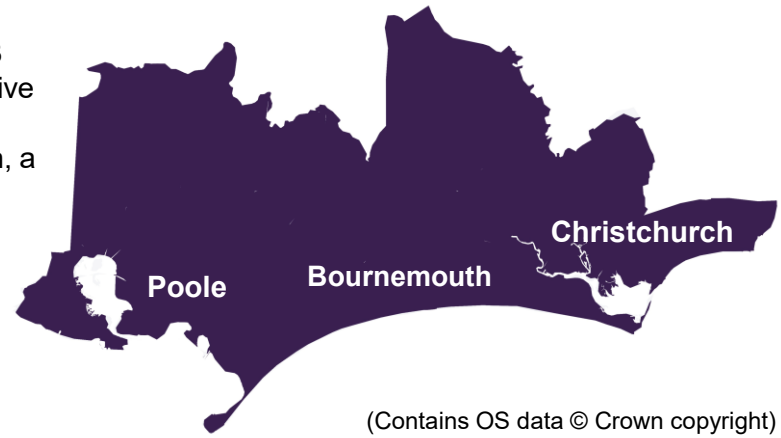
Wider Stakeholders

- Local businesses
- Local energy experts
- Large energy consumers

Local Context

Bournemouth, Christchurch, and Poole are three distinctive towns on the South coast of England, forming a coastal region that covers 0.1% of the total land in England at 161 km^2, with 15 km of beaches, numerous river valleys, woodlands, internationally protected heathlands, and public open spaces [2].

The three principal towns that contain 33 electoral wards and five town/parish councils include Bournemouth, a vibrant coastal town; Christchurch, a historically rich town, and Poole; distinguished by its expansive natural harbour[2].



Executive Summary

Policy Drivers

A variety of policies drive the need for a net zero energy system across the BCP area, which has a net zero target of 2045.

Net Zero Strategy (2021)[3]
- 100% low carbon electricity by 2035
- Deployment of renewable heat and generation scaled up along with flexibility.

Joint LEP Energy Strategy (2019)[4]
- Affordable low carbon energy future
- Dorset LEP notes region imports 88% of energy but could be a net exporter by 2030

BCP Council Climate & Ecological Emergency (2019)[1]
- Make BCP Council operations carbon neutral by 2030
- Wider area net zero by 2045

Green Infrastructure Strategy 2022 – 2031 [5]
- Increase health and wellbeing
- Support nature recovery and biodiversity
- Opportunities to improve

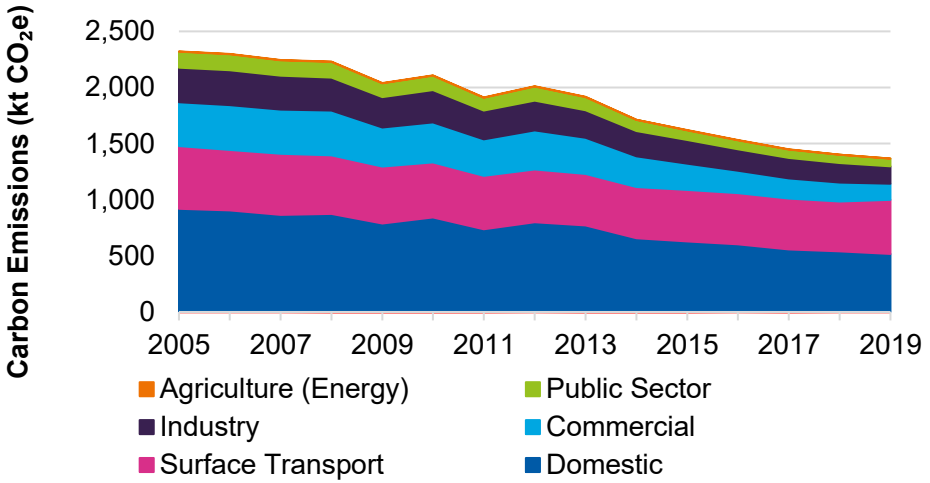
Local Planning Policies[6]
- Establishing the planning framework for the area
- Address housing and employment needs
- Supports mitigating and adapting to climate change

Housing Strategy 2021 – 2026[7]
- Provide safe sustainable secure homes
- Meet the needs for a 21% projected population growth

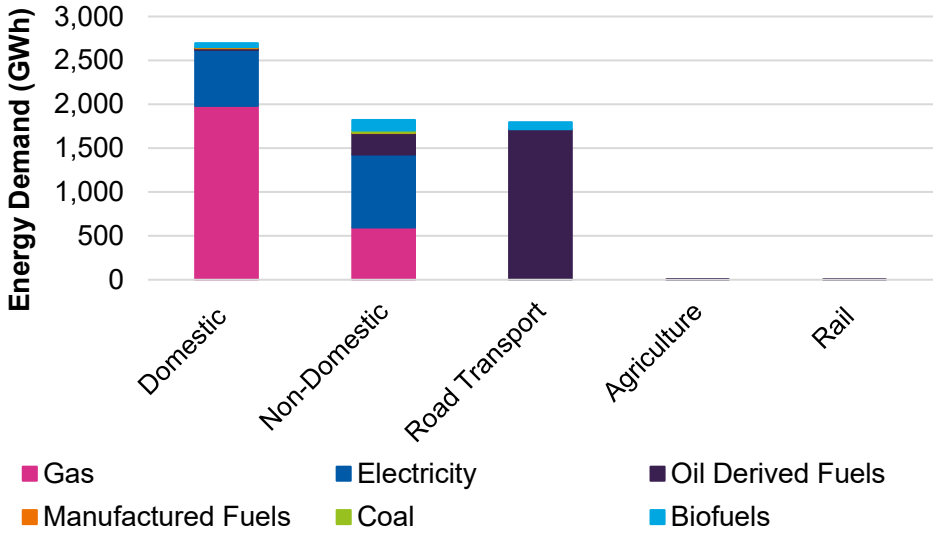
Baseline Energy System

The current energy system was analysed across sectors to understand emissions trajectories, key challenges and opportunities and to serve as a benchmark against which progress can be measured. The base year was chosen as 2019, as it was the latest available data unaffected by COVID-19.

Historical Energy Related Emissions (2005 – 2019)[8]



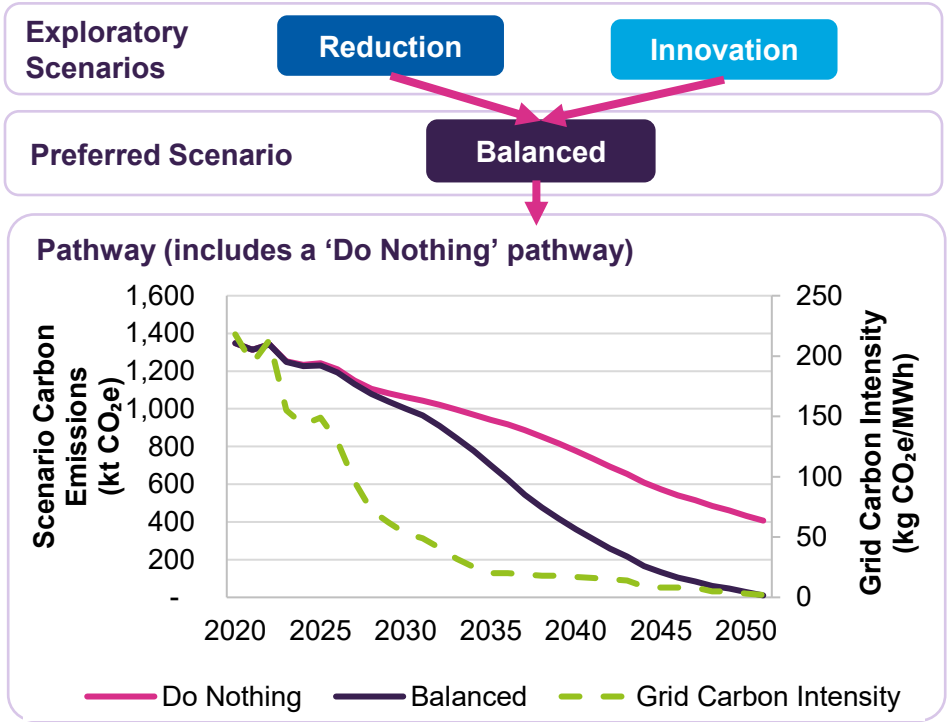
Baseline Energy Demand (2019)[9]



Executive Summary

Assessing Options for the Future

Future energy systems were explored with scenarios. Initially, two exploratory scenarios were modelled (Reduction and Innovation). Then, following evaluation of the modelling results, a Balanced scenario was formed which composed of preferred elements between the two exploratory scenarios and elements which were thought to be most achievable. Once the Balanced scenario was agreed, a Pathway was mapped out between the base year (2019) and 2050 for the Balanced scenario and a Do Nothing scenario which serves as a non-net zero outcome.



Further information on the scenario and pathway modelling process is available in the supporting Technical Annex document.

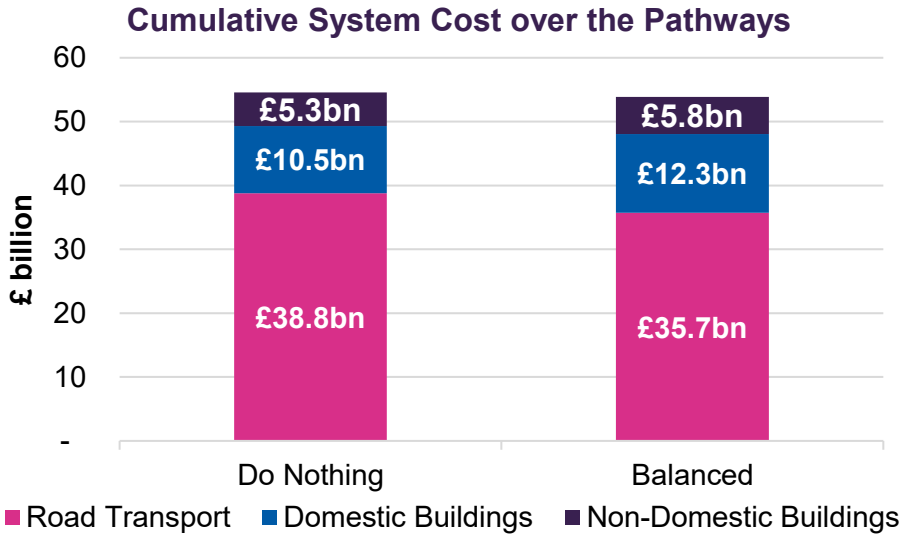
Balanced

Achieves net zero by 2045 through going beyond national decarbonisation pledges, incorporating additional targets including a widespread uptake of heat pumps, electric vehicles (EVs), and rooftop photovoltaics (PV).

Do Nothing

The counterfactual, presenting the future energy system with only existing decarbonisation pledges (such as the ban on new internal combustion engine (ICE) cars and light good vehicles (LGV) from 2035). It excludes policies that aren't tangible and does not guarantee net zero.

The graph below shows system costs for the two modelled scenarios, with both scenarios having comparable overall costs.



Executive Summary

The Preferred Pathway

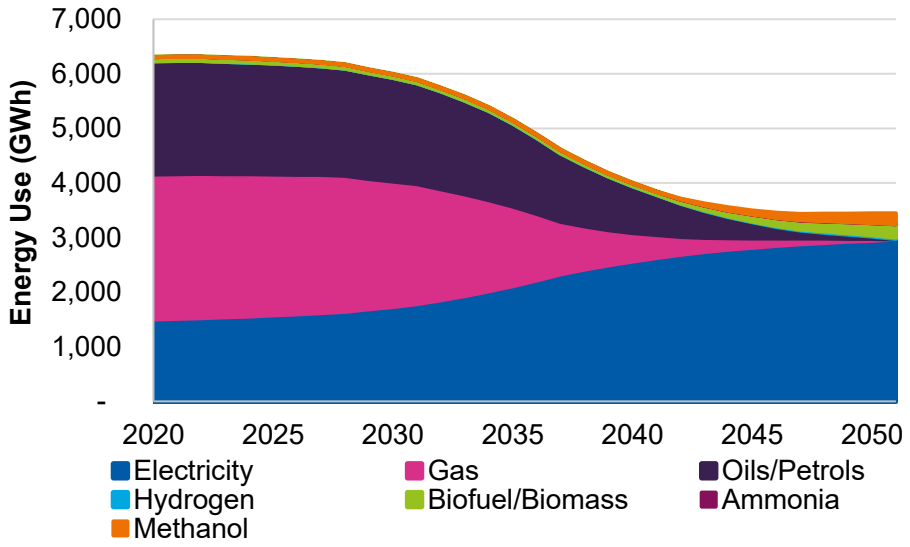
Significant carbon emissions savings are achieved under both the Balanced and Do Nothing scenarios. However, only the Balanced scenario reaches net zero.

The Balanced scenario transitions primarily to electricity, by increasing the rollout of heat pumps for both domestic and non-domestic buildings, and has a high adoption of EVs across all vehicle types. The overall energy consumption decreases substantially under the Balanced pathway as heat pumps and EVs are significantly more energy efficient than gas boilers and combustion engine vehicles.

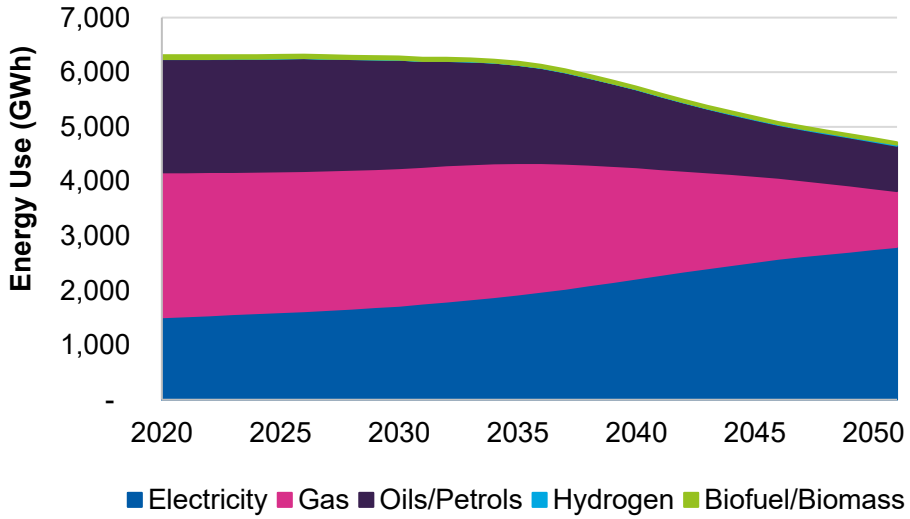
Decline in fossil fuel use is slower in the Do Nothing scenario than Balanced due to a slower uptake in low carbon technologies, such as EVs and heat pumps, with a continued reliance on gas for heating and petrol and diesel for transport in 2050.

Electricity demand is expected to increase significantly under both the Do Nothing and Balanced scenarios due to increased electrification of technologies (e.g. heating and vehicles), which presents challenges for the electricity grid as it will need to undergo rapid upgrades to be able to support the increased demand.

Energy Mix over Time: Balanced Pathway



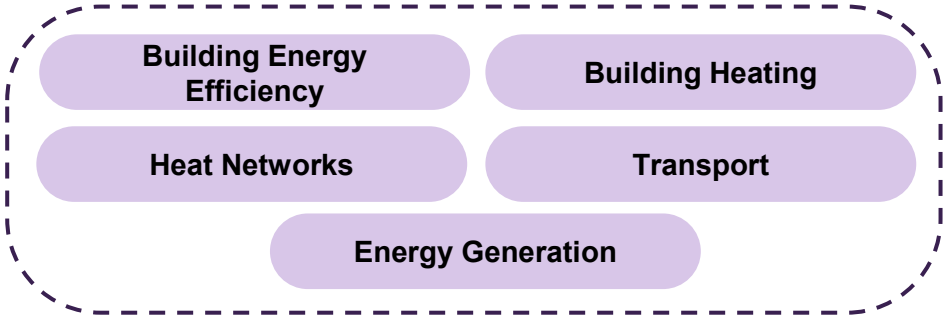
Energy Mix over Time: Do Nothing Pathway



Executive Summary

Intervention Areas

Specific interventions required to achieve a net zero energy system under the Balanced Scenario were assessed across all sectors within the LAEP. This is supported by a spatial analysis of where they could be targeted which could support post-LAEP implementation programmes. The key intervention areas are shown below:



The analysis from these intervention areas was combined with extensive stakeholder engagement to develop the final Action Plan.

Electrification Challenge

Net zero demands significant electrification, which will require increased capacity for both demand and generation on the electricity grid. A key focus after this LAEP will be to collaborate with SSEN to forecast and plan for future demand and generation to enable efficient grid upgrades. It is also recommended that the Council collaborate with NESO and RESP to help ensure that local areas get the energy infrastructure they need to meet local net zero and growth ambitions.

Some of the key interventions required are shown below:

Building Energy Efficiency

130,000 shallow retrofit measures implemented by 2045.

Building Heating

The BCP area will require 140,000 retrofitted domestic heat pumps by 2045, in 76% of homes.

Heat Networks

Five suitable locations for heat network zones identified: West Howe, Poole Harbour, Bournemouth Airport, Bournemouth Hospital, and Central Bournemouth.

Transport

The majority of road transport will electrify, requiring supporting EV charging infrastructure (4,000 public charge points).

Energy Generation

Local renewable generation is 400 GWh, which is 13% of 2045 electricity demand. A large uptake in rooftop PV is required to reach this.

Focus Zones were identified for key intervention areas to provide spatial analysis of where recommended interventions should be prioritised, ensuring a ‘low regrets’ approach. The following page presents a summary of these Focus Zones, along with key insights from the interventions analysis, as illustrated in the Plan on a Page.

Executive Summary

Plan on a Page

This page highlights the key milestones and interventions required for the Net Zero Pathway. The map below presents the identified Focus Zones for retrofit, heat networks and EV charging, mapped against primary substation zone boundaries.

DHN potential in Bournemouth Hospital, Bournemouth Airport, West Howe industrial area and the Port of Poole

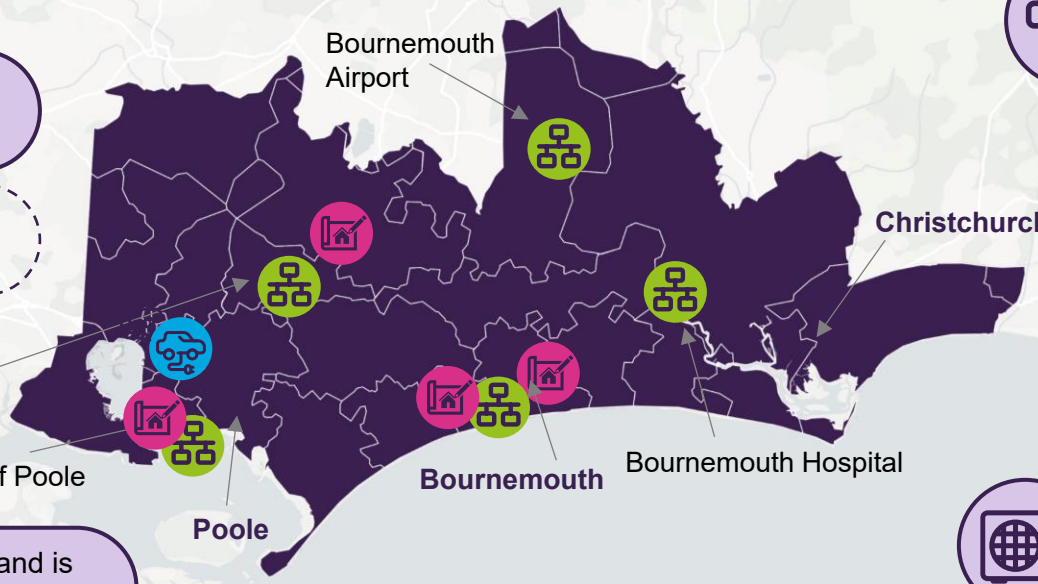
Potential for geothermal heat networks across the BCP area

160,000 EV cars by 2045

4,000 public EV charge points to install

100 $ktCO_2e$ emissions remain in 2045

90% reduction from the baseline



130,000 shallow domestic retrofit measures by 2045

140,000 retrofitted domestic heat pumps needed by 2045

2045 electricity demand is **2x** the baseline

2045 electricity demand is **3,000** GWh

Significant network investment will be required.

~400 GWh of local renewable generation

13% of the 2045 electricity demand

Key

- DHN Focus Zones
- Retrofit Focus Zones
- EV Charging Focus Zone

Executive Summary

Action Plan & Next Steps

The Action Plan provides the detail of 15 priority actions to achieve the milestone targets set out in the Net Zero Pathway, and support the BCP area's journey to a net zero energy system. It acts as a catalyst for future initiatives, with an intention to inform upcoming projects, policies, and strategies. It provides clear, but intentionally flexible direction, channelling the broader decarbonisation focus into a set of collective actions. It is important to note that the selection of priority actions does not preclude support for initiatives beyond this list or those featured in other plans. The actions are categorised and outlined below:

Crosscutting Enabling Actions

1. Develop a net zero fund.
2. Support local green skills & workforce development.
3: Support the energy transition through local planning policies.

Generation & Network Actions

4: Set-up a formal process for working with SSEN to optimise network planning.
5: Support rooftop PV deployment across all buildings in the BCP area.
6: Analyse & map alternative fuel demand across sectors.
7: Develop a support programme for community energy groups across the BCP area.

Building Efficiency, Retrofit & Heat Actions

8: Support the development of the Dorset Retrofit Hub.
9: Continue working on decarbonising the BCP Council estate.
10: Scoping exercise to fund retrofit & low carbon heating interventions.
11: Facilitate development of District Heat Networks.
12: Scale-up the Healthy Homes Dorset scheme.

Transport Actions

13: Encourage modal shift to sustainable transport.
14: Encourage the rollout of public EV charging Infrastructure across the BCP area.
15: Transition to zero-emissions council fleet and decarbonise the bus fleet.

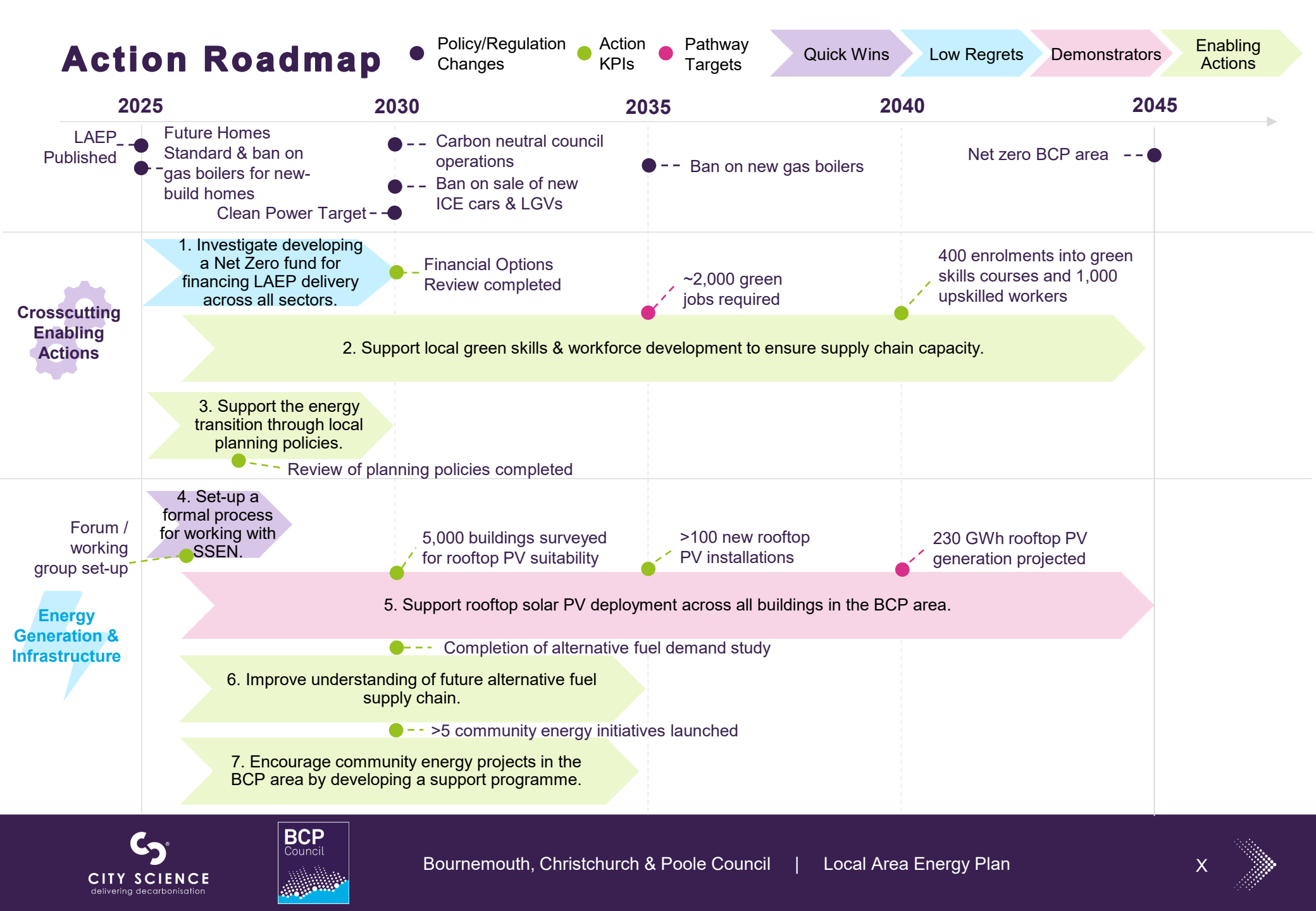
Next Steps

To mobilise the actions, the following key next steps have been identified.

1. **Prioritisation:** Develop a phased delivery plan of the priority actions.
2. **Collaboration:** BCP Council Teams may take ownership of certain actions, however, not all actions will fall under its scope. Instead, it will delegate ownership to appropriate parties, via engagement with key stakeholders.
3. **Funding & Resource:** Once ownership has been identified, the next step is to assess the funding and resource required and develop a plan for each action.

The following pages feature an Action Roadmap which provides an overview of the sequential implementation of the priority actions. The detailed Action Plan can be found at the end of this document.

Action Roadmap



Action Roadmap

Policy/Regulation Changes | Action KPIs | Pathway Targets

Quick Wins | Low Regrets | Demonstrators | Enabling Actions

2025 | 2030 | 2035 | 2040 | 2045

LAEP Published

Future Homes Standard & ban on gas boilers for new-build homes

Carbon neutral council operations

2030 Clean Power Target

Ban on new gas boilers

Net zero BCP area

Building Efficiency, Retrofit & Heat

8. Support the development of the Dorset Retrofit Hub.

>200 retrofit installations through the hub

9. Continue working on decarbonising the BCP Council Estate to meet the 2030 target.

90% of council stock transitioned to low carbon heating

10. Carry out a scoping exercise to secure funding for retrofit works

Deliver a heat network feasibility study report

11: Facilitate the development of District Heat Networks in the BCP area.

~4,000 homes connected to a heat network between 2030 and 2040

12. Scale-up the Healthy Homes Dorset local insulation grant scheme & relevant national schemes.

Support >500 households through the scheme

Transport

50% of journeys by sustainable transport

13. Support the Local Transport Plan 4 to encourage mode shift to sustainable transport.

14. Support the Public Electric Vehicle Infrastructure Study (PEVIS) Actions to encourage the rollout of public EV charging infrastructure across the BCP area.

160,000 EVs across the BCP area

15. Work towards a zero emissions council fleet and decarbonising the BCP bus fleet.

Deliver >750 low powered on-street charging sockets through Local Electric Vehicle Infrastructure (LEVI) funding

25% of all public bus journeys across the BCP area to be provided by Zero Emission Vehicles

2. Introduction

What is Local Area Energy Planning?

LOCAL AREA ENERGY PLAN (LAEP)

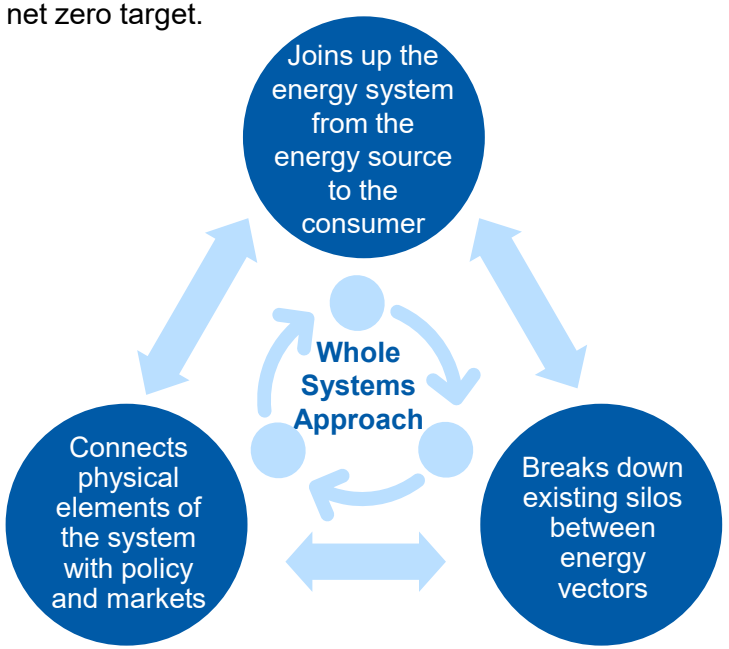
Sets out the changes required to transition an area's energy system to net zero carbon emissions, against a specified timeframe. This is achieved by exploring a range of technologies and scenarios through whole energy system modelling and analysis. By identifying the preferred pathway to net zero, additional benefits for the local area can be realised[1] [2].

A LAEP provides an indicative costed spatial plan that identifies the change needed to the local energy system and built environment, detailing what changes are required, where, when and by whom. The level of detail for an area is equivalent to an outline design or master plan. Therefore, additional detailed design work is required for identified specific actions, projects, and programmes to progress to implementation.

For example, a LAEP may identify a zone that is best suited to a district heat network by assessing the types of buildings in the zone, their characteristics, and density. However, a full feasibility assessment by an appropriately qualified installation or design company, along with assessment of commercial viability and delivery mechanisms would be required.

A LAEP defines a long-term vision for an area but should be updated approximately every 3 – 5 years (or when significant technological, policy or local changes occur) to ensure the long-term plan remains up-to-date.

Being data-driven and evidence-based, a LAEP uses a whole energy system approach that is led by local government and developed collaboratively with defined stakeholders. It sets out to identify a locally defined route to net zero, as well as contributing towards meeting the national net zero target.



Key Benefits of the Whole Systems Approach

By working closely with local stakeholders, incorporating their data, knowledge and future plans, a LAEP is built on a common evidence base. The outputs can then be used reliably by all stakeholders knowing they are working towards a common goal built on strong foundations.

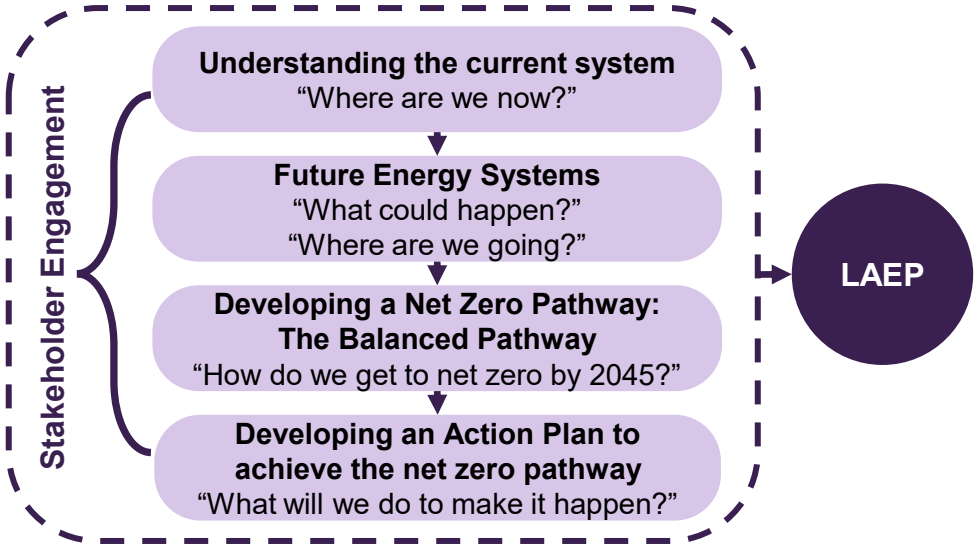
The LAEP Process

The LAEP provides a structured approach to planning the future energy system for the BCP area, with the goal of achieving a BCP wide net zero energy system by 2045.

This LAEP's approach aligns with the seven stages of local area energy planning, as set out by Energy Systems Catapult (ESC) in their guidance for creating a LAEP[2]. The four key delivery stages of the BCP LAEP are shown in the diagram below, each building on the previous to develop a clear, evidence-based plan for implementation. By integrating these stages, the LAEP provides a practical roadmap for the transition to a sustainable local energy system.

Additionally, it enables strategic decision-making, supports investment planning, and ensures that decarbonisation efforts align with local needs and opportunities.

Key to the delivery of the LAEP is the extensive stakeholder engagement process, consisting of 23 engagement sessions that were embedded in all stages of the LAEP's development. This consisted of local interviews, workshops, technical validation meetings, and focus groups to ensure the final outputs reflect the needs and ambition of local stakeholders. The key engagement stages are outlined in the diagram below.



Stakeholder Engagement Process

Net Zero Pathway Development

- 10x Local Area Interviews
- Baseline Evidence Presentation
- Scenarios Workshop
- Modelling Approach Workshop
- Modelling Outputs Presentation
- Pathway Refinement Meeting

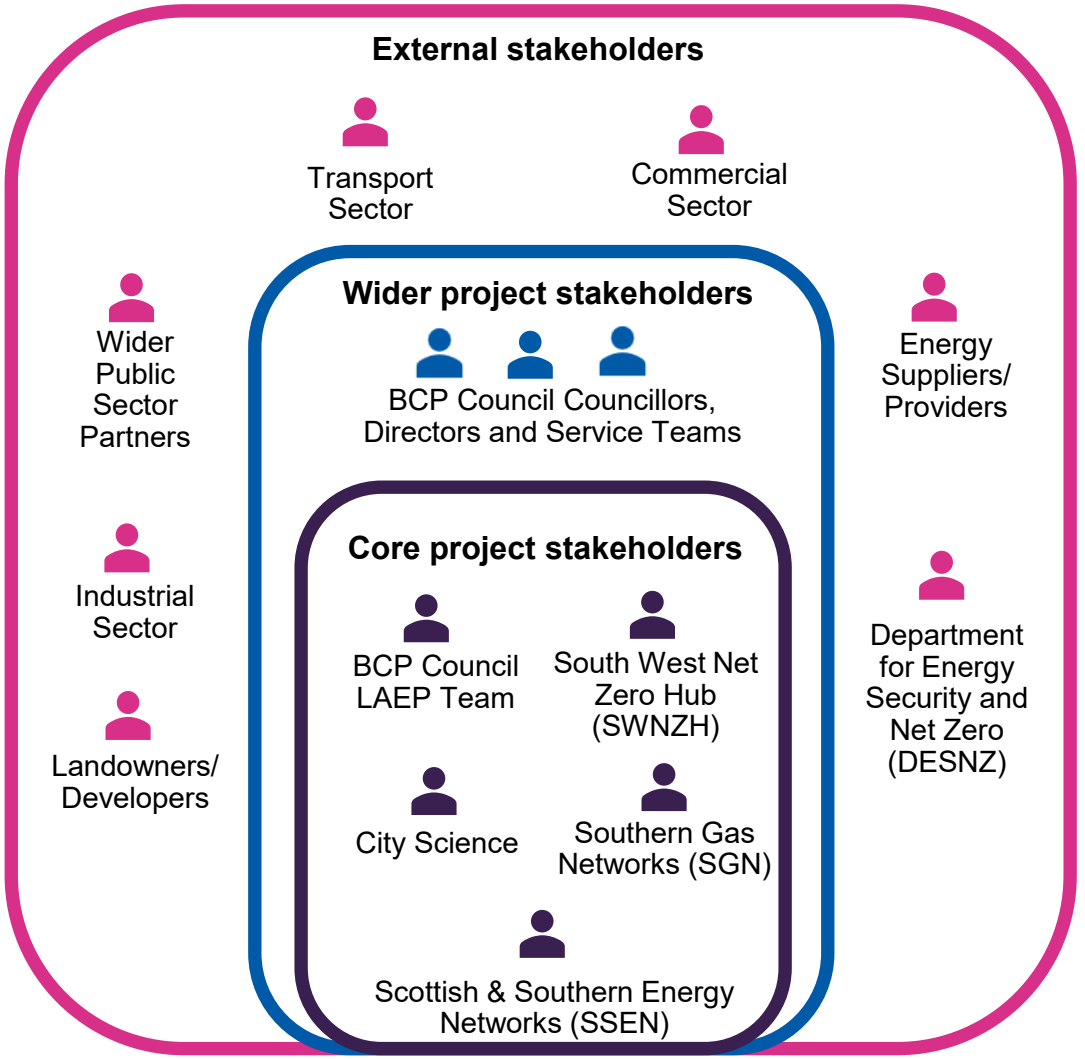
Action Planning

- Non-technical Factors Workshop
- 3x Action Development Workshops
- Action Prioritisation Meeting
- 3x Action Focus Groups

Stakeholders

Effective stakeholder engagement is essential to developing a high-quality LAEP. Securing buy-in from diverse stakeholders, results in a comprehensive, balanced, and implementable plan reflecting the area's varied needs. The engaged stakeholder segments included:

- **Key project stakeholders:** Those with significant influence and responsibility for the delivery of the LAEP.
- **Wider project stakeholders:** Those who are impacted by the LAEP outcomes such as subject experts and council members.
- **External stakeholders:** Those outside local government who have a strong interest in or influence on the LAEP to ensure a participatory process.



Scope

The UK Government's 2021 Net Zero Strategy estimates that 82% of the UK's emissions are "within the scope of influence of local authorities"[3]. The scope of the LAEP covers current energy consumption and associated greenhouse gas emissions, and projected consumption in a defined area to 2050.

Local Area Energy Planning has less emphasis on aspects of the energy system which are expected to be overseen by central government. Large electricity generators connected to the transmission network are aspects considered to be national rather than local. The LAEP does not include non-energy sources of greenhouse gas emissions.

The LAEP considers the current energy system, planned changes, and changes which are needed to transition to net zero carbon emissions. Site-specific data is used where available, with remaining areas covered by national datasets.

This Scope

In addition to ESC's standard LAEP scope, this LAEP also includes agricultural machinery, maritime, energy from waste and rail. Aviation has not been included in the scope of this LAEP as this sector was deemed to have little influence from BCP Council.

It should be noted that despite being in scope for this LAEP, some sectors may not have been included in the proposed measures under the Net Zero Pathway due to them having a low suitability to the BCP area, such as onshore wind.

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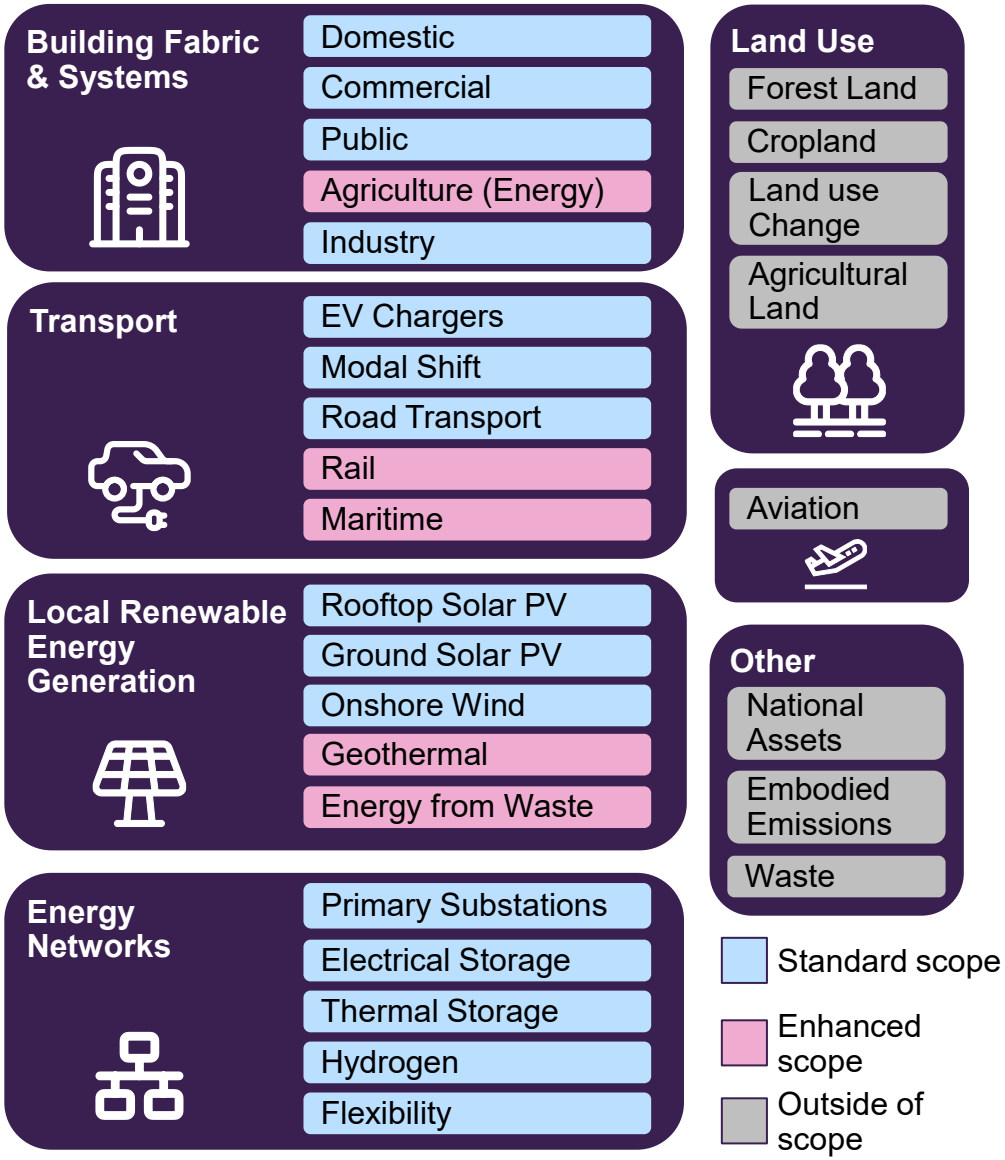


3. Local Context & Energy System

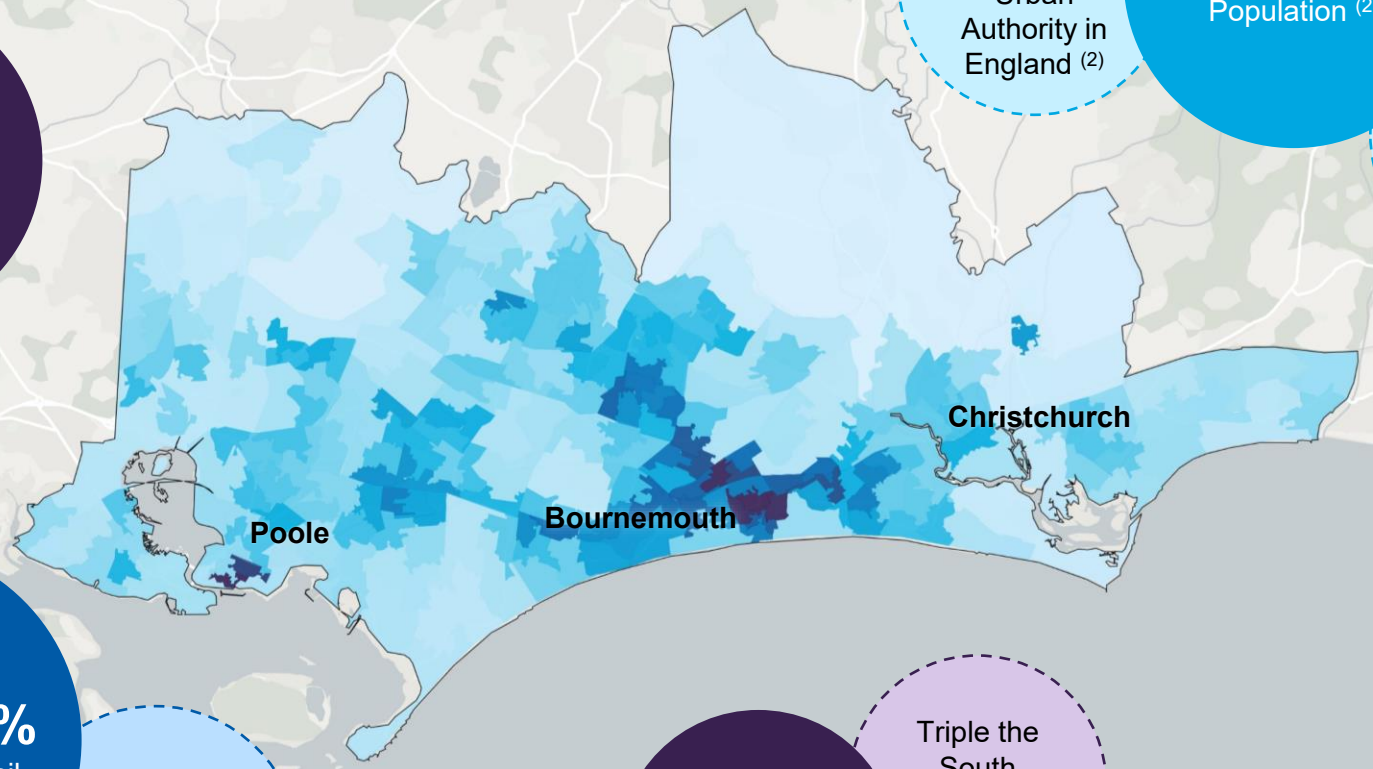
Local Context & Characteristics

161 km²
Land Area (1)

10th
Largest Urban Authority in England (2)

400,200
Population (2)

7%
Of the South West Region's Population (3)



Key Employment Sectors (1)

18% Health

14% Retail

12% Accommodation & Food

97%
Employment Rate (1)

2,480 People per km² (1)

Triple the South West average (3)

Population Density by LSOA (2020) (4)
km-2
2,000 4,000 6,000 8,000 10,000 12,000

Deprivation & Fuel Poverty

Deprivation

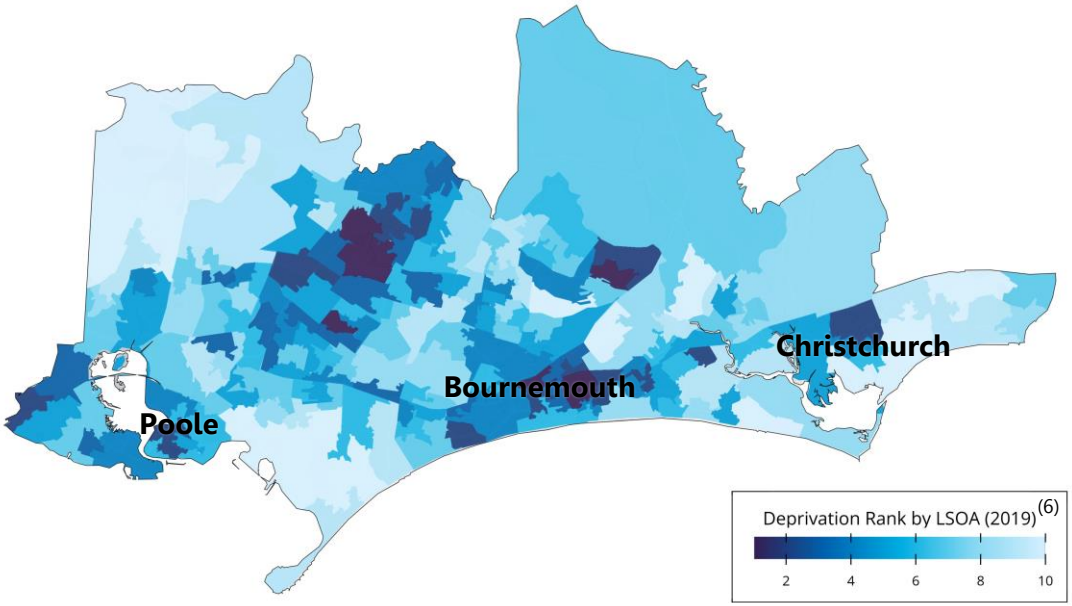
The level of deprivation in an area can be measured using the Index of Multiple Deprivation (IMD)[5]. This assesses deprivation across four dimensions of deprivation: education; employment; health and disability; and housing. Across the BCP area, 52% of households are deprived in at least one of these dimensions. The areas with highest percentage of households experiencing deprivation in at least one dimension include West Howe (71%), Townsend & Strouden (62%), and Rossmore (61%).

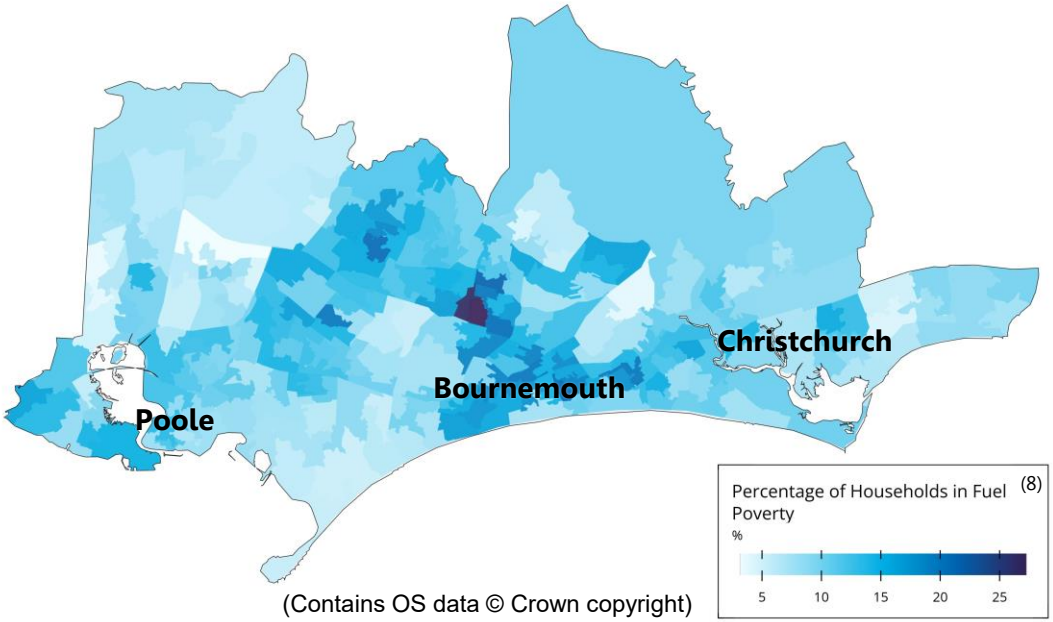
Percentage of households deprived in at least one of the four dimensions of deprivation[5]: **52%**

Fuel Poverty

Fuel poverty in England is measured using the Low Income Energy Efficiency (LILEE) indicator: a household is fuel poor if it has a residual income below the poverty line after housing and energy costs, and lives in a home with an energy efficiency rating of D or below. 11% of households experience fuel poverty across the BCP area (21,000 households)[7]. This is equal to the South West average (11%).

Percentage of households in fuel poverty[7]: **11%**





Policy

NATIONAL

2050

The UK government has set net zero emission targets[9]:

51%
reduction in UK emissions by **2025** on 1990 levels.

At least **95%** of Great Britain's generation from clean sources by **2030.**

The Heat & Buildings Strategy [10] outlines the intention to phase out the installation of new natural gas boilers by **2035.**

The Industrial Decarbonisation Strategy[11] sets out that emissions reduction targets: **⅔** by **2035** and **90%** by **2050.**

REGIONAL

The Joint LEP Strategy[12] sets out the aim to reduce dependency on electricity imports in the South West as the region has the potential to be self-sufficient by **2030.**

The Joint LEP strategy also addresses key barriers for renewables development in the region including grid constraints, loss of subsidies for renewables, high capital costs, national policy, and the need for robust social and political support.

The Bournemouth, Christchurch, Poole and Dorset Renewable Energy Strategy[13] stated that the BCP area has great opportunities for low carbon district heating, energy from waste, and energy efficiency interventions.

LOCAL

2019
Climate and ecological emergency declared.[14]

Committed to carbon neutral council operations by **2030** and net zero across the BCP area by **2045.**

A new BCP Local Plan will include objectives surrounding carbon neutrality and taking action to address and adapt to the climate and ecological emergency.[15]

The fifth priority of the Housing Strategy[2] sets out a minimum standard for social and private rented homes across the BCP area to achieve minimum EPC D by 2026.

Greenhouse Gas Emissions Summary

Note: Emissions reported from UK Government statistics which exclude marine and aviation.

Between 2005 and 2019, the emissions associated with BCP area reduced (by 41%), largely due to electricity grid decarbonisation, but significant emissions remain from the use of fuel for heating and road transport.

The sector with the largest contribution towards emissions at the baseline year is the domestic sector at 37%. This was closely followed by surface transport, which has had limited electrification so far. Furthermore, when combined, the non-domestic sector contributed to around a quarter of total emissions.

In 2019, 1% of annual emissions were offset through Land Use, Land Use Change and Forestry (LULUCF) activities as the BCP area is largely built-up.

Greenhouse Gas emissions reduced by **41%** (2005 ↓ 2019)

1,400 kt CO_2e emissions remain (2019)

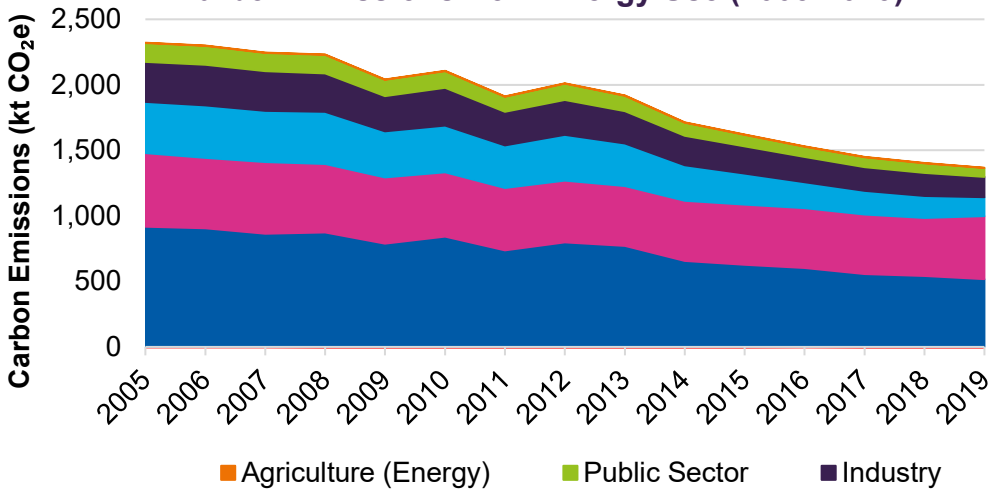
2019 has been used as the base year as this was the last year the available data was unaffected by COVID-19

The emissions reduction rate in the BCP area exceeded the South West's 35% average from 2005 to 2019.(16)

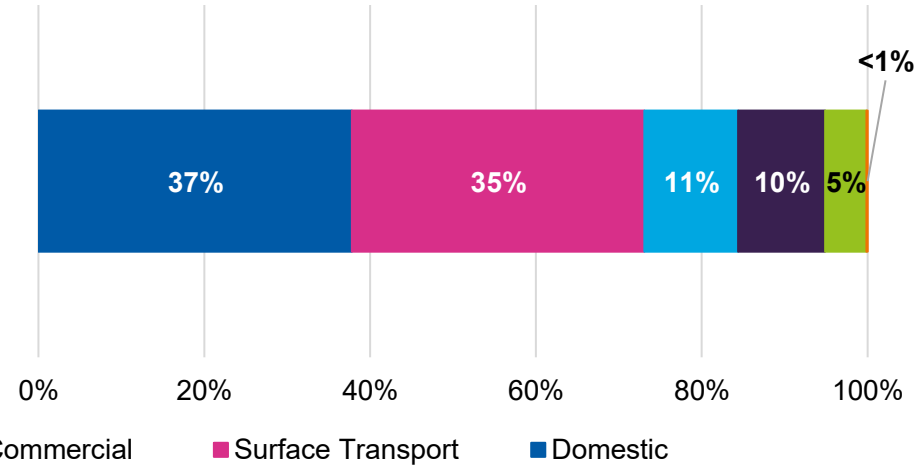
1,350 kt CO_2e energy emissions (2019)

97% of emissions are from energy use (excluding waste, agricultural livestock and soils and LULUCF)

Carbon Emissions from Energy Use (2005-2019)(16)



Energy Use Emissions Breakdown (2019)(16)



Energy Demand Summary

The BCP area used **6,200** GWh of energy in 2019

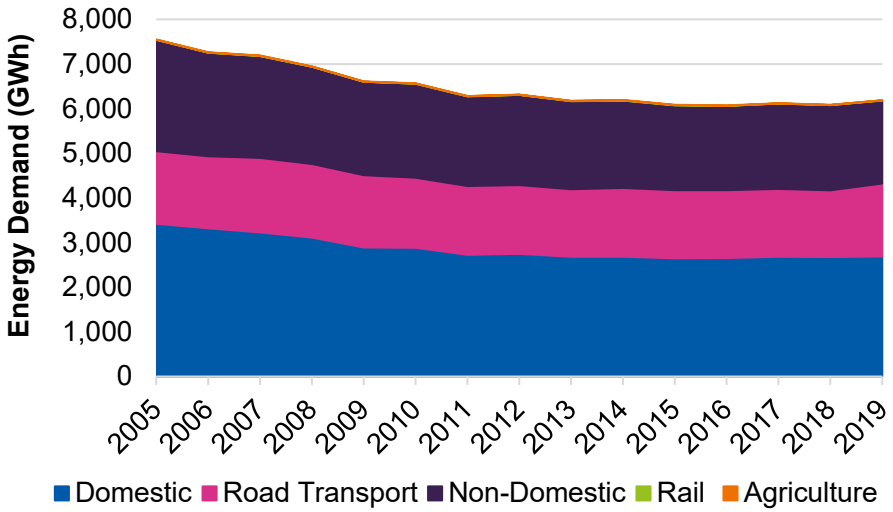
As reported from UK Government statistics which excludes marine and aviation, we estimated a further 300 GWh of marine diesel fuel from Poole Harbour activities.

Energy demand per capita is lower in the BCP area than across the South West:

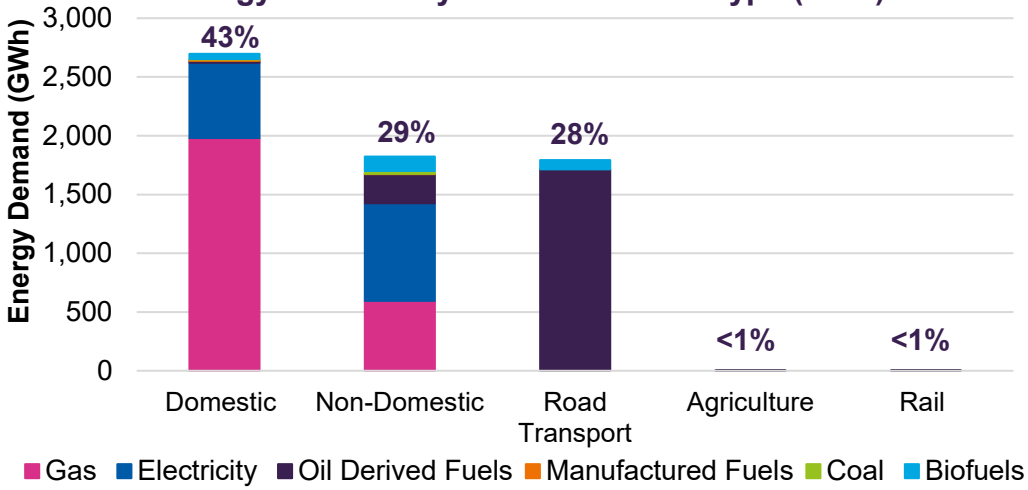
BCP: **~16 MWh per capita**

South West: **~21 MWh per capita**

Historical Energy Demand by Sector (2005-2019)[17]



Energy Demand by Sector and Fuel Type (2019)[17]



At the baseline year, the area's highest energy demand came from domestic buildings, closely followed by non-domestic and road transport. Both the agricultural and rail sectors had nominal contributions to total energy demand.

Energy use across the BCP area **reduced** by

15%

between 2005 and 2019.

- Domestic: ↓ **21%** decrease
- Road Transport: ↑ **1%** increase
- Non-Domestic: ↓ **23%** decrease

This is due to energy demand reductions from both domestic and non-domestic buildings. This could be due to increases in energy efficiency measures and technology advancements that can influence energy demand patterns.

Domestic Sector

The domestic sector in the BCP area accounted for **44%** of energy use at

2,700

GWh (2019)[17]

The domestic sector has experienced a 21% decline in energy demand, mostly as a result of a reduction in gas consumption.

Domestic electricity demand decreased by **16%** 2005 – 2019

Domestic gas demand decreased by **24%** 2005 – 2019

The domestic sector accounted for **38%** of emissions at

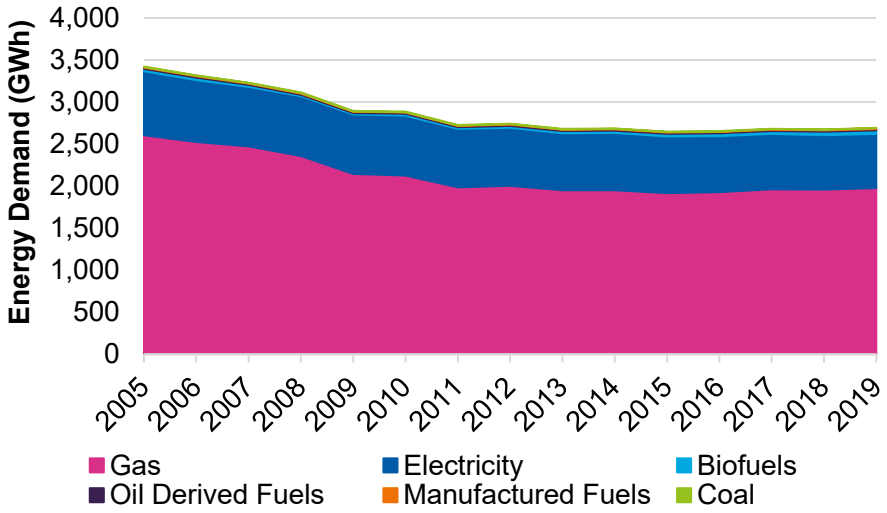
520

kt CO_2e (2019)[16]

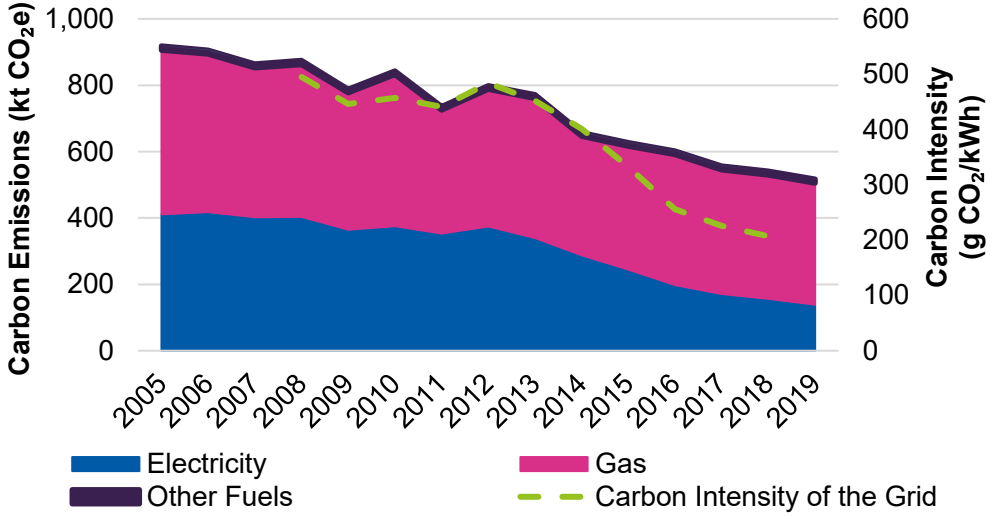
44%

decrease between 2005 and 2019

Historic Domestic Energy Demand (2005-2019)[17]



Historic Domestic Emissions (2005-2019)[16]



Domestic Sector

Baseline Domestic Energy Demand Fuel Split[17]

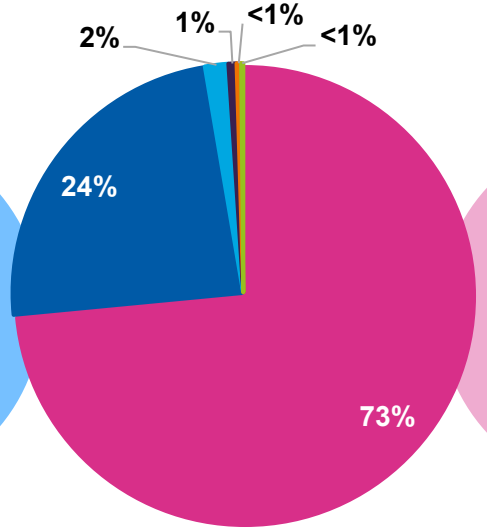
Electricity Demand

Central Bournemouth has higher electricity consumption, likely due to a high density of housing

Domestic **electricity** demand totalled

640

GWh in 2019[17]



Gas Demand

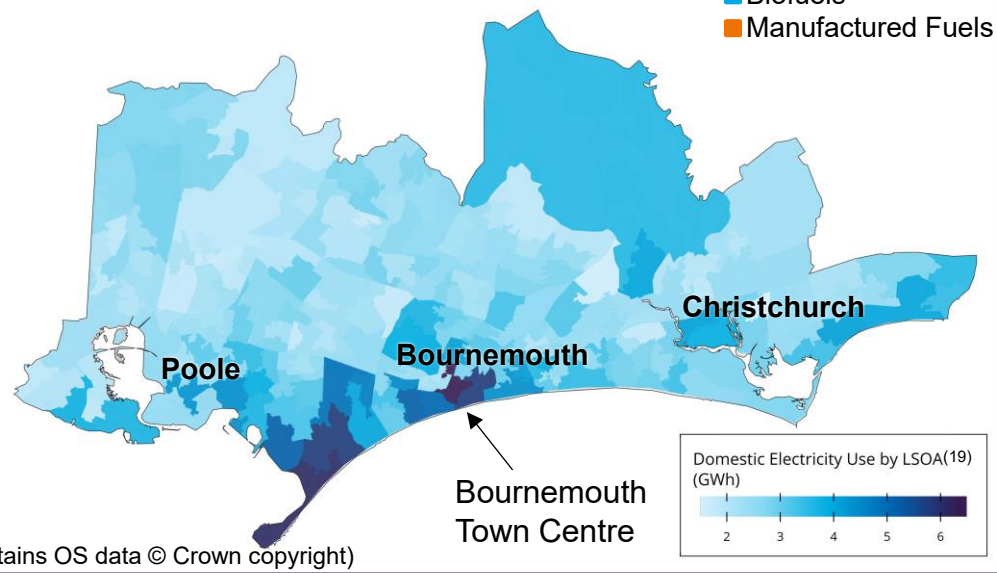
Domestic **gas** demand totalled

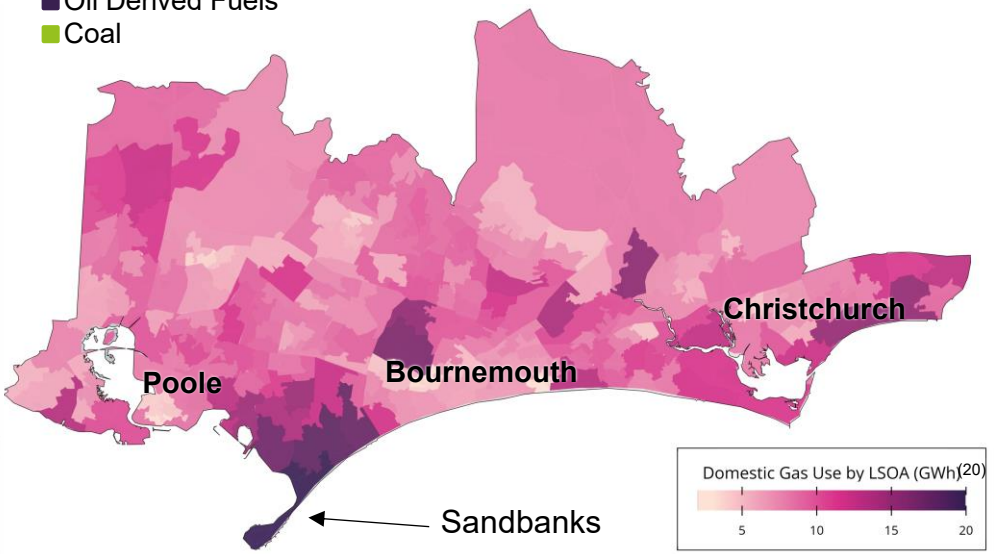
2,000

GWh in 2019[17]

4%

of homes are not connected to the gas network[18]



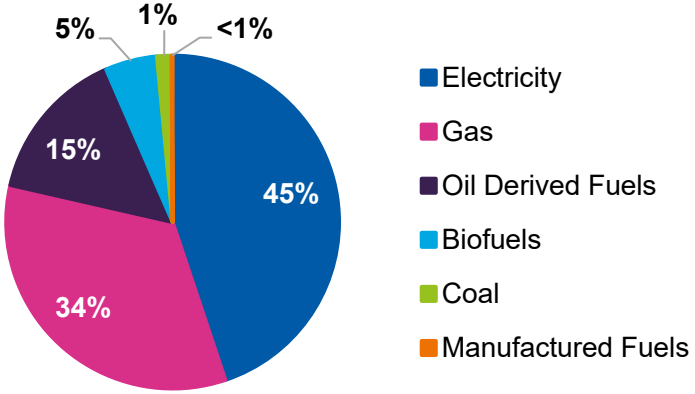


Non-domestic Sector

The BCP areas' non-domestic sector combined, accounted for ~**28%** of energy use at **1,900** GWh (2019) [17]

This includes the industrial and commercial sectors and the public sector

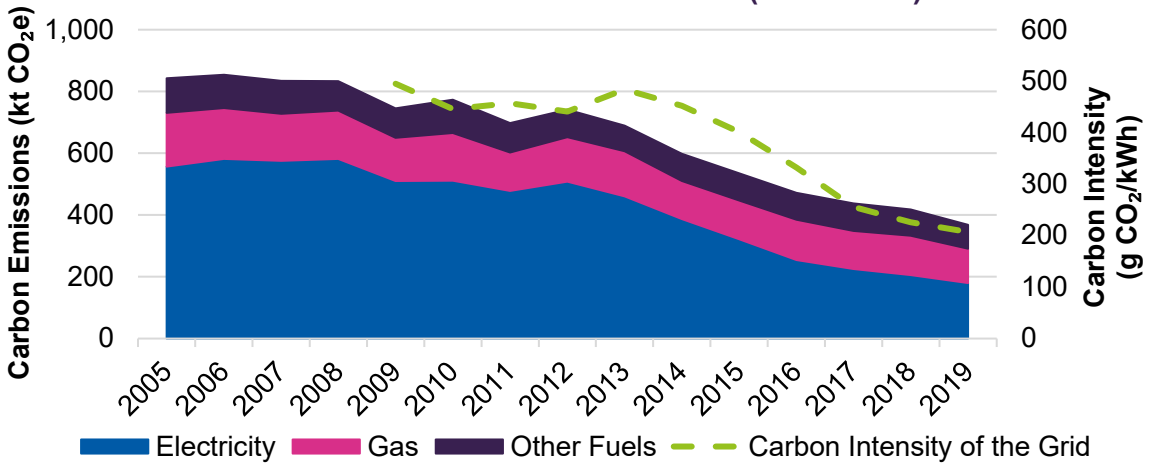
Non-Domestic Energy Demand Breakdown[17]



Non-domestic electricity demand totalled **830 GWh** in 2019

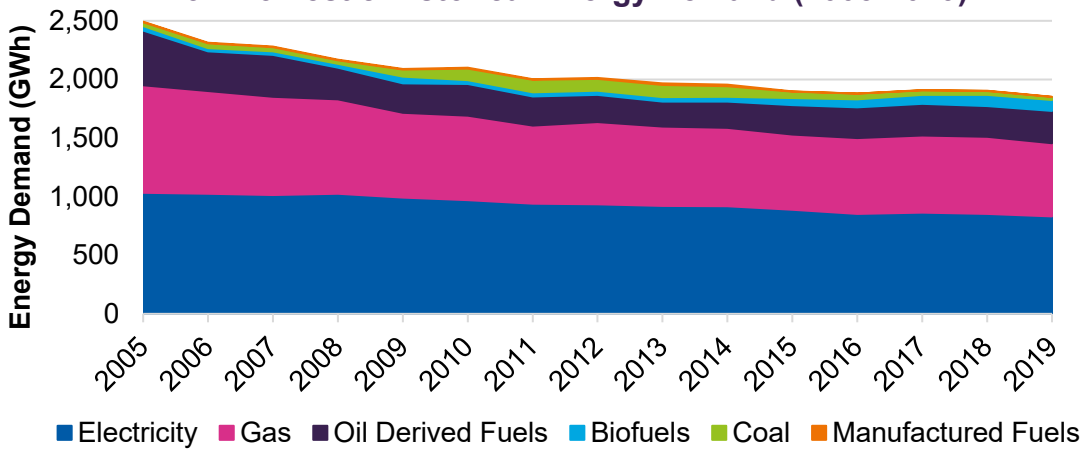
Non-domestic gas demand totalled **620 GWh** in 2019

Non-Domestic Historical Emissions (2005-2019)[16]



The non-domestic sector in the BCP area experienced a significant **60%** reduction in emissions. This is largely due to the decarbonisation of the electricity grid as most non-domestic energy demand is from electricity at almost half of demand.

Non-Domestic Historical Energy Demand (2005-2019)[17]



Point-Source Emitters & Recoverable Heat Sources

The National Atmospheric Emissions Inventory (NAEI)[21] point-source emissions dataset highlighted five large emitters in the BCP area. These emissions are from fuel combustion on-site.

- Royal Bournemouth Hospital
- Tarmac Parkstone
- Poole Hospital
- JP Morgan

Recoverable heat sources can be utilised to meet space heating and hot water demands through communal/district heating.

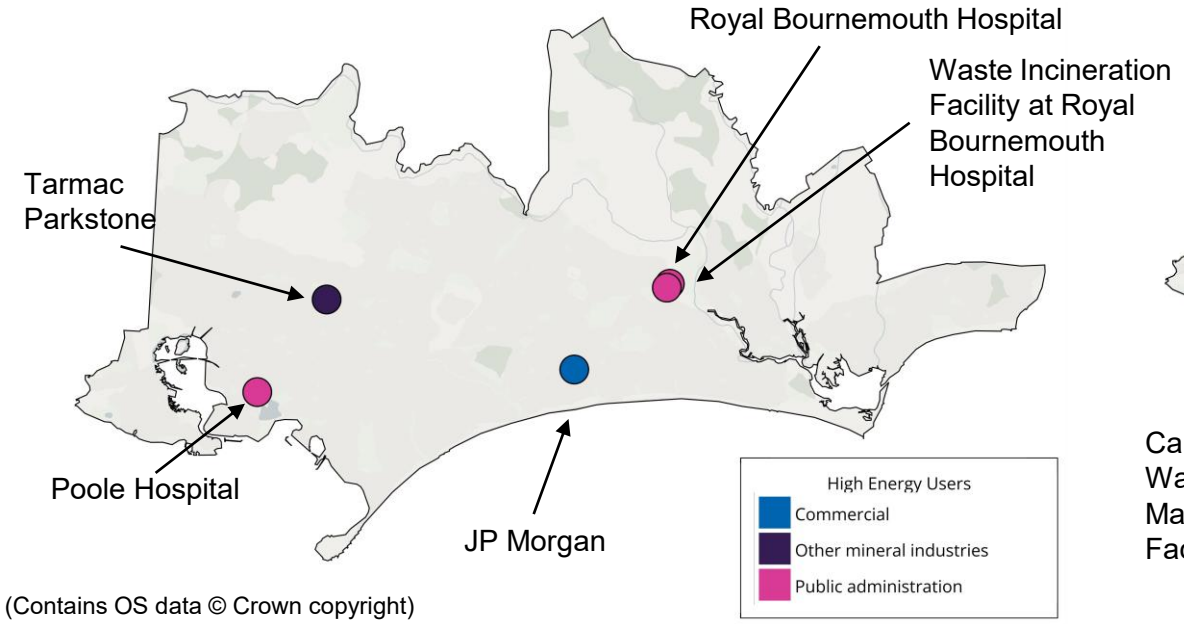
The BCP area has the highest density of medium to high utility recoverable heat of all authorities in the SWNZH (34 local authorities).[22]

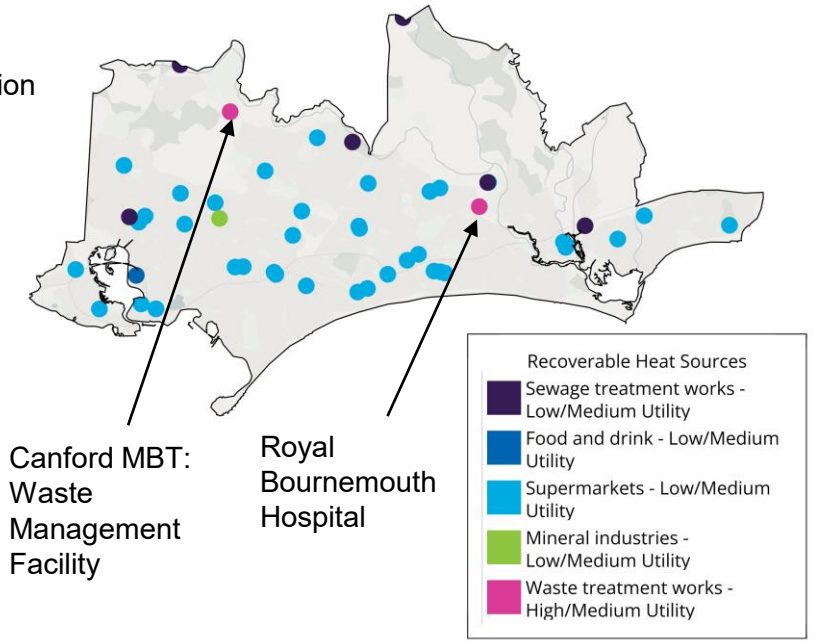
Higher utility sites are typically:

- Higher temperature
- Larger loads
- Longer lifetime

Total potential heat sources: 37

High/medium utility sites: 2





Road Transport

Road transport accounted for **35%** of emissions at

480

kt CO_2e (2019)[16]

Emissions decreased by

14%

between 2005 & 2019

The increase in energy demand could be due to the growing number of cars in the BCP area, increasing by **11%** (2009-2019), as well as the substantial increase in diesel vehicles.[23]

The BCP area's road transport energy usage **increased** by

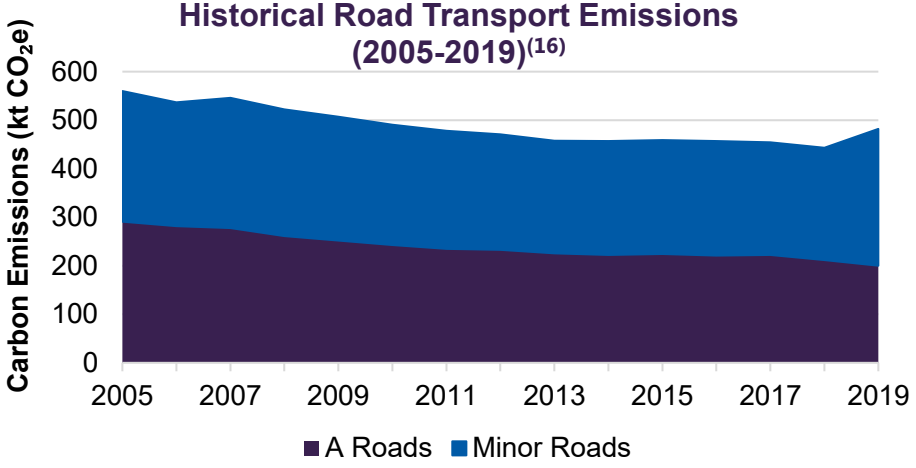
1%

between 2005 and 2019
Notable changes include:

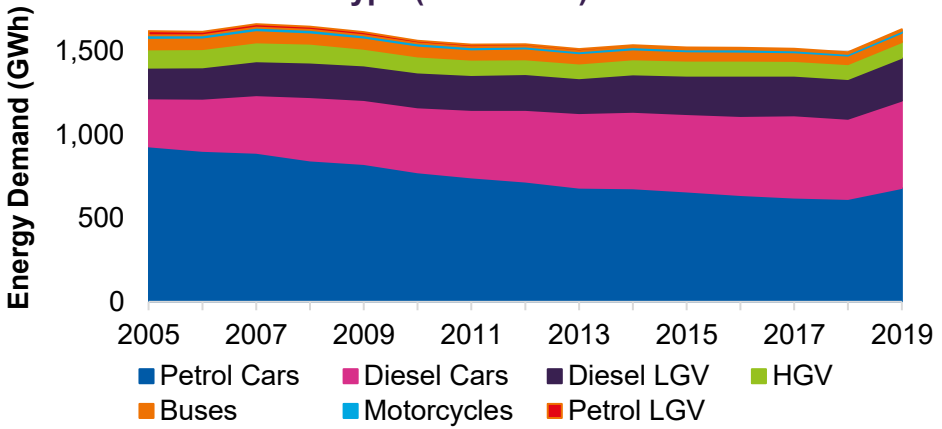
- Petrol Cars: ↓ **26%** decrease
- Diesel Cars: ↑ **78%** increase
- Diesel LGV: ↑ **39%** increase

Whilst **buses** continue to account for a small proportion of energy use at **3%** of total demand in 2019.

Historical Road Transport Emissions (2005-2019)[16]



Historical Road Transport Energy by Vehicle Type (2005-2019)[24]



Electric Vehicles & Chargepoints

The BCP area has a total of **4,800** plug-in vehicles[25]

2023

Total number of registered plug-in cars: **4,550**

Number of registered EVs:	Number of registered range extended EVs:	Number of registered hybrid vehicles:
2,900	**80**	**1,600**

2023

Total plug-in buses/coaches:	**4**
Total plug-in HGVs:	**8**
Total plug-in Light Goods Vehicles:	**173**
Total plug-in motorcycles:	**104**
Total 'Other Vehicles':	**1**

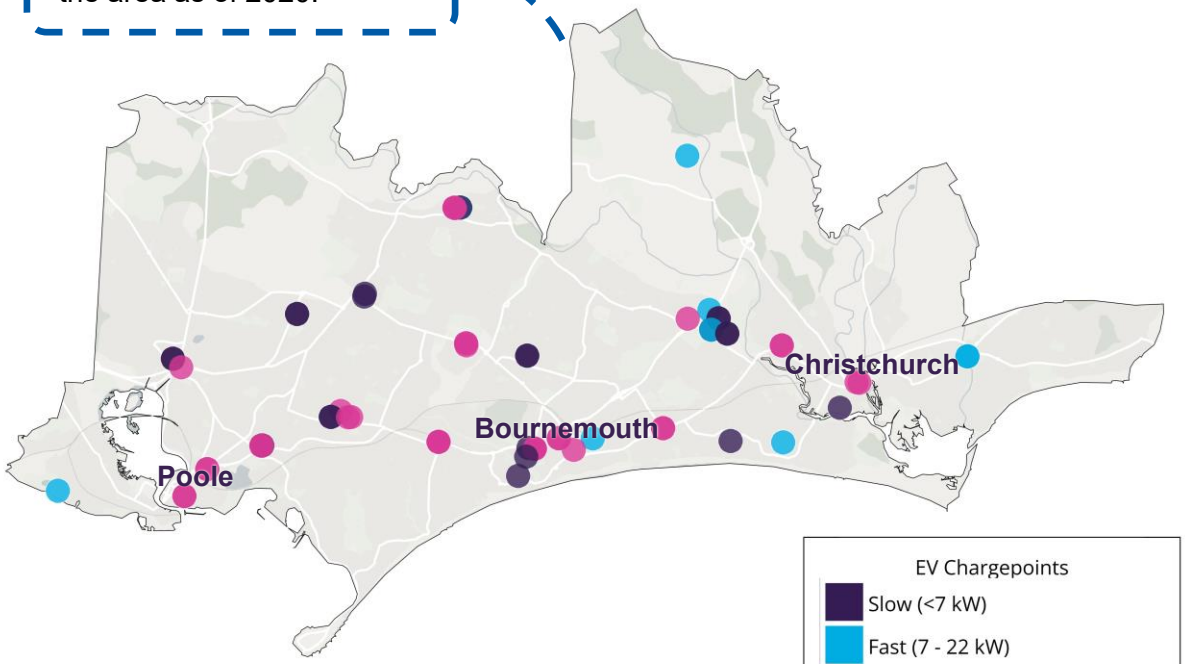
1.9% of all vehicles and **2.3%** of all cars are plug-in.

Chargepoints

2025

As of January 2025, there are **220** publicly available chargepoints across the BCP area.

Map of chargepoints across the area as of 2020.[26]



Maritime

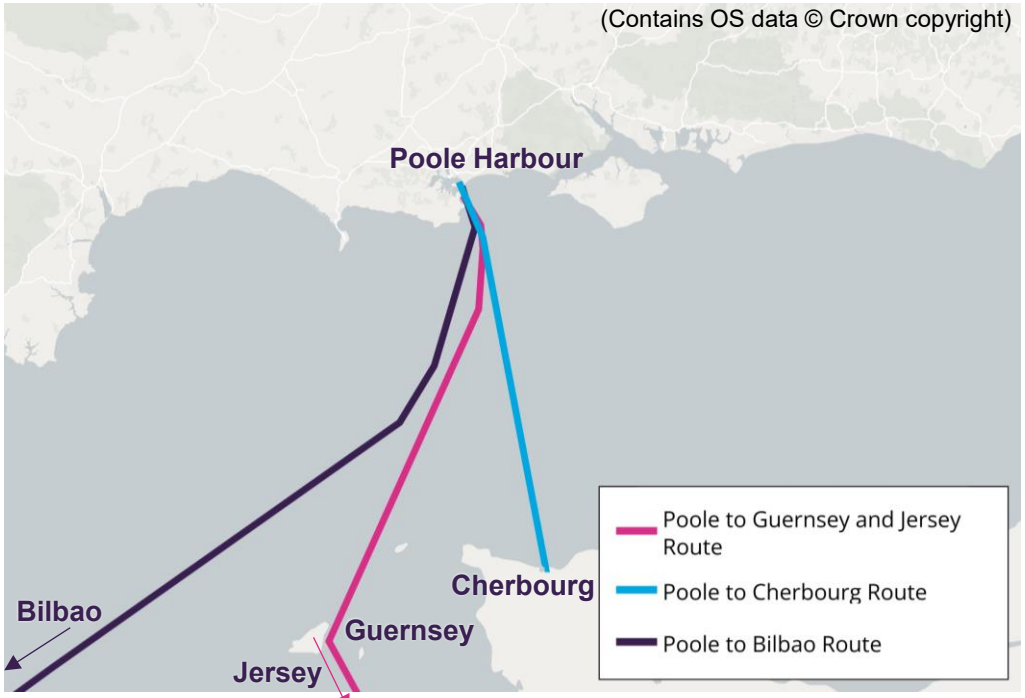
Energy and emissions estimated (not taken from national statistics) using data received from the Port of Poole Decarbonisation Study, numbers may differ against this study due to scope.

Poole Harbour is Europe's largest natural harbour and encompasses the Port of Poole.[27]

Key statistics

- **Domestic Crossings:** 172,000 passengers on crossings from Poole to Jersey/Guernsey.
- **International Crossings:** 204,000 ferry passengers on short sea routes per year.
- **Freight Traffic:** 532 tonnage of cargo, both directions (freight).

In parallel to this LAEP, the Poole Harbour Commissioners (PHC) have been working on Port of Poole's Decarbonisation Plan[28] which provided data to allow us to make an energy and emissions estimation for the purposes of this study.



Maritime baseline fuel demand

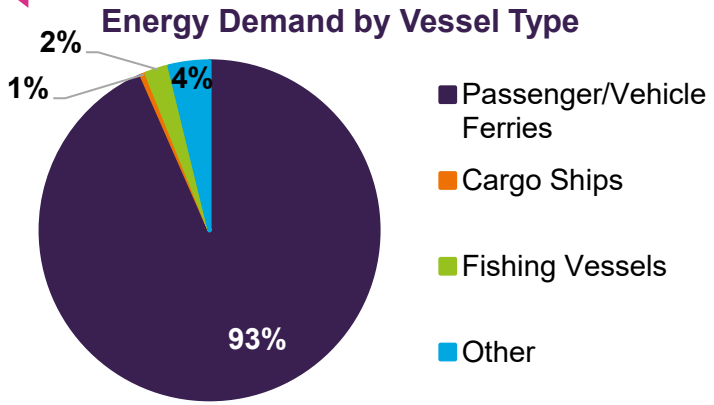
280

GWh

Maritime Greenhouse Gas emissions

77

$ktCO_2e$



Energy Generation

The BCP area has an operational renewable energy generation capacity of **115 MW**[29]

Ground Mount Solar Capacity: **109 MW**

Landfill Gas: **6 MW**

Possible Installations:

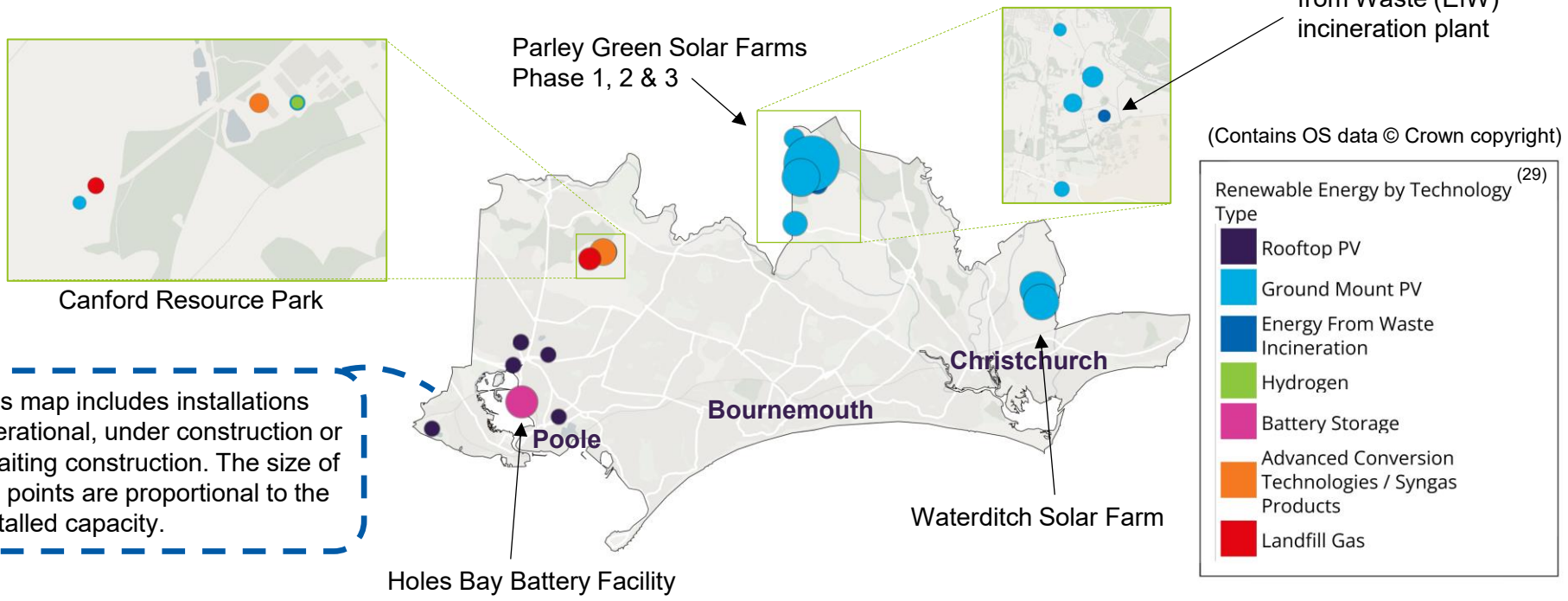
Chapel Lane Energy Recovery: 11.5 MW_{th}, 3.4 MW_e

Canford Resource Park: 2 MW_e solar, EfW CHP 5 MW_{th} 30 MW_e

Key Operational Installations:

Parley Green Solar Farm: 56 MW

Waterditch Solar farm: 36MW



This map includes installations operational, under construction or awaiting construction. The size of the points are proportional to the installed capacity.

Geothermal & District Heating

Geothermal

The Wessex Basin hosts a hot sedimentary aquifer with identified geothermal potential.

Shallow geothermal (<200m) has moderate to high capacity potential that is suitable for ground-source heat pumps.

Deep geothermal (~1.8mk) could extract heat at 65-75*C using a doublet system, with an estimated potential of 2 MW depending on flow rates[30].

Communal Heating

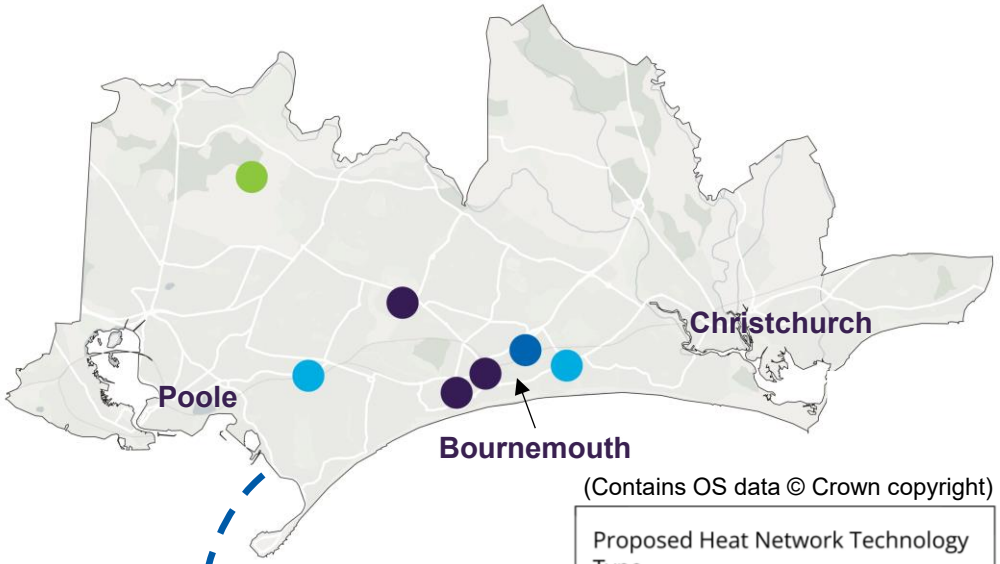
As of December 2022, the BCP area had 54 communal heat networks (46 residential, 8 commercial) serving 2,148 customers (2,038 residential, 110 commercial)[31].

Planning permission has been granted for a single-building communal heat network at Cleveland Road Flats[31]. Additionally, proposed networks awaiting approval include three air-source heat pump systems, with the largest serving 475 customers at Holland House.

Applications have also been submitted for three communal heat networks: two using ground-source heat pumps and one at Canford Resource Park utilising energy from waste for combined heat and power.

District Heat Networks

There are currently no operational DHNs in the BCP area. However, feasibility studies have been conducted, highlighting the area's strong potential for heat networks due to the area's high building density.



This map shows planned communal heat networks, as of 2024[32].

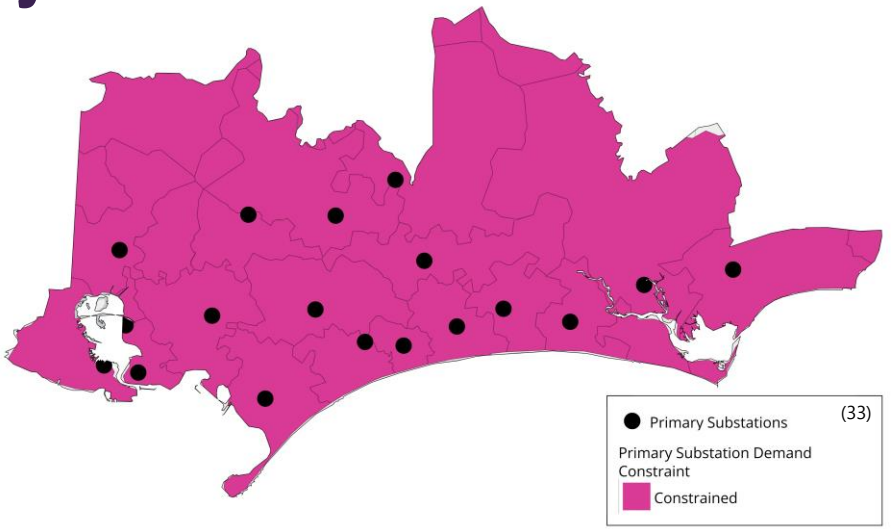
Energy Infrastructure: Electricity

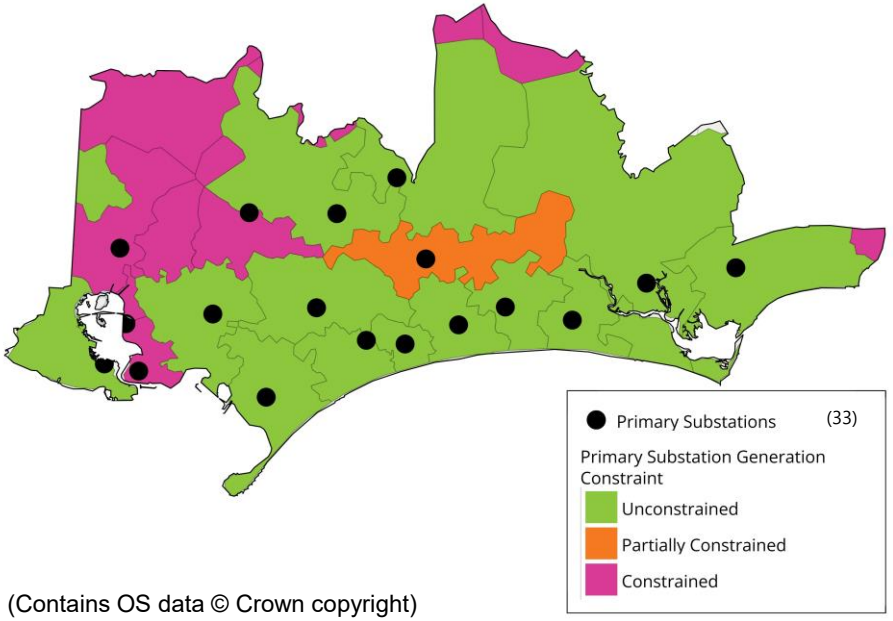
- The BCP area has **16** Primary Substation zones.
- Whilst there is demand-side constraint across the BCP area, it has been identified that across the authority there are areas currently operating below their design capacity.
  - This is an upstream constraint caused by the local Grid Supply Point (GSP) (Mannington GSP).
  - This has already been approved for upgrades by the National Grid.
- In contrast to demand-side constraints, no significant generation constraints have been identified across the BCP area.

SSEN has produced a Network Development Report which list investment requirements to the grid.[34] Within the BCP area, two primary substations require investment which are served by Mannington GSP:

- Wimborne Primary Substation
- Mill Lane Primary Substation

SSEN has also developed the Local Energy Net Zero Accelerator (LENZA) software with which SSEN can provide support to local authorities in planning their pathways to net zero. It has been designed to support users in the creation of LAEPs and enables the planning of decarbonisation pathways.[35]



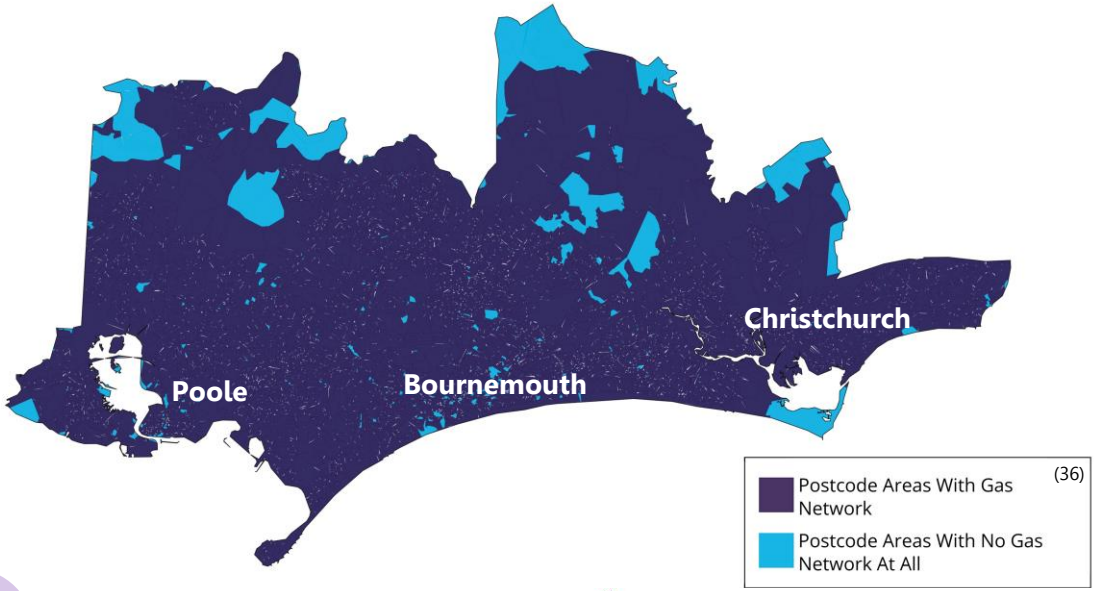


Energy Infrastructure: Gas

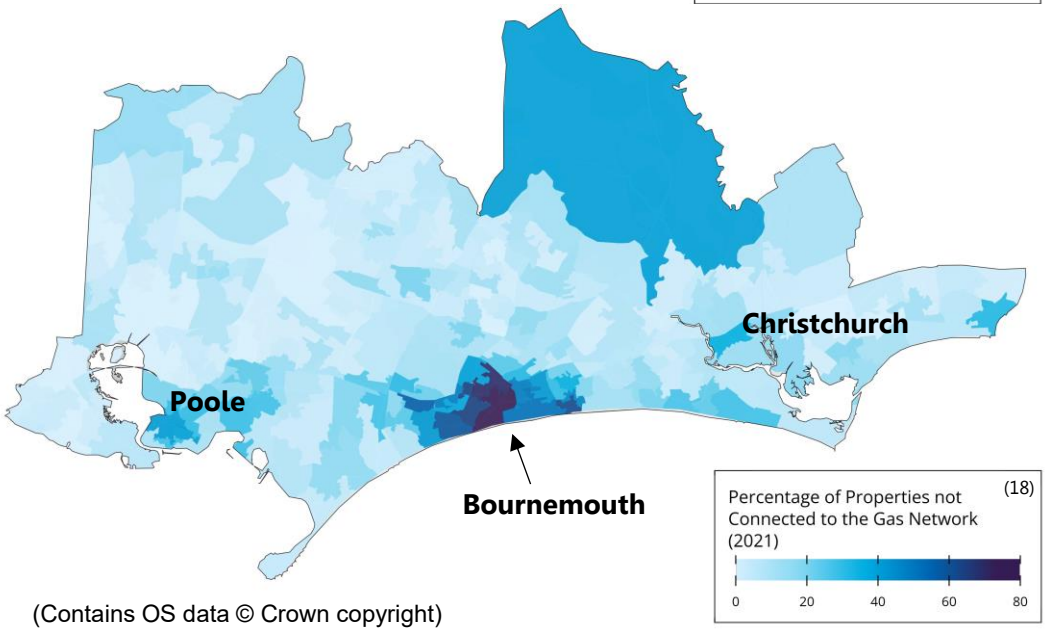
There is a large coverage of gas networks in the BCP area.

Only **4%** of postcode areas are not connected to mains gas[36]:

Gas distribution infrastructure in the area is owned and managed by SGN.



- Areas with the highest proportion of off-gas properties are situated in the urban centres of Bournemouth and Poole, likely due to the prevalence of high-rise buildings, which are more commonly heated with electricity.
- Coastal areas with many second or holiday homes, particularly in Bournemouth are expected to have low winter heat demand.
- Off-gas grid heating (such as oil) is typically more expensive than mains gas, so heat pumps can be more competitive in these off-gas areas.
- It can be expected that the development of heat networks in the urban centres of Poole and Bournemouth will significantly reduce gas consumption in the BCP area.



(Contains OS data © Crown copyright)

4. Pathway to Net Zero

Scenario Modelling

To understand what the local energy system may look like in the future, we model future energy scenarios. Scenarios help us assess how different energy technologies and sources could work together to meet local needs. Scenarios are not predictions, they offer insights into potential futures and their impacts, helping to inform policy decisions based on specific conditions and assumptions.

The scenario development process for the LAEP was part evidence-based (through literature reviews of other authoritative scenarios), part analysis informed (e.g. analysis of local EPC data informed heating technology assumptions) and part led by feedback from stakeholders (we gained views on preferred elements of scenarios).

The scenario development started with two exploratory scenarios: Reduction and Innovation. A third, the Balanced scenario, was then created based on feedback on the two exploratory scenarios. It is a compromise between taking preferred aspects of the two scenarios against what was felt to be the most achievable to reach net zero. This Balanced scenario became the foundation for the Net Zero Pathway.

Innovation

Purpose: Showcases the integration of innovative technologies. Techno-optimism over social change.

Characteristics: Models less behaviour change and more innovative technologies.

Reduction

Purpose: Explores the benefits of behaviour change and societal acceptance.

Characteristics: Models greater behaviour change and uses technologies we have more certainty over today.

Balanced

Purpose: Representing the preferred and what was considered to be the most achievable elements of the exploratory scenarios.

Characteristics: It has high uptake on some preferred 'harder-to-deploy' technologies, such as heat networks, but also relies on behaviour change, such as increased mode shifting away from cars.

Exploratory Scenarios Summary

A summary of the key assumptions used across the scenarios is shown below:

	Reduction	Innovation	Balanced
Building Fabric Retrofit	Shallow for all domestic and deep for social housing. Shallow for non-domestic.	Only shallow retrofit for domestic and non-domestic buildings.	Shallow for all domestic and deep for 50% of social housing. Shallow for non-domestic.
Mode Shift	Highest mode shift and demand reduction assumptions.	No mode shift modelled to active travel or buses. Small demand reduction.	Highest mode shift and demand reduction assumptions.
Building Heating	Majority of heat from individual ASHPs for domestic and non-domestic buildings.	ASHP serves the majority, but very high uptake of heat networks and GSHP.	ASHP dominant but high uptake of heat networks and moderate GSHP.
EV Uptake	Some hydrogen fuel cells modelled for HGVs and Buses. All other vehicles to EVs.	Optimistic in battery development with all vehicles modelled to transition to EVs.	Some hydrogen fuel cells modelled for HGVs and Buses. All other vehicles to EVs.
District Heat Networks	Heat networks meeting 9% of heat demand.	Heat networks meeting 26% of heat demand.	Heat networks meeting 20% of heat demand in line national economic potential.
Renewable Energy Generation	25% of viable ground PV areas pursued and high uptake of rooftop PV.	12.5% of viable ground PV areas pursued and lower uptake of rooftop PV.	12.5% of viable ground PV areas pursued and high uptake of rooftop PV.

Exploratory Scenarios

Energy Mix in 2050

Base year (2019) energy demand is approximately 6,500 GWh (when including marine) which is mostly met from fossil fuels, such as petrol, diesel, and gas. The pie charts on the right show the fuel split and final energy demand in 2050 under each scenario. By 2050, all scenarios project a significant shift away from these fuels, primarily towards electricity, resulting in an overall reduction in energy demand due to the efficiencies of electrification.

Innovation: 3,400 GWh

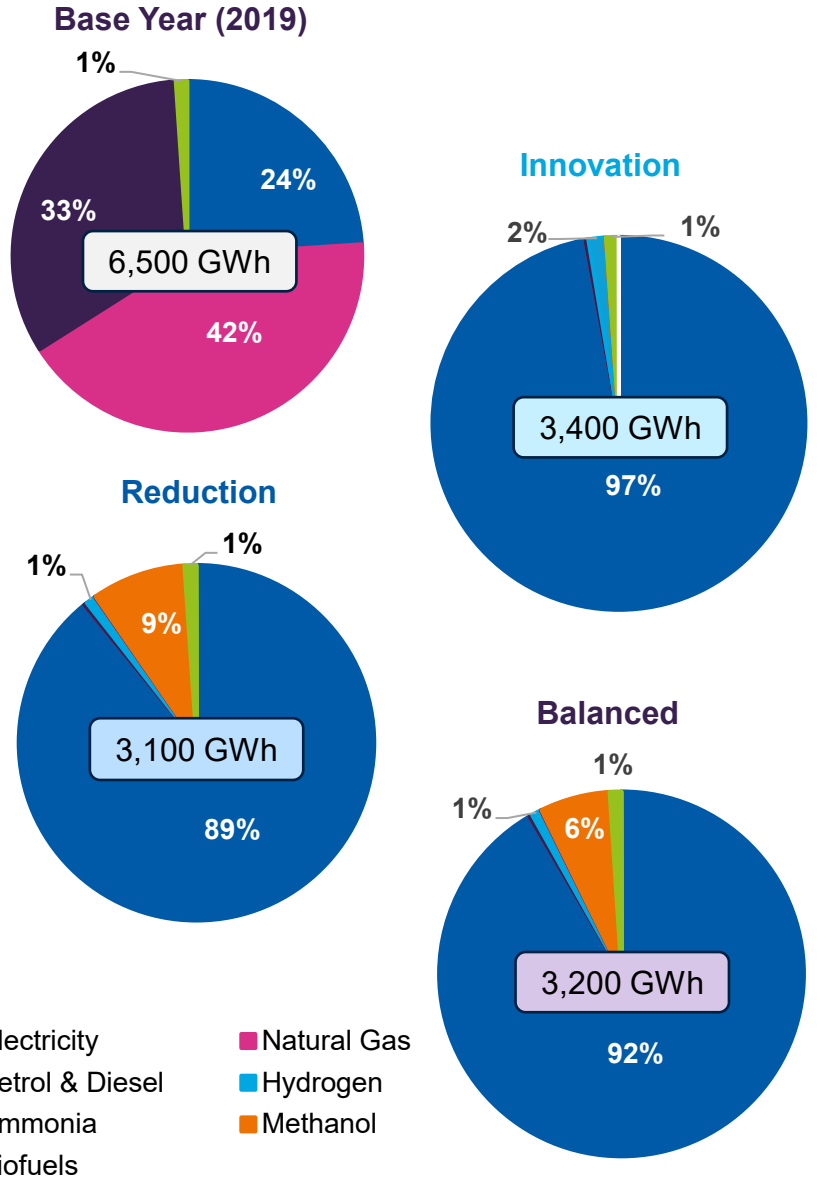
Whilst this scenario has the highest amount of electrification, providing efficiencies, it has the lowest behaviour change assumptions, resulting in no mode shift modelled for road transport and the lowest building fabric upgrades, and consequently the highest energy demand in 2050.

Reduction: 3,100 GWh

The 2050 energy demand is lowest in the Reduction scenario due to greater modelled behaviour change such as mode shift. It has higher demand for alternative fuels such as hydrogen and methanol as it has been less optimistic on electrification advancing to fulfil the 'harder-to-decarbonise' sectors of marine and heavy road transport.

Balanced: 3,200 GWh

The Balanced scenario has an overall energy demand closer to the Reduction scenario as it has assumed the highest mode shift assumptions, but it has been less optimistic than the Innovation scenario on electrification, hence it has a significant amount of alternative fuels.



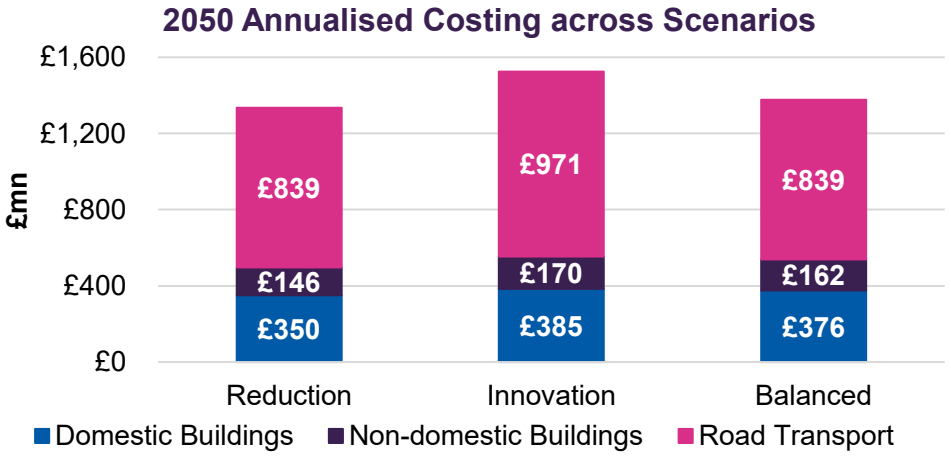
Exploratory Scenarios

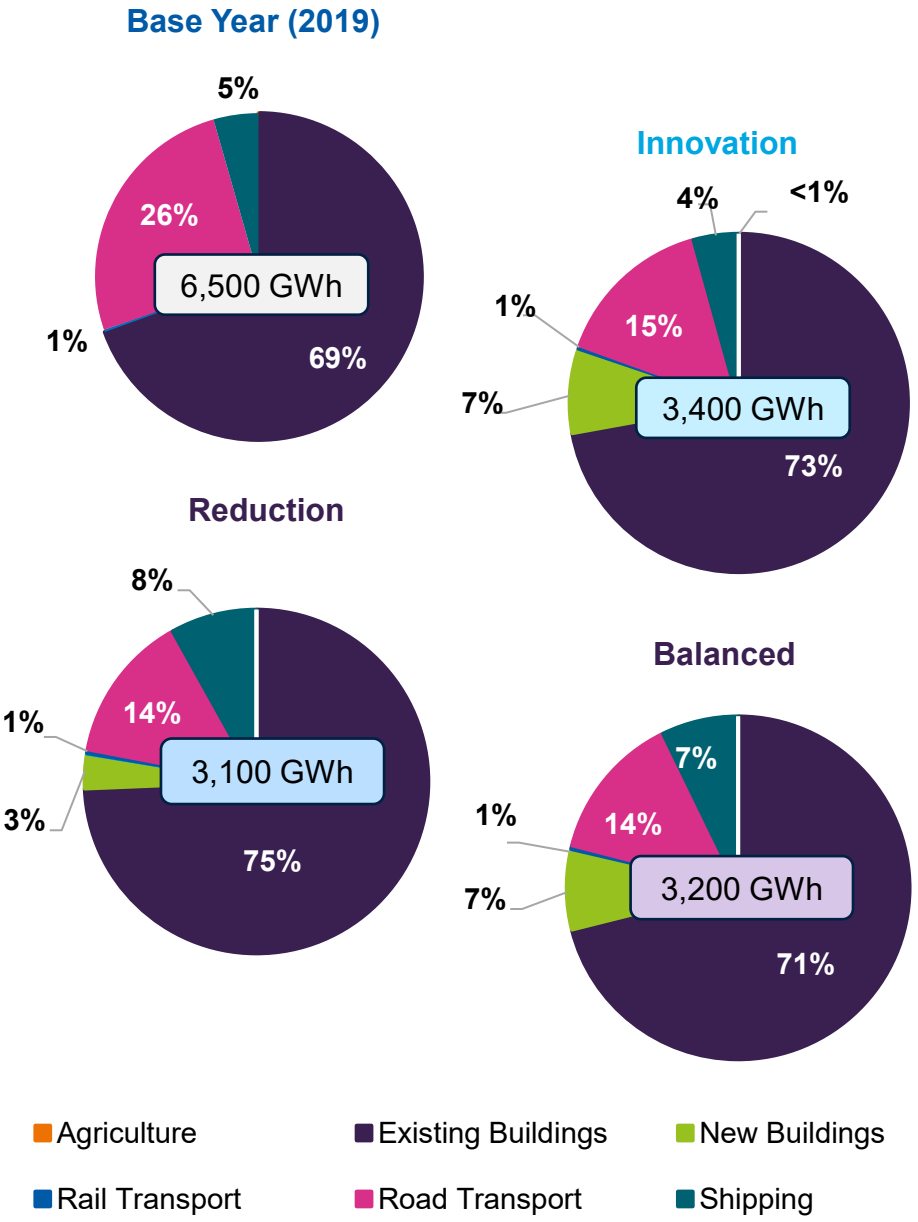
Sectoral Breakdown in 2050

Across the scenarios, buildings account for the highest proportion of energy in 2050, which requires electricity for lighting and appliances, as well as for heat pumps, which provide most of the heat. Road transport is the next most significant sector, which is either fully or mostly electrified across the scenarios. The marine sector has a similar energy demand compared to the baseline under the Reduction and Innovation scenarios, as these scenarios assume alternative fuels for the means of decarbonisation, however, the Innovation scenario assumed high electrification of the marine sector, so it has benefitted from the efficiencies of electrification.

System Costs

Innovation was found to have the highest overall costs, as it has increased transport needs compared to Reduction and Balanced, which benefitted from greater demand reduction and mode shift. The road transport costs are more significant than the other sectors due to the high capital cost of vehicles.





Net Zero Pathway

To understand how to achieve BCP Council's net zero goals, we need to understand the pathway to get there. Two pathways have been developed: the Balanced pathway, which pursues net zero by 2045, and the Do Nothing pathway, serving as a counterfactual which does not achieve net zero. The modelling examines how key metrics will change over time to meet these scenarios by 2050.

Do Nothing

This scenario serves as a counterfactual, presenting the future energy system with only existing decarbonisation pledges (such as the ban on new ICE cars from 2035)

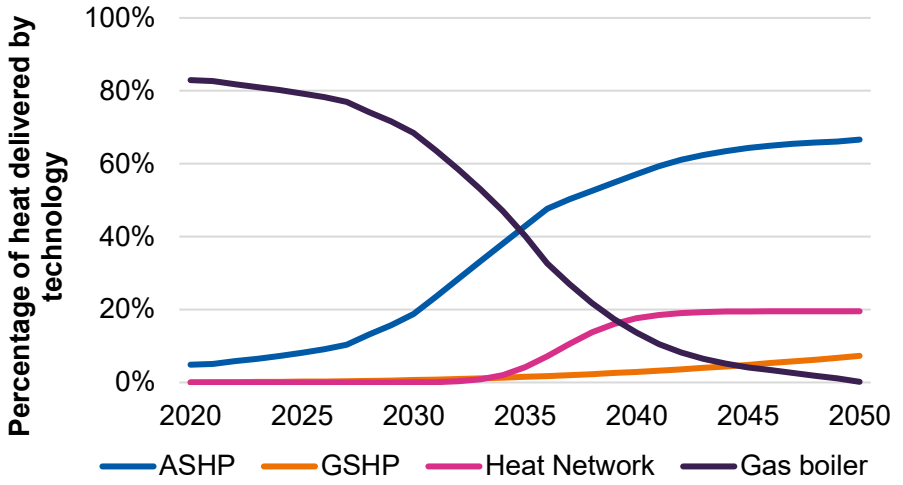
It excludes policies which aren't tangible and, as such, does not guarantee net zero by 2045.

The analysis spans all sectors, and covers energy and fuel usage, carbon emissions, system cost, jobs created and air quality. The adoption rates of new technologies are based on projections from National Grid's Future Energy Scenarios(1) as well as our own judgement on what we felt to be achievable.

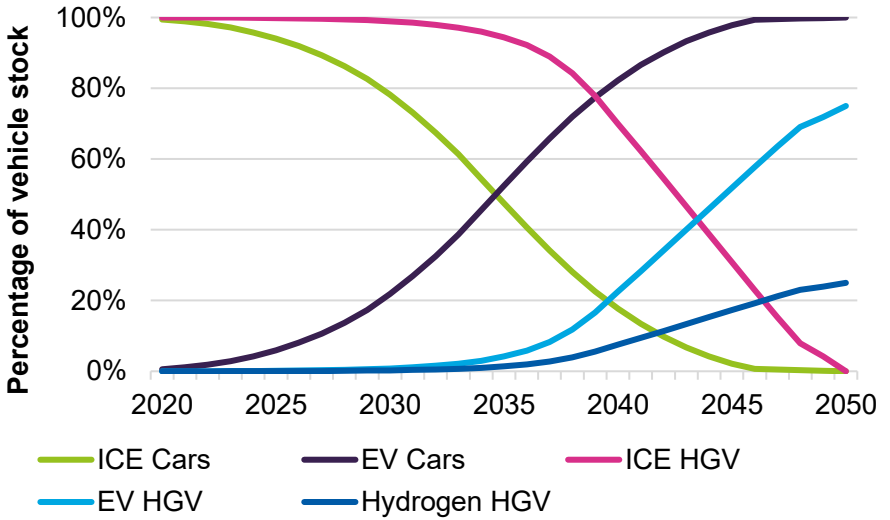
Some of the key trajectories modelled under the Balanced pathway are shown on the right-hand side.

- Heat in buildings is assumed to largely switch to Air Source Heat Pumps (ASHP) with uptake ramping up from 2030 onwards. Ground Source Heat Pumps (GSHPs) have a slower uptake over time, reaching just under 10% of heat delivered by 2050. Heat networks have been modelled to provide 20% of heat demand once fully built, with the construction assumed to happen in the late 2030s.
- Road transport follows an earlier decarbonisation curve, recognising that EV cars are close to reaching price parity with ICE vehicles already. Heavier vehicles (HGVs and buses) are 'harder-to-decarbonise', so the uptake occurs in later years.

Heating System Trajectories Under the Balanced Pathway



Vehicle Trajectories Under the Balanced Pathway

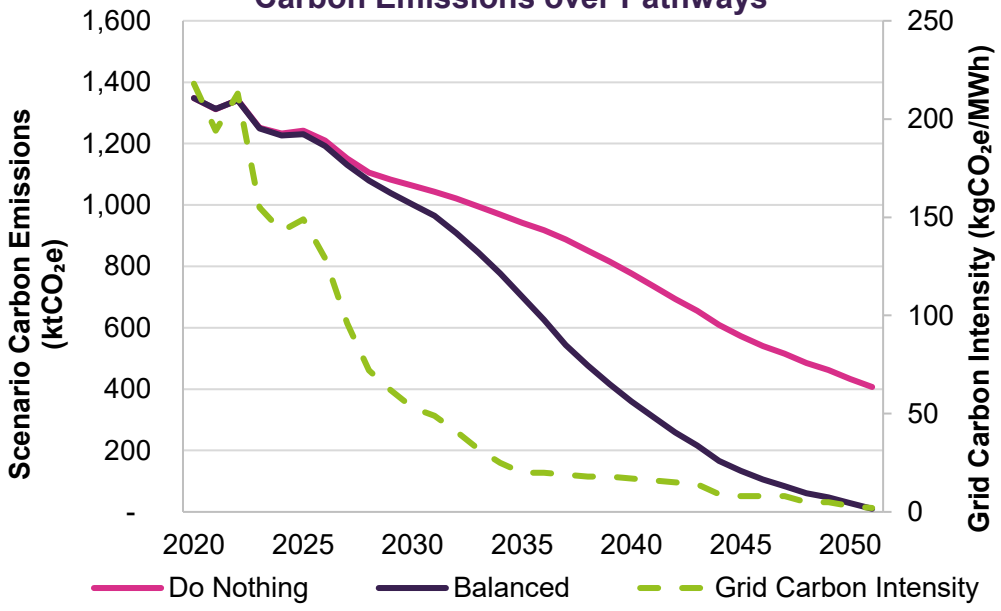


Net Zero Pathway

Both scenarios see significant decarbonisation as the national electricity grid is expected to decarbonise, and even under Do Nothing we expect road transport to mostly electrify, and some buildings to switch to heat pumps.

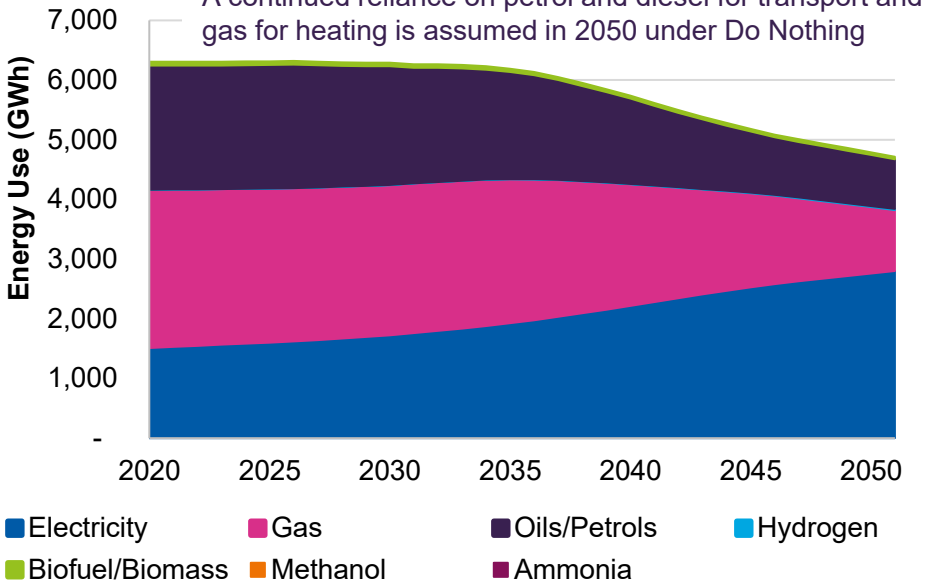
However, Do Nothing is not considered to get us to net zero, it still has significant emissions in 2050 (400 $ktCO_2e$), whereas the Balanced scenario reaches a 90% reduction of emissions (from the base year) by 2045 (100 $ktCO_2e$) – we consider this to be compatible with net zero provided the remaining emissions are balanced with removals.

Carbon Emissions over Pathways

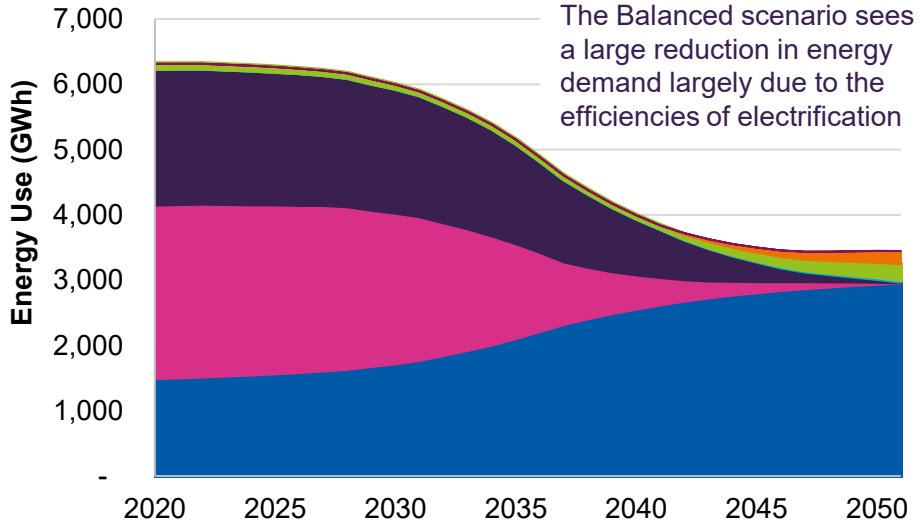


Energy Mix: Do Nothing Above & Balanced Below

A continued reliance on petrol and diesel for transport and gas for heating is assumed in 2050 under Do Nothing



The Balanced scenario sees a large reduction in energy demand largely due to the efficiencies of electrification



Pathway Evaluation

Beyond reducing emissions, to investigate the potential benefits, or disbenefits, of pushing towards net zero, the two pathways have been evaluated on the following metrics:

System Cost: The overall cost of transforming and decarbonising buildings and road transport was modelled to evaluate cost impacts.

Air Quality: The effect on air quality was modelled to evaluate the impact of reduced combustion on health and well-being.

Job Creation: The number of gross jobs created was estimated to highlight potential opportunities for employment and reskilling for growing sectors.

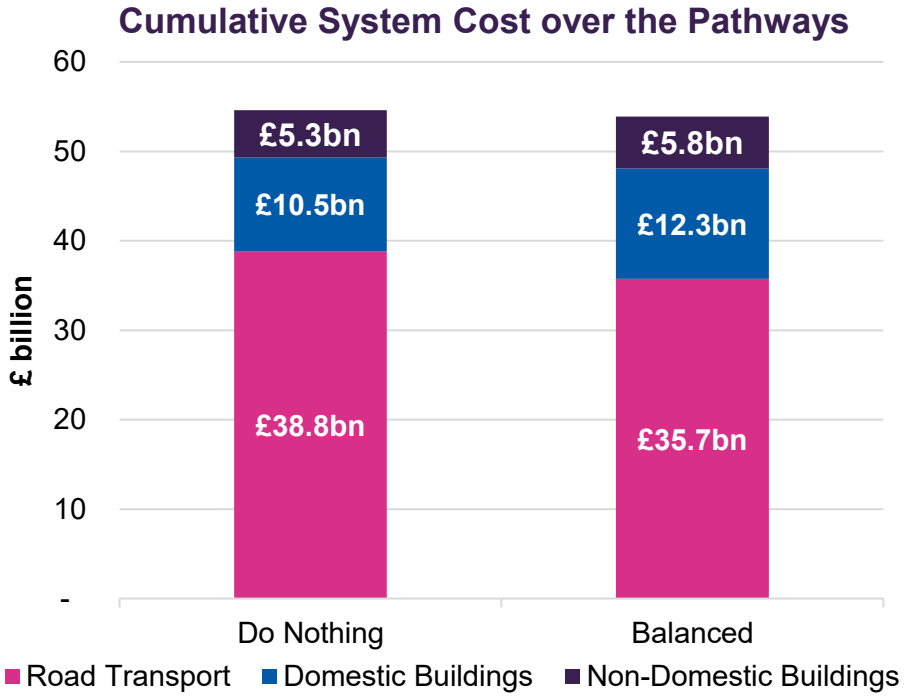
System Cost

The cumulative cost over both pathways (2019 to 2050) has been assessed including capital cost of new technologies, capital cost of replacements (when technologies reach end of life), operation and maintenance, and fuel costs. This is not meant as an exhaustive costing exercise, accounting for all costs of the energy transition, but instead an indicative insight. Any full cost assessment of pushing towards net zero must also factor in the reduced economic damages of a changing climate, which has not been done here.

Overall, the cost of achieving the Balanced pathway for the road transport and buildings sectors is comparable to Do Nothing.

The buildings sectors have slightly higher cost under the Balanced pathway as heat pumps have a higher capital cost than the incumbent gas boilers, however, they are much more efficient so have comparable running costs.

Road transport has the highest cost fraction as vehicles have high capital cost. There are high mode shift and demand reduction assumptions in the Balanced pathway which results is less cars on the road which is the biggest driver behind cost reduction compared to Do Nothing.



Pathway Evaluation – Health & Jobs

Air Quality Impacts

Reduced air quality due to combustion of fuels can have a significant impact on health and this has a financial impact on local services. This represents the damages on human health, productivity, well-being, and the environment. The chart on the right shows estimates of the cost impact of the combustion of heating fuels in buildings and fuel for road transport.

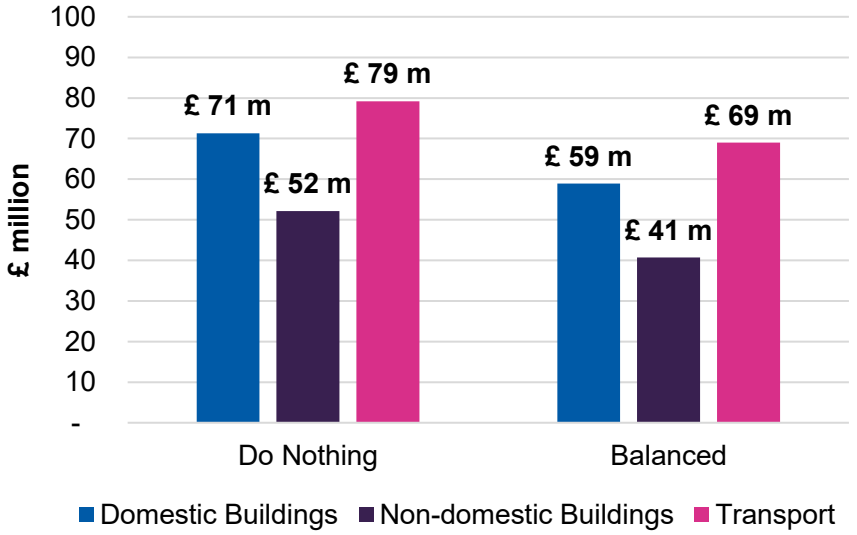
Under the Balanced scenario, air quality damages are slightly lower than Do Nothing, as the Balanced scenario has reduced combustion of fuels for heating and switches to electric vehicles earlier than Do Nothing. Whilst the Balanced scenario has largely eliminated combustion for heating in buildings by 2050, there is still some biomass used, which is considered low carbon, but this fuel has high air quality impacts, hence the air quality damages across the two pathways are comparable.

Job Creation

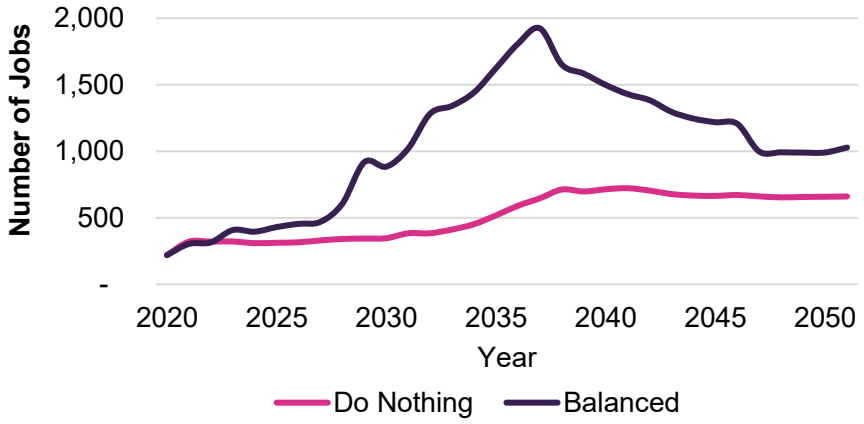
The net zero transition will require jobs to support new technologies, namely the installation of building fabric upgrades, heat pumps and heat networks, and installation of renewables (e.g. ground PV and rooftop PV). The number of gross jobs created from the uptake of these technologies has been estimated. Using trajectories of technology uptake set over the pathways, the Balanced pathway requires up to 2,000 jobs to support these new technologies between 2035 and 2040, as this period sees a rapid uptake of heat pumps and heat networks. By 2050, the demand for green jobs reduces to ~1,000.

As existing technologies (e.g. gas boilers) are phased out, the number of jobs required to install and service them will reduce. Further work is required to see if there is a net job increase from the installation of net zero technologies, but this analysis demonstrates the requirement and opportunity for reskilling to meet a decarbonised energy system.

Total Cost of Air Quality Damages



Gross Jobs from Building Retrofit & Renewables



5. Key Interventions & Focus Zones

Plan on a Page

This page highlights the key milestones and interventions required for the Net Zero Pathway. The map below presents the identified Focus Zones for retrofit, heat networks and EV charging, mapped against primary substation zone boundaries.

DHN potential in Bournemouth Hospital, Bournemouth Airport, West Howe industrial area and the Port of Poole

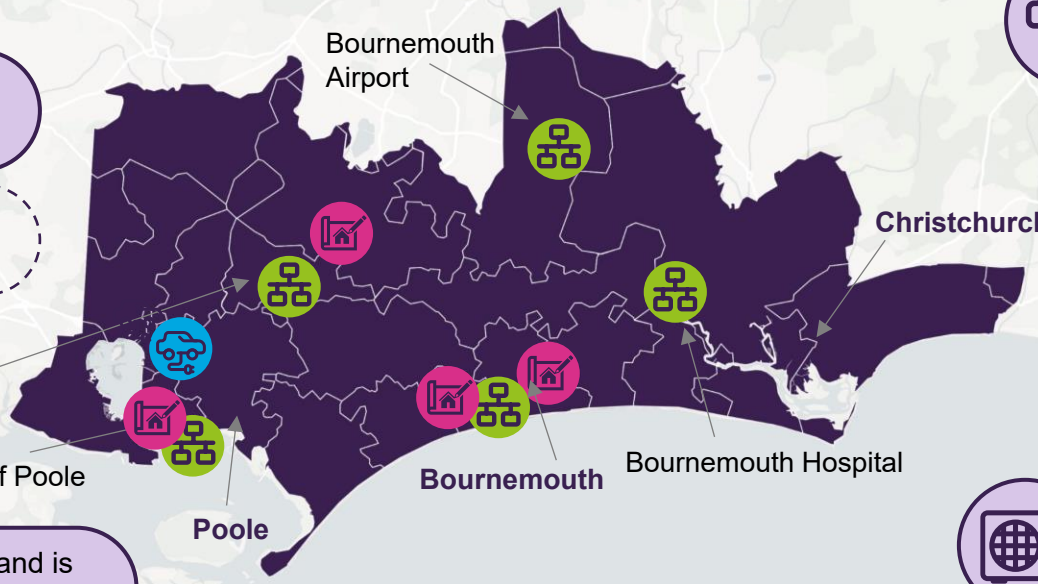
Potential for geothermal heat networks across the BCP area

160,000 EV cars by 2045

4,000 public EV charge points to install

100 $ktCO_2e$ emissions remain in 2045

90% reduction from the baseline



130,000 shallow domestic retrofit measures by 2045

140,000 retrofitted domestic heat pumps needed by 2045

2045 electricity demand is **2x** the baseline

2045 electricity demand is **3,000** GWh

Significant network investment will be required.

~400 GWh of local renewable generation

13% of the 2045 electricity demand

Key

- DHN Focus Zones
- Retrofit Focus Zones
- EV Charging Focus Zone

Retrofitting Buildings

There are opportunities to improve the building fabric on existing buildings to reduce heat loss. Doing this has several benefits, such as lowering energy bills, reducing carbon, reducing demand on the grid, and improving comfort, health and well-being. Often, the extent of building fabric retrofit is categorised into “shallow” and “deep”, with the former being retrofitting measures which are less disruptive, lower capital cost and have good payback periods, such examples include loft insulation and cavity wall filling. Other measures are described as “deep”, such as external wall insulation or triple glazing. These “deep” measures can save significant amounts of energy, but can be more disruptive, have higher capital costs and have longer payback periods.

Shallow retrofit measures are often considered “easy wins” or “low regret” options, therefore, this LAEP has modelled all buildings receiving shallow retrofit (where there is opportunity to do so) across all scenarios, including the Balanced pathway.

For non-domestic buildings, retrofit measures tend to cover efficiency improvements to electricity use, cooling and heating. Varied building designs and specialised systems require bespoke solutions and expertise to avoid operational disruptions. The scale of changes tends to be bigger due to the size of buildings, causing higher investment costs and requiring more extensive planning.

The following page highlights focus zones for implementing shallow measures on domestic buildings.

Shallow:
Less intrusive measures which payback for the building owner within a few years
(e.g. loft and cavity wall insulation)

The Balanced scenario assumed all buildings would have shallow measures applied where possible, both domestic and non-domestic

Estimated cost of implementing shallow retrofit measures in the BCP area:

Domestic Buildings

Shallow Retrofit: **£170 mn**

Non-domestic Buildings

Shallow Retrofit: **£170 mn**

Buildings: Domestic Retrofit Focus Zones

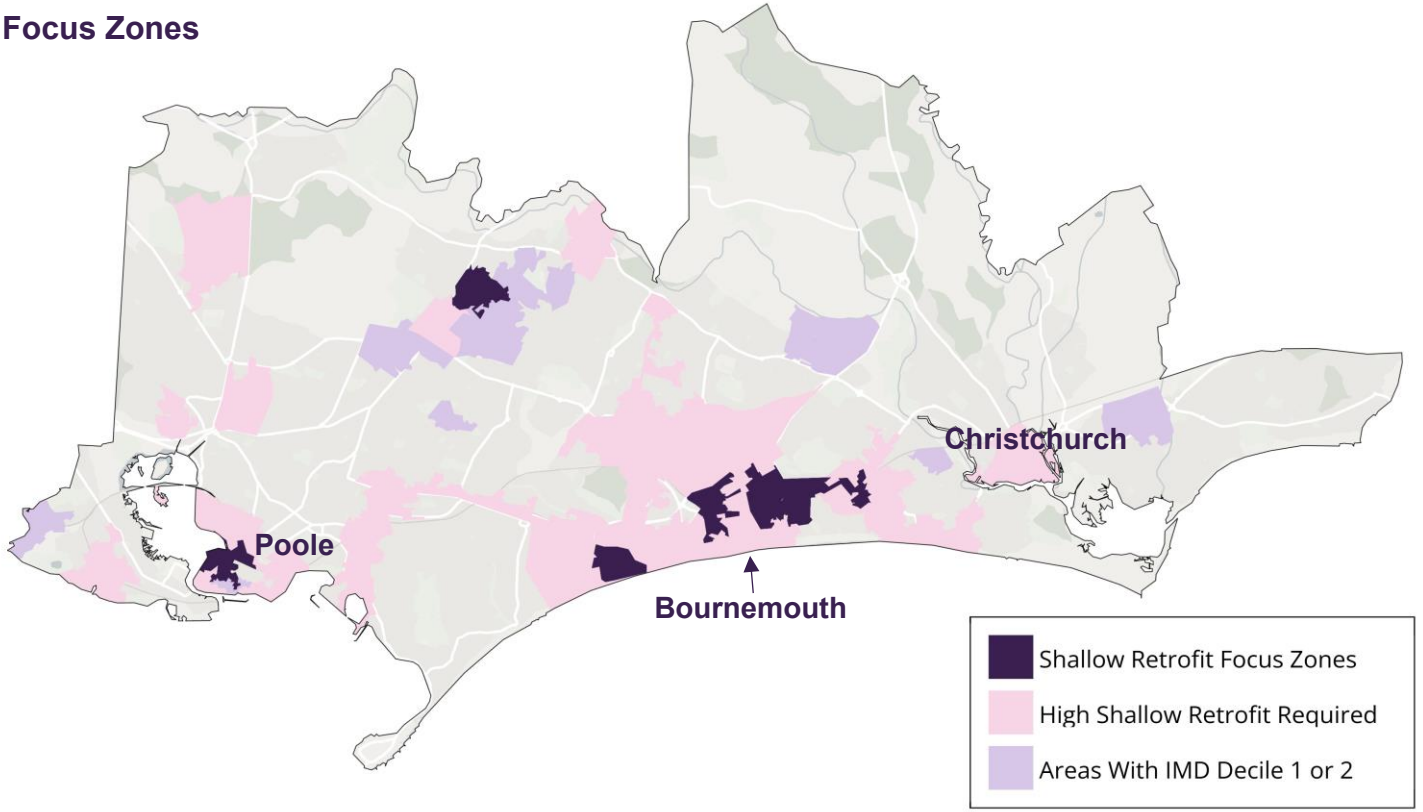
Focus Zones for building fabric have been investigated by tapping into domestic EPC data. The EPC data provides information on building fabric at an individual property level, allowing us to find where the “shallow” retrofit (loft insulation and unfilled cavity walls) opportunities are.

The BCP area has been analysed at a Lower Layer Super Output Area (LSOA) level to determine zones which have a greater than average amount of shallow retrofit opportunities (areas shown in pink). The LSOA zones with the highest level of deprivation according to the IMD have then also been mapped.

Where there are overlaps between greater than average shallow retrofit opportunity and highest deprivation, these zones have been assigned as Focus Zones for domestic retrofit.

Intervention in these areas is recommended as it will have the highest social impact.

Fabric Retrofit – Focus Zones



Heating Buildings

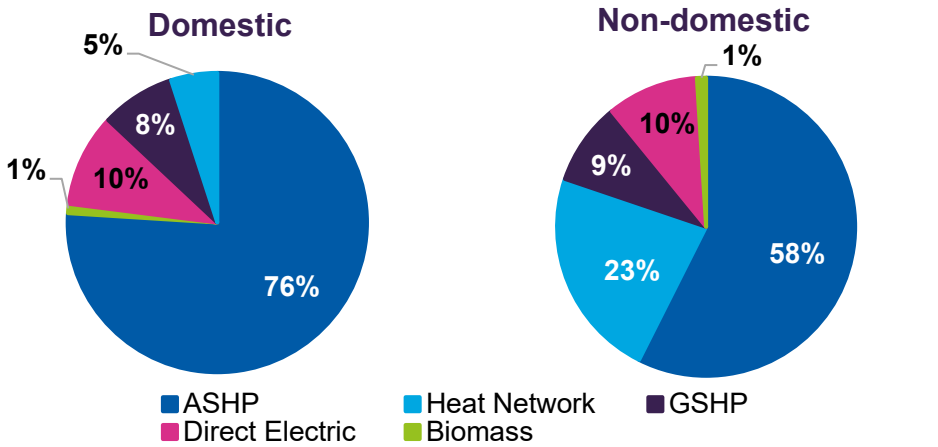
The BCP area will require the mass replacement of current heating technologies in both domestic and non-domestic properties (mainly gas boilers) with decarbonised alternatives to reach net zero. The split of heating technologies in 2050 for both domestic and non-domestic buildings under the Balanced scenario are shown on the right.

Domestic air source heat pump retrofits by 2050

Number required: **140,000**

Capital cost: **£1.4bn**

Split of Heating Technologies in 2050 under Balanced Scenario



Air Source Heat Pumps (ASHP)

ASHPs are widely accepted to be the most suitable and cost-effective low carbon solution for decarbonising heat in buildings. They are currently similar in cost (or slightly more costly) than gas boilers to run but have a higher upfront cost. The cost of heat pump ownership is currently driving concerns around uptake and the potential impact on fuel poverty. However, the Boiler Upgrade Scheme provides a potential source of funding for residents to uptake ASHPs. Also, future reforms of the energy market is hoped to bring down electricity tariffs which would make them more competitive with gas boilers. Heat pumps work best in energy efficient buildings, so fabric retrofit and heat pump installation should be done together.

Heat Networks

Heat networks are best in areas of high heat density. Due to the BCP area's unique urban nature, there is a lot of opportunity for heat networks across the area which is shown on the following page. Heat networks have a very high upfront cost due to the infrastructure required and the laying of pipework can be disruptive. However, they can have several benefits such as the ability to tap into alternative sources of heat (e.g. recoverable heat and geothermal) and offer wider system benefits such as flexibility.

Direct Electric

Direct electric (or "electric resistive") heating is already present across the building stock, particularly in flats and commercial buildings.

This is already a decarbonised means of heating (provided the electricity grid decarbonises), but switching to heat pumps is much more efficient and consequently will reduce energy bills. Direct electric has been modelled to reduce over time under the Balanced pathway.

Heat Networks

Heat networks can make use of multiple and alternative sources of heat. Such sources include bodies of water, rivers, sewer networks, or geothermal heat. Low-temperature heat sources can be increased using heat pumps, supplying buildings with space heating and hot water with high efficiencies. The BCP area has been identified as having high geothermal potential, therefore, geothermal heat is an opportunity as a potential heat source for heat networks.

Heat networks have a high upfront cost due to the scale of infrastructure development required. Most networks are therefore designed with an 'anchor load', which has a high and consistent heat demand which provides certainty in heat offtake for investors. These are typically buildings with a large heat demand and often are public sector buildings; this provides a more reliable stakeholder and gives confidence in future connection, although private sector connections can be equally suitable.

For all clusters identified in the following page, it is recommended to carry out a detailed feasibility study to assess viability. It is important to note that these areas are only considered prospective based on concentrated heat demand, not on the confirmed viability of a suitable energy generation source for a heat network.

Five locations have been identified as Focus Zones for heat network developments, shown mapped on the following page. These include:

West Howe Industrial Estate

- A moderate sized estate with a mix of retail and industrial demands and the surrounding domestic properties could be considered for inclusion.

Central Poole & Poole Harbour

- The central shopping area and the harbour in close proximity provides substantial heat demand. Poole General Hospital is also nearby if the network was to be expanded. This area was subject to a Greenfield feasibility study in 2017 and a techno-economic study in 2018. The network could use water-source heat pumps.

Bournemouth Airport

- The airport has a high density of non-domestic heat demands, including Chapel Lane Business Park which is adjacent to the airport and AIM Aviation. It is a less populous area so it could be easier to construct a heat network here.

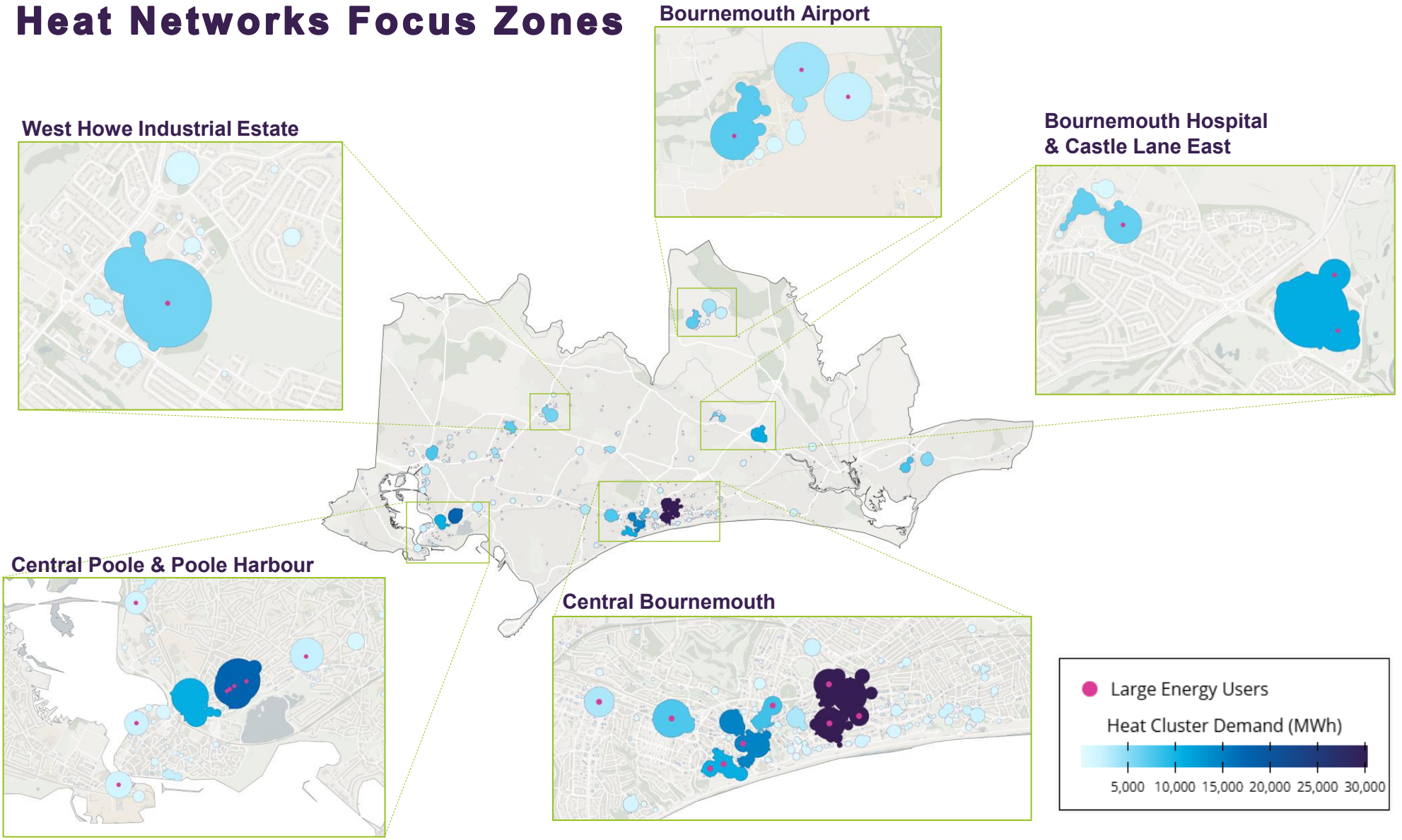
Bournemouth Hospital & Castle Lane East

- The hospital site provides a significant anchor load, and the incinerator could be the primary supply for the network. This area was part of a feasibility study conducted by Arup in 2017.

Central Bournemouth

- There is a particularly high heat density here due to the large numbers of shops and flats, with the largest heat demand being Westbourne Tower Care Home. However, the building density in the area could mean that the construction of a district heat network would be highly disruptive.

Heat Networks Focus Zones



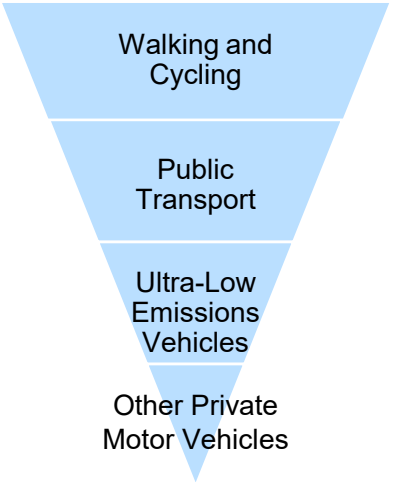
Road Transport

The Balanced pathway has high assumptions on reducing demand for travel and mode shift from the use of cars to walking, cycling and public transport. This follows the principles set out in the sustainable transport hierarchy (right)[1].

Support to improve public transport and means of active travel (e.g. cycle lanes) will reduce the number of cars and improve congestion in major urban areas. However, private vehicles will remain necessary and significant.

Adequate electric chargepoint infrastructure will still be crucial to support and continue the rapid growth of electric vehicles.

Sustainable Transport Hierarchy[1]



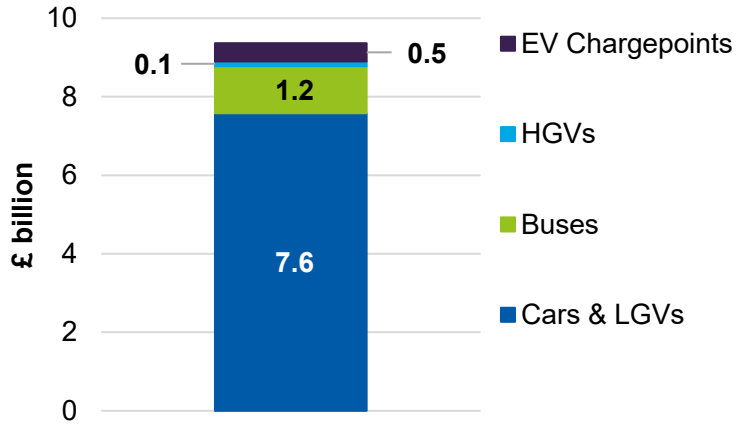
By 2030, the BCP area may need 34,000 EV chargers, with 33,000 of them retrofitted in existing homes.

50% of journeys to be made by walking, wheeling, cycling or public transport by 2030.

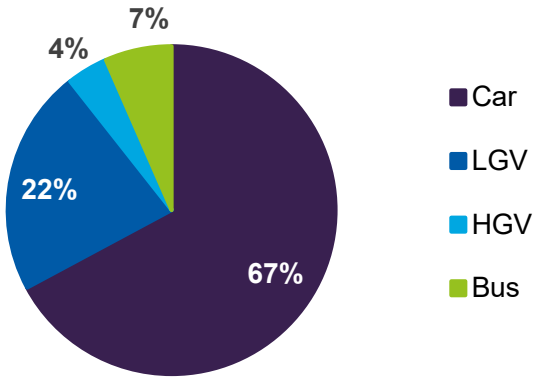
Transport will make up 15% of 2050 electricity demand in the BCP area, at 460 GWh.

By 2045, >95% of cars are expected to be battery-electric.

Investment in New Low Carbon Transport Technologies



Electricity Demand by Vehicle Type



EV Charging & Alternative Fuels Focus Zones

To enable the uptake of EVs in the BCP area, it is key to ensure that there is extensive and accessible charging. Projected yearly EV uptake is shown below, highlighting the significant anticipated demand for charging.

EV charging infrastructure will be required at 'destination' locations such as town centres, where public chargepoints can be integrated with car parking, and through-traffic hotspots, which are key points along the major road network such as service stations.

One key area has been highlighted as an EV charging and alternative fuels Focus Zone, is around A350 coming up from the Port of Poole. Within this Focus Zone there is a high density of freight transport, and consequently, there is a series of service stations and HGV filling stations. These sites could be key locations for high-power charge points and for alternative fuel filling stations. Furthermore, the Port of Poole may require delivery of alternative fuels (e.g. Methanol) for decarbonised maritime activities[2].

EV uptake in the Balanced Scenario

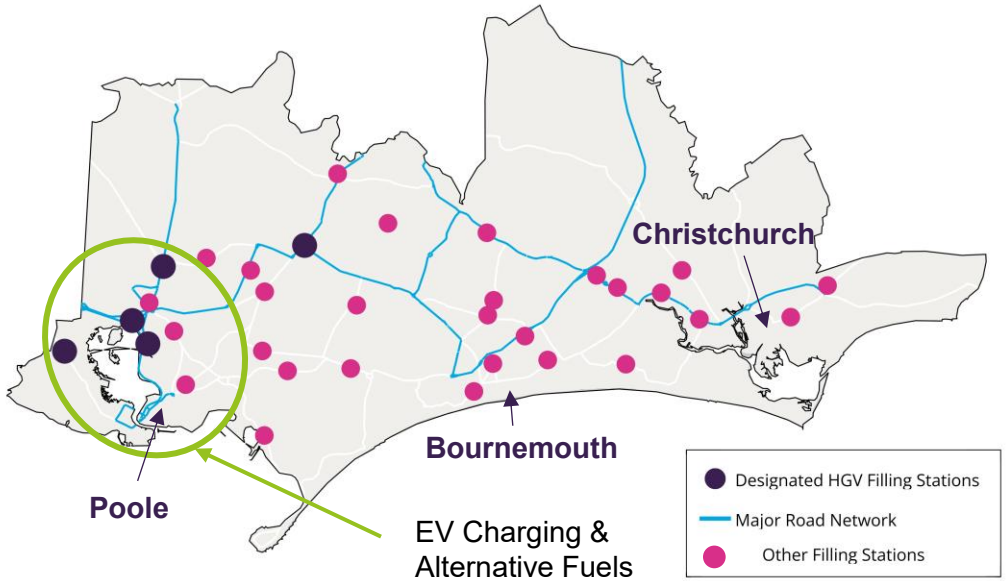
160,000 EV Cars	**30,000** EV LGVs
600 EV HGVs	**1,600** EV Buses

by 2045

Alternative Fuel Demand the Balanced Scenario

16 GWh Hydrogen for HGVs & Buses	**200 GWh** Methanol for Maritime

by 2050



Energy Generation

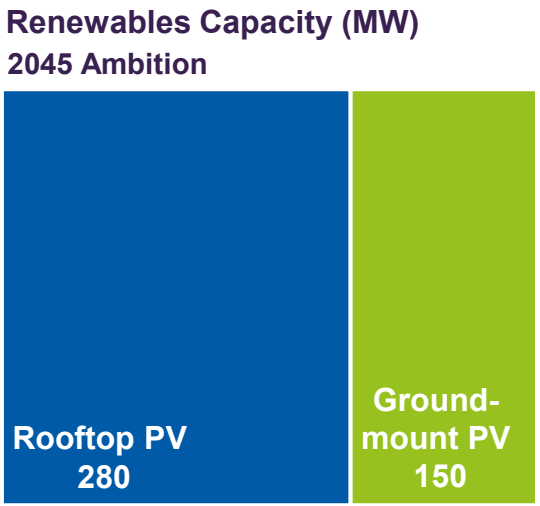
Rooftop PV has high potential across the BCP area, due to its high building density. The rooftop PV potential reaches 280 MW by 2045 under the Balanced pathway, with 160 MW of this on domestic buildings, and a further 120 on non-domestic buildings and car park canopies. To reach the level of domestic rooftop PV deployment, 46,000 homes would require the installation of PV panels.

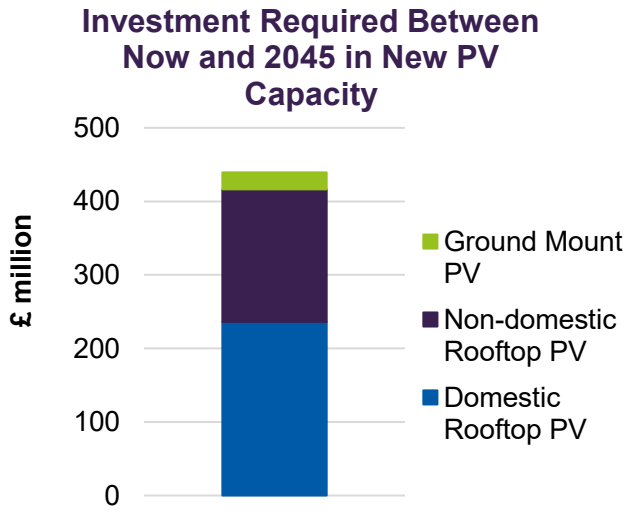
The Balanced pathway has modelled a modest increase of ground PV capacity uptake from 109 to 150 MW, reflecting the expected sensitivities on developing renewables in the Green Belt surrounding the urban conurbation.

This combined local PV capacity will generate about 400 GWh of electricity a year, which is approximately 13% of the projected 2045 electricity demand under the Balanced pathway.

Onshore wind was not modelled under the scenarios due to its low suitability to the area, though there could be potential for small roof-mounted wind turbines.

Rooftop PV can reduce consumer bills by offsetting the purchase of electricity from the grid. There is also the opportunity for consumers to generate revenue by exporting electricity to the grid when the PV generation exceeds the household's demand through incentives such as the Smart Export Guarantee.

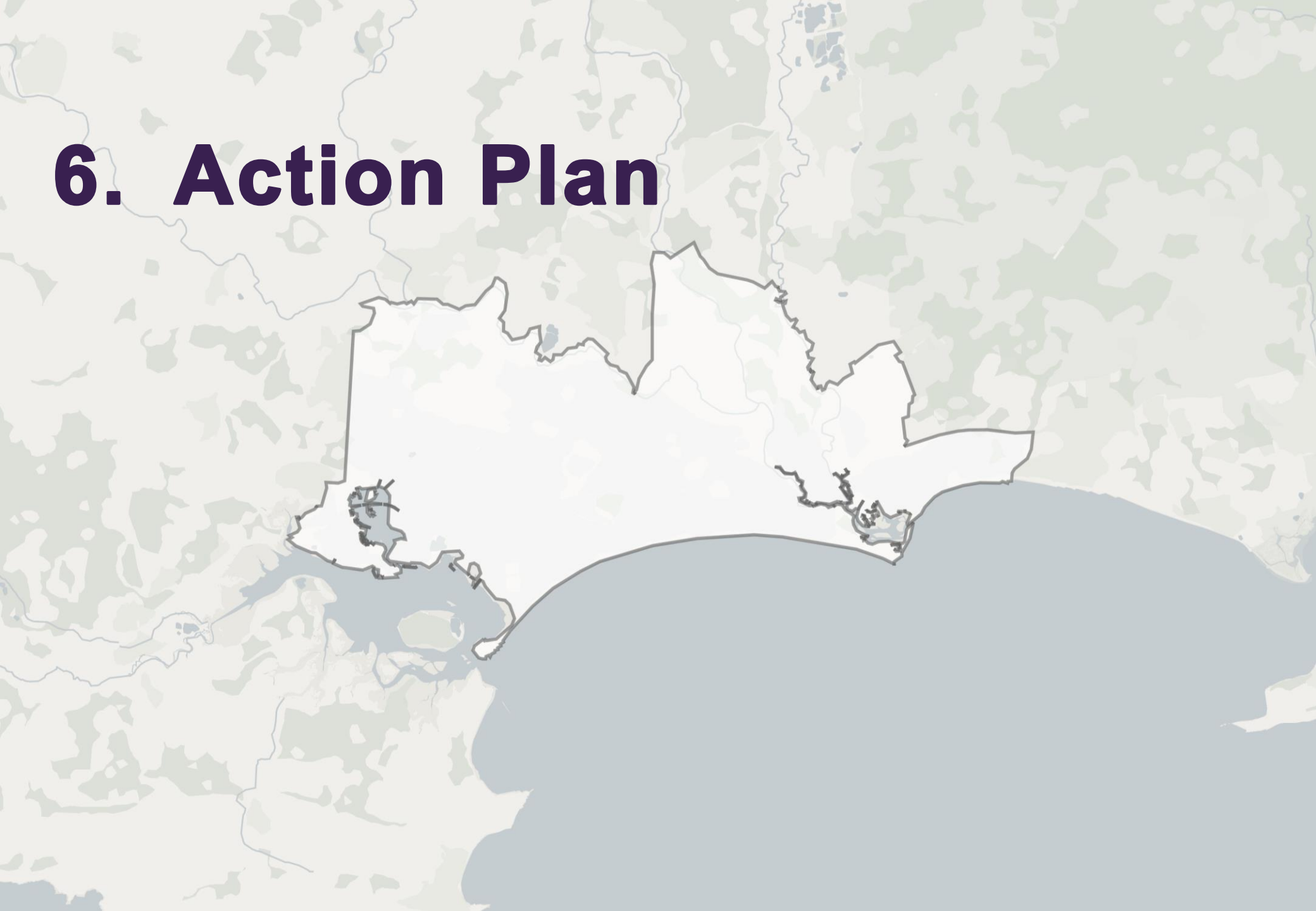




Investment required, between now and 2045, for new PV capacity:

£440mn

6. Action Plan



Action Plan Overview

The Action Plan outlines the priority actions which will drive progress towards the Net Zero Pathway. Each action has been allotted a time frame for successful implementation as follows:

Short-Term: Implementation over two years.
Medium-Term: Implementation between two to five years.
Long-Term: Implementation between five years or more.

Focusing on near-term mobilisation, these actions serve as a catalyst for future initiatives, shaping upcoming projects, policies and strategies. Their successful delivery will be a key next step for BCP Council in advancing its decarbonisation ambitions.

While the Action Plan does not prescribe all steps to required to achieve net zero, it establishes a set of prioritised steps that the council, in collaboration with stakeholders, intends to progress over the next five years. Given the rapid evolution of technology, policy, and market conditions, timeframes may need to be adjusted. Therefore, the Action Plan and its actions will require regular updates (every three to five years) to adapt to the evolving environment and reflect new opportunities and challenges.

Further detail on the Action Plan can be found in the supporting Technical Annex document, available on request from SustainabilityTeam@Bournemouth.gov.uk

The Action Plan section includes:

- **Action Roadmap**: Providing an overview of the implementation timelines of the 15 priority actions.
- **Priority Actions by Sector**: Includes an overview of each action by sector, including KPIs, associated costs, key stakeholders, dependencies and additional benefits.

Stakeholder Engagement

The Action Plan was co-developed with key stakeholders to ensure it aligns with the local context and secures broad support. The engagement process was as follows:

1. Local stakeholders participated in three action planning workshops to generate initial ideas.
2. A long-list of potential actions was created based on workshop discussions, incorporating stakeholder feedback on priorities.
3. A numerical ranking system was used to identify the top 15 actions, with moderation from the core team and key BCP Council teams.
4. Once the final 15 were agreed, a series of 3x focus groups were held to develop and refine each action into “mini business cases”.

Action Plan Overview

Crosscutting Enabling Actions

Actions that address “cross-cutting” issues that are regular barriers across many sectors, such as finance, skills and planning constraints.

Energy Generation & Infrastructure Actions

Actions to facilitate the generation and distribution of low carbon energy.

Building Efficiency, Retrofit & Heat Actions

Actions that enable the delivery of building efficiency, retrofit and heating interventions.

Transport Actions

Actions that support the decarbonisation of road transport via measures such as active travel, use of public transport, and the transition to zero emission vehicles.

Action 1: Investigate developing a Net Zero fund for financing LAEP delivery across all sectors

Action 2: Support local green skills & workforce development to ensure supply chain capacity

Action 3: Support the energy transition through local planning policies

Action 4: Set-up a formal process for reporting to & working with SSEN to optimise network planning

Action 5: Support rooftop solar PV deployment across all buildings in the BCP area

Action 6: Improve understanding of future alternative fuel supply chain

Action 7: Encourage community energy projects in the BCP area by developing a support programme

Action 8: Support the development of the BCP/Dorset Retrofit Hub

Action 9: Continue working on decarbonising the BCP Council Estate to meet the 2030 target.

Action 10: Carry out a scoping exercise to secure funding for Retrofit Works

Action 11: Facilitate the development of District Heat Networks in the BCP area

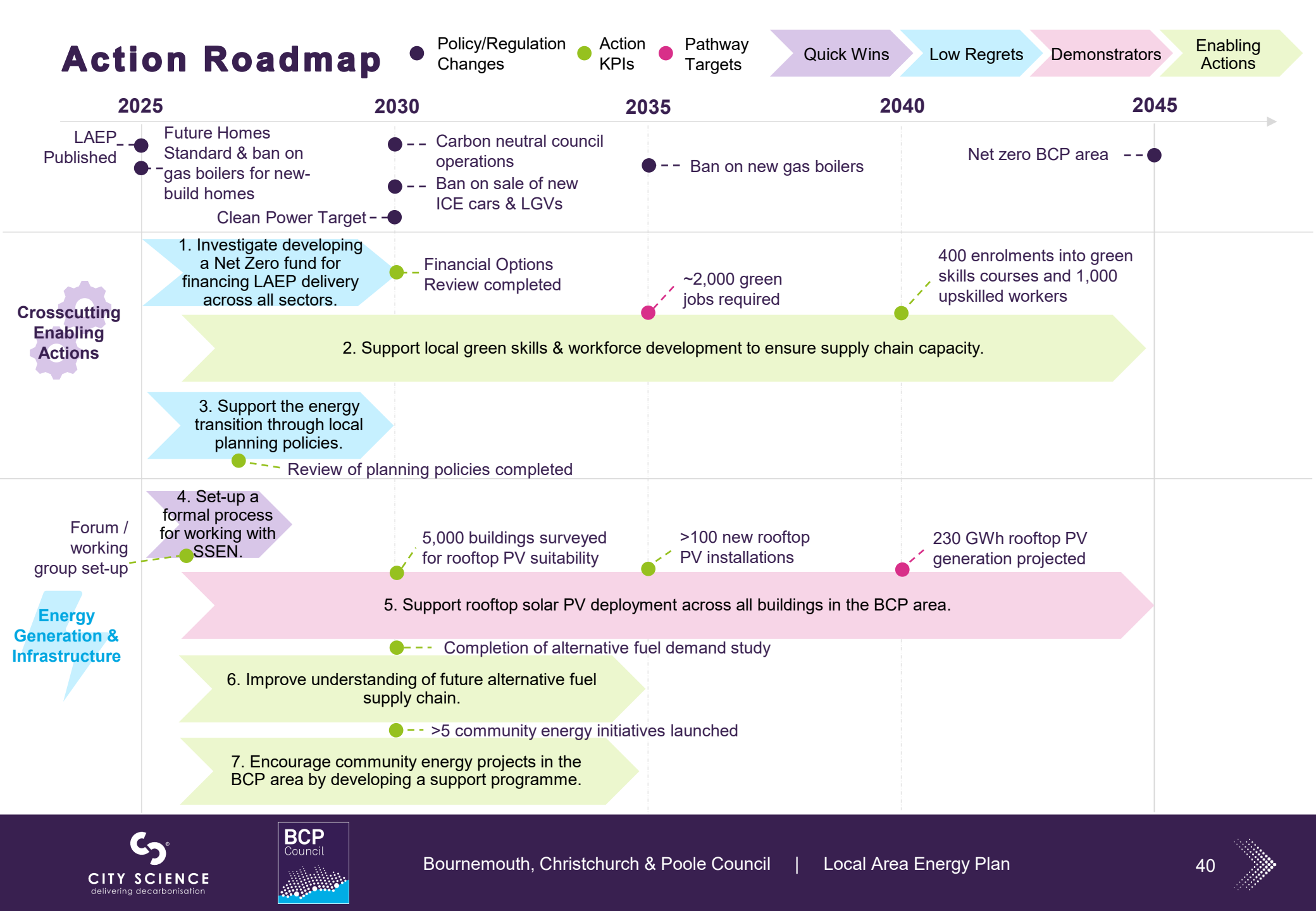
Action 12: Scale-up the Healthy Homes Dorset local insulation grant scheme & relevant national schemes

Action 13: Support the Local Transport Plan 4 to encourage mode shift to sustainable transport

Action 14: Support PEVIS Actions to encourage the rollout of public EV charging infrastructure

Action 15: Work towards a zero emissions council fleet and decarbonising the BCP bus fleet

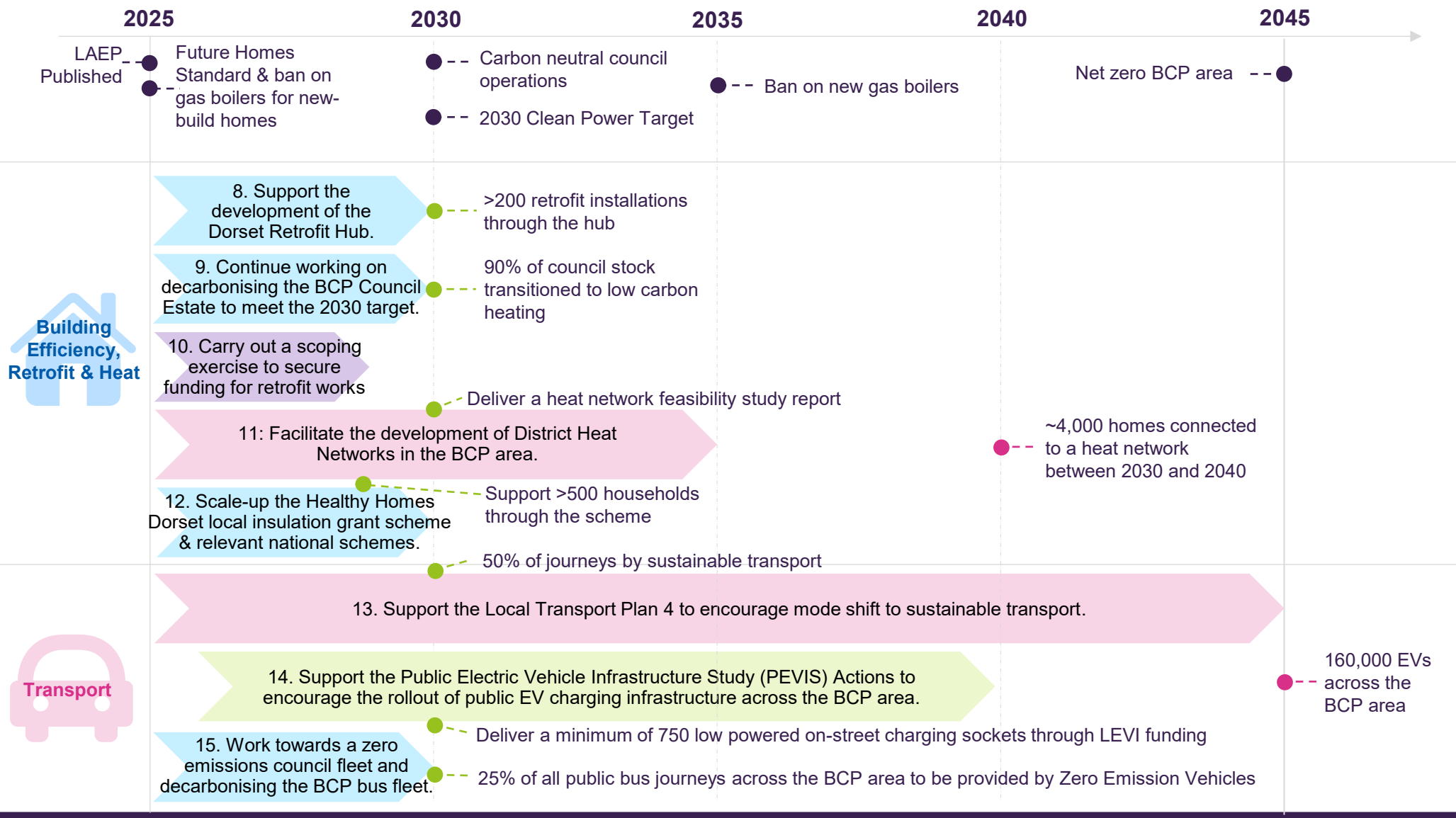
Action Roadmap



Action Roadmap

Policy/Regulation Changes | Action KPIs | Pathway Targets

Quick Wins | Low Regrets | Demonstrators | Enabling Actions



Crosscutting Enabling Actions

Action 1: Investigate developing a Net Zero fund for financing LAEP delivery across all sectors

Overview: This action will entail developing a Net Zero Fund leveraging traditional capital markets and financing mechanisms, such as community municipal investments, to support local authority programmes delivering the LAEP and securing long-term engagement.

Convening Lead: BCP Council (Economic Development & Finance)
Collaborators: South West Net Zero Hub (SWNZH)

Short Delivery Timeframe

Co-benefits: Local economic growth through funding local businesses and projects and creating jobs.

Associated Costs: Financial advisory fees and dedicated resource to administer the fund.

KPIs: Net Zero Fund Steering Group formed by Q4 2025. Financial Options Review completed by Q4 2026.

Risks & Dependencies: Potential delays in securing funding and requirement of internal resource.

Action 2: Support local green skills & workforce development to ensure supply chain capacity

Overview: This action aims to facilitate collaboration between government, industry, and education providers to forecast skills demand, develop a green skills pipeline, and build local workforce capacity for delivering the net zero energy transition.

Convening Lead: BCP Council (Economic Development, Learning & Skills)
Collaborators: SWNZH, Ridgewater Energy, Local Education Institutions (e.g. Bournemouth University)

Long Delivery Timeframe

Co-benefits: Expanding local employment opportunities and strengthening the local economy.

Associated Costs: Consultancy fees, stakeholder engagement costs, and marketing campaign costs.

KPIs: Number of new starters enrolled and number of upskilled workers.

Risks & Dependencies: Engagement from local education providers and dependency on funding.

Action 3: Support the energy transition through local planning policies

Overview: The action entails reviewing and addressing what local planning policies can do to support the deployment of measures such as renewable energy, heat pumps, and building fabric retrofits to accelerate the net zero energy transition.

Convening Lead: BCP Council (Energy & Planning)
Collaborators: SWNZH, Ridgewater Energy

Short Delivery Timeframe

Co-benefits: Enhanced collaboration between local government, developers, residents and businesses.

Associated Costs: Consultancy fees and costs of hosting workshops and public consultations.

KPIs: Review of planning policies to be completed by end of Q4 2026, as part of the new Local Plan.

Risks & Dependencies: Legal challenges, cooperation from key stakeholders and opposition from residents.

Energy Generation & Infrastructure Actions

Action 4: Set-up a formal process for reporting to & working with SSEN to optimise network planning

Overview: This action aims to enhance engagement with SSEN to facilitate their grid reinforcement planning processes. This will involve elements such as improving local intelligence on project development, sharing any council-led projects, and lobbying government to accelerated upgrades within the BCP area.

Convening Lead: BCP Council (Energy)
Collaborators: SSEN, Regen, Dorset Council

Short Delivery Timeframe

Co-benefits: More efficient and reliable infrastructure planning and long-term economic growth by reducing grid bottlenecks.

KPIs: Working group operational by Q1 2026 and 25% reduction in delays for grid connections by Q1 2028.

Associated Costs: Staff resourcing.

Risks & Dependencies: Changes in legislation from national government and internal resource.

Action 5: Support rooftop solar PV deployment across all buildings in the BCP area

Overview: The aim of this action is to facilitate the installation of solar PV on suitable rooftops and carparks across the BCP area. This will involve conducting research, engaging stakeholders, and providing educational resources to overcome barriers and ensure widespread uptake across the region.

Convening Lead: BCP Council (Energy)
Collaborators: SWNZH, SSEN, local businesses and community energy organisations)

Long Delivery Timeframe

Co-benefits: Reduced energy costs, links to the Dorset Retrofit Hub, and synergy with community energy.

KPIs: 5,000 buildings assessed for suitability by Q1 2028 and 100 new Council rooftop PV installs by Q1 2030

Associated Costs: Staff resourcing, consultancy fees and marketing costs for communication campaigns.

Risks & Dependencies: Grid capacity constraints, connection wait times, planning permission and supply chain issues.

Energy Generation & Infrastructure Actions

Action 6: Improve understanding of future alternative fuel supply chain

Overview: Some sectors, such as maritime, aviation, agriculture and certain forms of road transport, are challenging to electrify. Further analysis could explore the scale, sourcing and distribution of alternative fuels required to meet these future demands.

Convening Lead: BCP Council (Energy)
Collaborators: Port of Poole, Bournemouth Airport

Short Delivery Timeframe

Co-benefits: Local investment and job creation from alternative fuel supply chains.

KPIs: Complete commissioned study by Q1 2027 and secure funding to support alternative fuel initiatives.

Associated Costs: Consultancy fees for conducting analysis, staff resourcing, and stakeholder engagement costs.

Risks & Dependencies: Securing adequate funding, lack of accurate data and dependent on supportive policies.

Action 7: Encourage community energy projects in the BCP area by developing a support programme

Overview: This action aims to empower local communities in the BCP area to take an active role by fostering the development of community-led energy projects. The initiative seeks to provide targeted support, advice on governance and risk related to local energy solutions.

Convening Lead: BCP Council (Economic Development, Planning, and Community Development)
Collaborators: SWNZH (Community Energy Fund, Community Energy South, Dorset Community Energy

Medium Delivery Timeframe

Co-benefits: Improved local energy resilience and community engagement and empowerment.

KPIs: Launch 10 community energy initiatives through the programme by Q1 2030.

Associated Costs: The cost of developing the community energy framework and marketing and promotion costs.

Risks & Dependencies: Lack of engagement from local communities, funding limitations and lack of political support.

Building Energy Efficiency & Retrofit Actions

Action 8: Support the development of the Dorset Retrofit Hub

Overview: The Dorset Retrofit Hub is currently in the planning phase and aims to be a 'one-stop-shop' for consumers looking into retrofit. It will provide a source of information and advice, approved local installers and access to assessments and coordination services.

Convening Lead: BCP Council & Dorset Council

Collaborators: Ridgewater Energy, SWNZH, Wessex Community Assets, Retrofit Assessors, RSLs

Medium Delivery Timeframe

Co-benefits: Job creation, skills development, improvements to housing quality and health, and reduced energy bills.

KPIs: 200 retrofit installations by Q1 2030

Associated Costs: The development of a business plan, marketing costs, and staff resourcing.

Risks & Dependencies: Changes in national policy and the availability of funding and resourcing.

Action 9: Continue working on decarbonising the BCP Council Estate to meet the 2030 target

Overview: To enable BCP Council to meet their target for the council operations to become carbon neutral by 2030, this action aims to develop a fully costed investment and implementation plan decarbonisation across the estate. This includes fabric retrofit, heat decarbonisation and rooftop PV.

Convening Lead: BCP Council (Housing, Planning, Finance & Procurement, FM & Estates)

Collaborators: SWNZH, Building Occupiers

Long Delivery Timeframe

Co-benefits: Energy bill savings, job creation, increases in property value and building a local supply chain.

KPIs: Additional rooftop solar PV installed by Q1 2028 and 90% of buildings transitioned to low carbon heating by Q1 2030.

Associated Costs: Conducting detailed building surveys and site assessments, staff resourcing, and pilot projects.

Risks & Dependencies: Reliance on finance and funding, retrofit sector capacity and planning constraints.

Action 10: Carry out a scoping exercise to secure funding for Retrofit Works

Overview: This action aims to support a well-developed financial appraisal of finance models, legal frameworks and procurement models for retrofit works. This includes funding models both at a programme level for council programmes and at homeowner level in the pursuit of providing advice.

Convening Lead: BCP Council

Collaborators: SWNZH, Banks & Building Societies, Ridgewater Energy

Short Delivery Timeframe

Co-benefits: Synergy with the Dorset Retrofit Hub and improved access to funding streams.

KPIs: Engage with 10 relevant stakeholders by Q1 2026 and finalise a scoping exercise by the end of Q4 2026.

Associated Costs: Consultancy fees to conduct a financial appraisal study and communication campaign costs.

Risks & Dependencies: Changes to national policy limiting funding and need for sufficient staff resource.

Building Energy Efficiency & Retrofit Actions

Action 11: Facilitate the development of District Heat Networks in the BCP area

Overview: The BCP area has significant potential for the development of District Heat Networks. To further heat network development, BCP Council should support the upcoming DESNZ zoning process and conduct feasibility studies to assess opportunities for deployment.

Convening Lead: BCP Council (Energy)

Collaborators: SWNZH, DESNZ, Large Energy Users (e.g. NHS Sites), Local MPs, Green Heat Network Fund & Heat Network Delivery Unit

Medium Delivery Timeframe

Co-benefits: Local supply chain establishment, investment in local energy infrastructure and improved energy security.

KPIs: Identify and assess ≥5 viable heat sources by Q4 2025 and deliver a feasibility study by Q4 2027.

Associated Costs: Costs of developing feasibility studies and delivery plans, staff resourcing.

Risks & Dependencies: Requires political support and strong local engagement, with key environmental constraints to be addressed.

Action 12: Scale-up the Healthy Homes Dorset local insulation grant scheme & relevant national schemes

Overview: Healthy Homes Dorset is a scheme that enables residents to access funding for loft and cavity wall insulation and offers free, impartial energy advice. By expanding this initiative and lobbying the government for continued funding, this scheme can continue to help vulnerable residents by reducing fuel poverty and improving comfort.

Convening Lead: BCP Council & Dorset Council

Collaborators: Ridgewater Energy, Public Health Dorset, NHS, Local MPs, National Government

Medium Delivery Timeframe

Co-benefits: Job creation, synergy with the Dorset Retrofit Hub and improvements to housing quality and health.

KPIs: Support ≥500 households through the scheme by the end of Q4 2027.

Associated Costs: Public awareness campaigns, stakeholder engagement and staff resourcing.

Risks & Dependencies: Supply chain shortages and low public awareness of the scheme may limit its impact.

Transport Actions

Action 13: Support the Local Transport Plan 4 to encourage mode shift to sustainable transport

Overview: BCP Council has a target for 50% of journeys in the BCP area to be sustainable by 2030. This action supports this target, through recommending communication campaigns, enhanced active travel and public transport networks, and school streets.

Convening Lead: BCP Council (Planning & Transport)

Collaborators: Bus Operators, SSEN, Bikeshare Operators, Local Schools

Long Delivery Timeframe

Co-benefits: Public health benefits from reduced air pollution, improved safety and reduced traffic congestion.

KPIs: Increased sustainable travel to 50% of journeys in the BCP area to be sustainable by 2030.

Associated Costs: Delivering public awareness campaigns, community engagement events.

Risks & Dependencies: Policy changes, complex funding models and lack of public acceptance.

Action 14: Support PEVIS Actions to encourage the rollout of public EV charging infrastructure

Overview: This action includes promoting and facilitating destination charging, mobility hubs, car clubs, charging provision for leased/fleet vehicles, and community charging.

Convening Lead: BCP Council (Transport)

Collaborators: Chargepoint Operators, SSEN, Property Developers, BCP Parking Services, Car Club Operators, Western Gateway Strategic Transport Body

Long Delivery Timeframe

Co-benefits: Jobs created, upskilling and supporting equitable access to EV charging infrastructure.

KPIs: Deliver a minimum of 750 low powered on-street charging sockets through LEVI funding by 2030.

Associated Costs: Staff resourcing and communication campaigns.

Risks & Dependencies: Requires grid capacity and may work against schemes that encourage sustainable travel.

Action 15: Work towards a zero emission council fleet and decarbonising the BCP bus fleet

Overview: This action entails seeking government funding to support the Fleet Replacement Strategy to decarbonise the council fleet. For the bus fleet, it entails ongoing collaboration through the BCP Enhanced Partnership, the development of a strategy and seeking funding.

Convening Lead: BCP Council (Transport)

Collaborators: Bus Operators, SSEN, BCP Council (Procurement), Bournemouth University

Long Delivery Timeframe

Co-benefits: Strengthened collaboration between BCP Council and bus operators and reduced air pollution.

KPIs: 25% of all public bus journeys in the BCP area to be provided by zero emission vehicles by 2030.

Associated Costs: High capital costs for vehicle upgrades and possible new infrastructure and grid reinforcement.

Risks & Dependencies: Grid capacity limitations for EV chargers and reliance on securing sufficient funding.

References

Glossary

Acronym	Definition
CAPEX	Capital expenditure
CO_2	Carbon dioxide
CHP	Combined Heat and Power
DESNZ	Department for Energy Security & Net Zero
DNO	Distribution Network Operator
DHN	District Heat Network
EfW	Energy from Waste
EPC	Energy Performance Certificate
ESC	Energy Systems Catapult
EV	Electric Vehicle
FES	Future Energy Scenarios
GSP	Grid Supply Point
HGV	Heavy Goods Vehicle
ICE	Internal Combustion Engine
IDM	Index of Multiple Deprivation
KPI	Key performance indicator

Acronym	Definition
LAEP	Local Area Energy Plan
LENZA	Local Energy Net Zero Accelerator
LGV	Light Goods Vehicle
LSOA	Lower Layer Super Output Area
LULUCF	Land Use, Land Use Change and Forestry
OS	Ordnance Survey
NAEI	National Atmospheric Emissions Inventory
PEVIS	Public Electric Vehicle Infrastructure Study
PHC	Poole Harbour Commissioners
PPP	Public Private Partnerships
PV	Photovoltaic
SIC	Standard Industrial Classification
SGN	Southern Gas Network
SSEN	Scottish & Southern Electricity Networks
SWNZH	South-West Net Zero Hub
ZEVIS	Zero Emission Vehicle Insight Study

References

Introduction to the Document

1. Energy Systems Catapult. 2022. *Guidance on creating a Local Area Energy Plan*. [Online] Available at: https://es.catapult.org.uk/guide/guidance-on-creating-a-local-area-energy-plan/

Executive Summary

1. BCP Council, 2023. *Climate Action Strategy* [Online] Available at: https://democracy.bcpcouncil.gov.uk/documents/s40746/BCP04466_Climate%20Action%20strategy_Draft%2020%20Feb%202023.pdf
2. Office for National Statistics, 2022. *Electoral Wards* [Online] Available at: https://geoportal.statistics.gov.uk/datasets/ons::wards-december-2022-boundaries-gb-bgc
3. UK Government, 2021. *UK Net Zero Strategy; Build Back Greener* [Online] Available at: https://www.gov.uk/government/publications/net-zero-strategy
4. Carbon Trust, 2019. *Joint LEP Strategy* [Online] Available at: https://www.dorsetlep.co.uk/userfiles/files/Strategy%20and%20plans/Clean%20Growth/HotSW%2C%20Dorset%2C%20CIoS%20Joint%20LEP%20Energy%20Strategy%20Framework.pdf
5. BCP Council, 2024. *Green Infrastructure Strategy* [Online] Available at: https://www.bcpcouncil.gov.uk/leisure-culture-and-local-heritage/parks-and-open-spaces/green-infrastructure-strategy
6. Adopted Local Plans for predecessor authorities of Bournemouth, Christchurch, and Poole.
7. BCP Council. 2021. *Housing Strategy*. [Online] Available at: https://www.bcpcouncil.gov.uk/documents/about-the-council/housing-strategy-2021-20261.pdf
8. Department for Business, Energy & Industrial Strategy, 2022. *UK Local Authority and Regional Greenhouse Gas Emissions National Statistics, 2005 to 2020: 2005 to 2020 UK local and regional greenhouse gas emissions – data tables (Excel).* [Online] Available at: https://www.gov.uk/ government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2020
9. Department for Business, Energy & Industrial Strategy, 2022. *Total Final Energy Consumption at Regional and Local Authority Level: 2005 to 2020: Subnational total final energy consumption statistics: 2005 to 2020.* [Online] Available at: https://www.gov.uk/ government/statistics/total-final-energy-consumption-at-regional-and-local-authority-level-2005-to-2020

Introduction

1. Energy Systems Catapult, 2021. *The future of local area energy planning in the UK.* [Online] Available at: https://es.catapult.org.uk/report/the-future-of-local-area-energy-planning-in-the-uk/
2. Energy Systems Catapult. 2022. *Guidance on creating a Local Area Energy Plan*. [Online] Available at: https://es.catapult.org.uk/guide/guidance-on-creating-a-local-area-energy-plan/

References

3. HM Government, 2021. *Net Zero Strategy: Build Back Greener.* [Online] Available at: https://www.gov.uk/government/publications/net-zero-strategy

Local Context & Energy System

1. Office for National Statistics. 2024. *Labour Market Profile - Bournemouth, Christchurch and Poole.* [Online] Available at: https://www.nomisweb.co.uk/reports/lmp/la/1820328225/report.aspx#tabrespop
2. BCP Council. 2021. *Housing Strategy*. [Online] Available at: https://www.bcpcouncil.gov.uk/documents/about-the-council/housing-strategy-2021-20261.pdf
3. Plumplot 2024. *South West population statistics.* [Online] Available at: https://www.plumplot.co.uk/South-West-population.html
4. Office for National Statistics. 2020. *Population density by LSOA (2020)* [Online] Available at: *https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareapopulationdensity*
5. ONS. 2022. *Households by Deprivation Dimensions.* https://www.ons.gov.uk/datasets/TS011/editions/2021/versions/6
6. Office for National Statistics. 2021. *Mapping income deprivation at a local authority level (2019)* [Online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/mappingincomedeprivationatalocalauthoritylevel
7. Department for Business, Energy & Industrial Strategy. 2022. *Sub-regional fuel poverty data.* [Online] Available at: https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2022
8. Department for Business, Energy & Industrial Strategy. 2020. *Sub-regional Fuel Poverty by LSOA (2020)* [Online] Available at: https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2022
9. HM Government, 2021. *Net Zero Strategy: Build Back Greener.* [Online] Available at: https://www.gov.uk/government/publications/net-zero-strategy
10. Department for *Energy Security & Net Zero. 2023. Heat and Buildings Strategy (2021*). [Online] Available at: https://www.gov.uk/government/publications/heat-and-buildings-strategy
11. Department for *Energy Security & Net Zero. 2023. Industrial Decarbonisation Strategy (2021).* [Online] Available at: https://www.gov.uk/government/publications/industrial-decarbonisation-strategy

References

12. Carbon Trust. 2019. *Joint LEP Energy Strategy Framework.* [Online] Available at: https://www.dorsetlep.co.uk/userfiles/files/Strategy%20and%20plans/Clean%20Growth/HotSW%2C%20Dorset%2C%20CIoS%20Joint%20LEP%20Energy%20Strategy%20Framework.pdf

13. Dorset Council. 2013. *Bournemouth, Dorset and Poole Renewable Energy Strategy to 2020.* [Online] Available at: https://www.dorsetcouncil.gov.uk/documents/35024/290224/Bournemouth+Dorset+and+Poole+Renewable+Energy+Strategy+to+2020.pdf/b4450517-3753-02a6-bde4-4b013555e1c2

14. BCP Council, 2023. *Climate Action Strategy* [Online] Available at:https://democracy.bcpcouncil.gov.uk/documents/s40746/BCP0466_Climate%20Action%20strategy_Draft%2020%20Feb%202023.pdf

15. Adopted Local Plans for predecessor authorities of Bournemouth, Christchurch, and Poole.

16. Department for Business, Energy & Industrial Strategy, 2022. *UK Local Authority and Regional Greenhouse Gas Emissions National Statistics, 2005 to 2020: 2005 to 2020 UK local and regional greenhouse gas emissions – data tables (Excel).* [Online] Available at: https://www.gov.uk/ government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2020

17. Department for Business, Energy & Industrial Strategy, 2022. *Total Final Energy Consumption at Regional and Local Authority Level: 2005 to 2020: Subnational total final energy consumption statistics: 2005 to 2020.* [Online] Available at: https://www.gov.uk/ government/statistics/total-final-energy-consumption-at-regional-and-local-authority-level-2005-to-2020

18. Department for Business, Energy & Industrial Strategy. 2022. *LSOA Estimates of Properties not Connected to the Gas Network: LSOA estimates of properties not connected to the gas network 2015 to 2021.* [Online] Available at: https://www.gov.uk/government/stati stics/lsoa-estimates-of-households-not-connected-to-the-gas-network

19. Department for Business, Energy & Industrial Strategy. 2022. *Lower and Middle Super Output Areas electricity consumption: LSOA domestic electricity 2010 to 2021.* [Online] Available at: https://www.gov.uk /government/statistics/lower-and-middle-super-output-areas-electricity-consumption

20. Department for Business, Energy & Industrial Strategy. 2022. *Lower and Middle Super Output Areas gas consumption: domestic electricity 2010 to 2021.* [Online] Available at: https://www.gov.uk/government/statistics /lower-and-middle-super-output-areas-gas-consumption

21. NAEI. 2022. *National Atmospheric Emissions Inventory Data: Emissions from NAEI large point sources (2021).* [Online] Available at: https://naei. beis.gov.uk/data/map-large-source

22. South West Net Zero Hub. 2024. *South West Net Zero Hub Recoverable Heat Mapping Tool.* [Online] Available at: https://www.swnetzerohub.org.uk/document/south-west-net-zero-hub-recoverable-heat-mapping-tool/

23. Department for Transport, 2024. *VEH0105: Licensed vehicles at the end of the quarter by body type, fuel type, keepership (private and company) and upper and lower tier local authority: Great Britain and United Kingdom.* [Online] Available at: https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables

References

24. Department for Business, Energy & Industrial Strategy. 2022. *UK road transport energy consumption at regional and local authority level, 2005 to 2020: Sub-national road transport fuel consumption statistics, 2005-2020 (Excel).* [Online] Available at: https:/www.gov.uk/government /statistics/uk-road-transport-energy-consumption-at-regional-and-local-authority-level-2005-to-2020
25. Department for Transport. 2023. *Vehicle Licensing Statistics Data Tables: VEH0142: Licensed plug-in vehicles (PiVs) at the end of the quarter by body type, fuel type, keepership (private and company) and upper and lower tier local authority: United Kingdom* [Online] Available at: https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables
26. Department for Transport. 2021. *NCR - National Chargepoint Registry (2020)*. [Online] Available at: https://chargepoints.dft.gov.uk
27. Poole Harbour Commissioners. 2024. *Masterplan.* [Online] Available at: https://www.phc.co.uk/wp-content/uploads/2024/02/Masterplan-Final-6.pdf
28. Poole Harbour Commissioners. 2024. *Welcome to Poole Harbour and the Port of Poole.* [Online] Available at: https://www.phc.co.uk/
29. Department for Energy Security and Net Zero. 2023. *Renewable Energy Planning Database: quarterly extract: Renewable Energy Planning Database (REPD): July 2023.* [Online] Available at: https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract
30. Arup. 2022. *Geothermal Bournemouth*
31. Department for Energy Security and Net Zero. 2023. *Heat Networks registered under the Heat Network (Metering and Billing) Regulations Statistics: December 2022.* [Online] Available at: https://www.gov.uk/government/collections/heat-networks-registered-under-the-heat-network-metering-and-billing-regulations
32. Department for Business, Energy and Industrial Strategy. 2024. *Heat networks planning database.*
33. Scottish and Southern Electricity Networks. 2023. *SSEN data portal.* [Online] Available at: https://data.ssen.co.uk/
34. Scottish and Southern Electricity Networks. 2024. *SSEN Distribution Network Development Report.* [Online] Available at: draft-ssen-distribution-network-development-report-2024.pdf
35. Scottish and Southern Electricity Networks. 2024. *LENZA Tool* [Online] Available at: https://www.ssen.co.uk/our-services/tools-and-maps/lenza/
36. Xoserve. 2022. *Off Gas Live Postcodes.* [Online] Available at: https://www.xoserve.com/media/fadn4tnc/off-gas-live-postcodes-2022.xlsx

References

Net Zero Pathway

1. National Grid, 2024. *Future Energy Scenarios [Online] Available at: https://www.neso.energy/publications/future-energy-scenarios-fes* .

Key Interventions & Focus Zones

1. Energy Savings Trust, 2024. *Sustainable Transport Hierarchy* [Online] Available at: https://fleetdecarbonisationtoolkit.energysavingtrust.org.uk/t/decarbonisation-strategy/sustainable-transport-hierarchy/
2. Poole Harbour Commissioners. 2025. *Decarbonising The Port of Poole Maritime Industrial Cluster – Decarbonisation Plan.* [Online] Available at: https://www.phc.co.uk/wp-content/uploads/2025/03/Port-of-Poole-Maritime-Industrial-Cluster-Decarbonisation-Plan-2.pdf

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