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# ENVIRONMENT & CLIMATE ACTION SCRUTINY PANEL

**Thursday, 18th April, 2024 at 7.00 pm in the Council Chamber, Civic Centre, Silver Street, Enfield, EN1 3XA**

**Membership:**

Cllrs: Hivran Dalkaya (Chair), Nia Stevens (Vice Chair), Maria Alexandrou, Patricia Gregory, Ahmet Hasan, Mohammad Islam, Destiny Karakus, and Joanne Laban.

**AGENDA – PART 1**

**1. WELCOME AND APOLOGIES**

**2. DECLARATIONS OF INTEREST**

Members are asked to declare any disclosable pecuniary, other pecuniary or non-pecuniary interests relating to items on the agenda.

**3. MINUTES OF THE PREVIOUS MEETING** (Pages 1 - 6)

To receive and agree the minutes of the meeting held on Tuesday 12 March 2024.

**4. CLIMATE ACTION PLAN** (Pages 7 - 182)

To provide an overview of the revised Enfield Climate Action Plan 2024-2030.

**5. PILOTS RETROFITTING COUNCIL HOUSING FOR ENERGY EFFICIENCY** (Pages 183 - 216)

To receive an update on the pilot projects to retrofit Council Housing to increase energy efficiency, reduce residents' bills and reduce carbon emissions.

## 6. WORK PROGRAMME 2023/24 (Pages 217 - 220)

To note the completion of the Work Programme for 2023/24 and that the Environment & Climate Action Scrutiny Panel Work Programme for 2024/25 will be discussed at the first meeting of the new municipal year.

## 7. DATES OF FUTURE MEETINGS

To note the dates of future meetings will be confirmed following Annual Council on Wednesday 15 May 2024.

# MINUTES OF THE MEETING OF THE ENVIRONMENT & CLIMATE ACTION SCRUTINY PANEL HELD ON TUESDAY, 12TH MARCH, 2024

**MEMBERS:** Councillors: Hivran Dalkaya (Chair), Nia Stevens (Vice Chair), Maria Alexandrou, Ahmet Hasan, Mohammad Islam, Destiny Karakus, Joanne Laban, and Elisa Morreale.

**Officers:** Gideon Whittingham (Planning Decisions Manager), Karen Page (Head of Planning and Building Control), Richard Eason (Programme Director, Journeys & Places), Chris Cole (Head of Strategic Transport Planning & Policy), Ned Johnson (Principal Officer Pollution), Perry Scott (Executive Director for Environment & Communities), and Harry Blake-Herbert (Governance Officer).

**Also Attending:** Cllr Rick Jewell (Cabinet Member for the Environment), Cllr Susan Erbil (Cabinet Member for Licensing, Planning & Regulatory Services), and members of the public.

## 1. WELCOME AND APOLOGIES

The Chair welcomed everyone to the meeting.

Apologies for absence were received from Cllr Patricia Gregory, who was substituted by Cllr Elisa Morreale.

## 2. DECLARATIONS OF INTEREST

There were no declarations of interest received regarding any item on the agenda.

## 3. MINUTES OF THE PREVIOUS MEETING

AGREED the minutes of the previous Environment & Climate Action Scrutiny Panel meeting held on Thursday 8 February 2024.

## 4. BIODIVERSITY NET GAIN

Gideon Whittingham introduced and highlighted the key aspects of the report, including but not limited to: the change in legislation, its impact on planning applications, the work being done by officers in preparation of its implementation, and its context amongst existing policies and legislation.

In response to Members queries regarding mechanisms for increasing biodiversity and high value sites, officers advised that planting trees, green roofs and walls, and features which encouraged certain insects and wildlife, were all techniques for improving biodiversity at a site. Specialists would

identify what was appropriate for specific locations, and high value sites had not been identified in Enfield, but Cheryll Wilson would be looking at this.

In response to Members' questions and comments relating to the emerging Local Plan and addressing natural recovery, officers responded that nature recovery strategies were looked after by a team, and dealt with specific sites that could receive money to provide biodiversity net gains. Such strategies were described as related but adjacent to biodiversity net gain. The emerging Local Plan sought 20% biodiversity net gain. It was evidence based that Enfield should seek 20% from all developments, but this would not be a material consideration until the plan was approved. Other boroughs like Sutton, had targeted and achieved 20% net gain for some time, and officers felt that having this target would empower Enfield to actively seek more innovative solutions.

In response to Members' enquiries regarding Vicarage Farm, officers replied that it was a misconception that green fields equated to high biodiversity value, that the base line of such areas was relatively low, thus it would be very much achievable for regeneration schemes to introduce quality biodiversity improvements. Cllr Erbil highlighted the importance of understanding what was meant by biodiversity net gain and looking at sites on a case-by-case basis.

In response to Members' questions relating to the options/ mechanisms available, officers advised that providing the biodiversity net gain on-site was the priority, and what officers would expect and push for. If it was demonstrated that an on-site provision could not be achieved, then offsite net gains would be accepted. If offsite biodiversity gains could not be achieved, there was a credit system for buying biodiversity net gain in the region, but this would be a last resort. Applicants would need to demonstrate a robust justification which officers would scrutinise before offsite and credit contributions were accepted. Cheryll Wilson was dealing with offsite developments, and there was an opportunity for landowners to service this. Cllr Erbil highlighted that the credit system would only allow for relatively local contributions.

In response to Members queries relating to the DEFRA assessment, officers responded that DEFRA set a metric, which was treated as a baseline. Applications/ sites were assessed against it, to calculate the 10% improvement, and how these units could be provided. There was a software service available for conducting this assessment, but the council had the in-house specialisms to do this themselves too.

The Panel AGREED to note the report outlining how Biodiversity Net Gain will be processed by Development Management in Enfield.

## 5. QUIETER NEIGHBOURHOODS - WALKING & CYCLING INFRASTRUCTURE

Richard Eason introduced and highlighted the key aspects of the report, including but not limited to: the process and phases of consultations which had taken place for various projects, the platforms and methods used to communicate with residents, and engagements with a disability focus/ reference group.

In response to Members' questions and comments regarding resident feedback from consultations, officers replied that resident engagement was listened to and did impact on projects. A Fox Lane scheme was given as an example where the means of achieving the projects outcomes which taken forward were altered following consultation. Officers expressed that consultations were a mechanism for gathering views rather than a public vote, and residents' comments had to be balanced/ weighed against opposing views and other factors. They explained that at phase 2 of engagement, data was collected in order to better understand the demographic of those engaging, and listening to the views of those with protected characteristics, such as disabilities, was very important to them. Some schemes were inevitably going to be controversial, and benefit some people more than others, but no scheme was designed to inconvenience anyone. Officers added that they could provide Members with maps relating to individual projects if requested.

In response to Members' enquiries relating to statistics and engagement with overlooked groups, officers advised that within their equality impact assessments for all projects, the impact of schemes on individuals with protected characteristics were considered, as was their legal duty. Residents who may be overlooked by this were encouraged, like anyone else, to engage in the consultations and share their views. If there were people being overlooked when projects were considered, then officers could pick this up. Officers said that they were transparent in their break down of engagement statistics, and were doing more than they were required to do, particularly when trying to balance their resources.

In response to Members' questions regarding a Ponders End to Enfield Town scheme, officers responded that there had been lots of engagement; officers had supported ward councillor meetings on the project, and feedback was taken into account. Cllr Jewell clarified that there had been concern and confusion with road improvements as part of the scheme, which were currently being looked at again. Officers added that they would continue to reflect on how they could communicate complex interventions clearly so that they would not be misunderstood.

In response to Members queries regarding obesity, officers replied that such studies were an issue for Public Health colleagues, but the integration of active travel into residents' lives where possible, particularly young people, would help to address the issue. Cllr Jewell expressed that walking and cycling projects were all intended to encourage parents and children to pursue active travel when attending school, with another three school streets having been announced recently. Officers would speak to colleagues in Education and Public Health about initiatives to better encourage active travel in schools,

such as getting children to walk around the playground before school, and the benefits of this were highlighted.

In response to Members' questions and comments relating to the impact of quieter neighbourhoods on active travel, officers advised that long term data collection was needed and underway, but more time was needed. The installation of more permanent continuous counting locations to monitor the number of people walking and cycling in different areas was being looked at. More broadly across the country, data supported that the benefit/cost ratio for investment in active travel was high.

In response to Members' enquiries regarding bike hangers at train stations, officers responded that there were hubs at Enfield Town and Edmonton Green; they were working on designs for hubs at other stations before seeking funding, and they were encouraging developers to contribute to multi-modal journeys.

A member of the public asked about street cleaning and planting of more trees along streets, to which officers and Cllr Jewell said there were over 25,000 trees in Enfield's streets and that if trees were removed to facilitate off street parking, they were replaced. As part of a transport strategy currently being consulted on, and a walking action plan, a healthy street approach and improvements were being pursued, which would involve cleaning and planting.

The Panel AGREED to note the report which provided information on consultations that had taken place for Quieter Neighbourhoods and walking & cycling infrastructure.

## 6. AIR QUALITY/POLLUTION & ULEZ

Ned Johnson introduced and highlighted the key aspects of the report, including but not limited to: the impact of the ultra-low emission zone, compliance standards, and monitoring data/ statistics.

In response to Members' questions relating to data, officers replied that 12 months' worth of data, up to September next year, would be needed for robustness. This was due to variances in the data as a result of exogenous factors such as weather. There were four real time, continuous, automatic monitoring sites in the borough measuring nitrogen dioxide, and one particulate monitor, which were strategically placed and had been there long before the ULEZ expansion. Members expressed that an update on this item should be considered in next year's work programme.

In response to Members queries relating to the impact of the expansion on the council, officers advised that they were ensuring that their vehicles/ fleet were compliant and installing electric vehicle charging points, but the scheme was led by the Mayor of London and implemented through TFL.

In response to Members' questions and comments regarding how limits were set, officers responded that ULEZ was based on vehicle emission standards set by Europe which manufacturers worked towards, with higher Euro standard numbers reflecting lower emissions.

In response to Members' enquiries relating to other air quality impactors, officers replied that as vehicle technology had improved, the proportion of emissions from travel had reduced; with building emissions, such as gas boilers, becoming larger influencers. The council's air quality action plan set out what it was doing to improve air quality.

In response to Members' questions regarding EV charging points and LTNs, officers advised that proportionately the increase in concentration of cars on main roads as a result of LTNs was relatively low. In the case of Bowes Primary, the introduction of a green wall between the A406 and the school had reduced nitrogen dioxide by 22%, and the extension of the green wall and addition of a school street, for better protection were being looked at. Cllr Jewell said they were going through a process to tender 1,000 lamppost chargers and 17 rapid electric vehicle chargers for the borough this year, but legislative hurdles had held up this procurement.

In response to Members queries regarding the reduction in capital spending and the electric fleet, Cllr Jewell and officers responded that electric vehicles were being procured as part of the capital programme, but there was a challenge in that manufacturers were not producing electric versions of all types of the vehicles the council used. A waste truck recently lost to a fire was as a result of incorrectly discarded waste; but the vehicles had extinguisher systems.

A member of the public asked about adding more emission monitors, to which officers said there was a difference between passive and automatic monitors, and Enfield had more automatic sites than most other similar boroughs. As part of their strategic monitoring, they would be putting in air quality sensors around school streets, which would provide more relative data; and there were 22 diffusion/ sampling tubes in the borough already.

The Panel AGREED to note the report detailing the impact of the Ultra-Low Emission Zone expansion.

## 7. WORK PROGRAMME 2023/24

Members noted the Environment & Climate Action Scrutiny Panel work programme for 2023/24.

## 8. DATES OF FUTURE MEETINGS

Members noted the dates of future meetings as set out in the agenda.

The Chair thanked Members and officers for their time and contributions and the meeting ended at 20:39.

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**London Borough of Enfield**

| | |
|---|---|
| **Report Title** | Enfield Climate Action Plan 2024-2030 |
| **Report to** | Environment & Climate Action Scrutiny Panel |
| **Date of Meeting** | 18th April 2024 |
| **Cabinet Member** | Cllr Ergin Erbil, Deputy Leader of the Council<br>Cllr Rick Jewell, Cabinet Member for the Environment |
| **Executive Director /Director** | Perry Scott, Executive Director of Environment and Communities |
| **Report Author** | Vera Vajda |
| **Ward(s) affected** | All |
| **Classification** | Part 1 |
| **Reason for exemption** | N/a |

## Purpose of Report

1. To provide an overview of the revised Enfield Climate Action Plan 2024-2030.

## Main Considerations for the Panel

2. We would like to receive feedback on the revised Climate Action Plan in general, and with particular focus on the shared responsibility and affordability and the need for government funding for actions set out in the Plan.
3. We would like to receive feedback on the strengthened structure of the new Plan and the approach to embed climate action in all services, thereby making it the responsibility of everyone in the Council and extending engagement across the borough.
4. We would like to receive feedback on the improved feasibility of the Plan influenced by the comprehensive internal engagement we conducted with the respective teams to understand their priorities, and our ability to monitor progress in reducing carbon toward achieving our targets.

**Background and Options**

5. As highlighted in the recent report by the International Panel for Climate Change (IPCC), the effects of climate change are unequivocal, widespread, and intensifying, driven primarily by human activity. London, including Enfield is experiencing observable changes such as hotter, drier summers and warmer, wetter winters signalling the urgent need for concerted action.
6. Enfield faces significant climate risks, including extreme heat, drought and flooding. Our borough's vulnerability to flooding is due to the network of watercourses that flow through the borough as well as incapacity of our aging drainage infrastructure. This is exacerbated by urban development encroachment on our green infrastructure and the increasing intensity of rainfall events.
7. Climate risk compounds the issues of deprivation in the east of the borough. In these areas, a concentration of properties at risk of flooding is notable, particularly in the Lee Valley Area, which was historically an area of marshland and the lower lying lands around Edmonton area compared to that in the west of the borough, where the Salmons Brook and Pymmes Brook meet to join the River Lee. Surface water flooding due to heavy rainfall is particularly high risk, causing the drainage systems to fail.
8. Similarly, the vulnerability to extreme heat is heightened in these eastern wards, where deprivation is more prevalent. London's densely urbanised landscape exacerbates the urban heat island effect, further impacting the marginalised communities burdened by inadequate housing, lack of green space, poverty and high numbers of elderly or very young people, as well as those with long term health conditions. Additionally, Enfield faces fluvial flood risk due to the flood plain of the River Lee.
9. Addressing these interconnected challenges necessitates concerted efforts at the local, national and global levels. Acknowledging our responsibility as a major employer and influencer, Enfield Council declared a climate emergency in 2019, committing to:
    - Make Enfield Council a carbon neutral organisation by 2030.
    - Divest the Council from investment in fossil fuel companies.
    - Only use environmentally friendly products where we are able to do so.
    - Make our supply chain carbon neutral through ethical procurement.
    - Work with local partners and communities and positively promote changing behaviours in Enfield to limit activities scientifically linked to climate change.
10. To expedite the implementation of these crucial initiatives the Climate Action Plan is being finalised having been informed by constructive feedback from local climate change organisations, residents and staff. Continuous engagement with stakeholders will be an ongoing and remain vital to the delivery of these measures.
11. In response, the Council has committed to tackling the climate change emergency and to do this requires a clear strategy with supporting actions.

## Relevance to Council Plans and Strategies

12. Our Council Plan 2023-26 sets out our priorities for investing in Enfield to support residents to live happy, healthy and safe lives. Central to this commitment is our priority for Clean and green places where we enhance biodiversity and protect green spaces to help Enfield's resilience in the face of a changing climate. We also strive for a more efficient use of resources, to reduce waste and increase recycling, as well as reduce carbon emissions from energy consumption across our buildings and operations.
13. In line with the Council's priority for More and better homes by making buildings, that are the key emitters, the CAP undertakes measures to enhance the energy efficiency of buildings, including via high quality new homes and the retrofit of existing, as well as connecting them to sources or renewable and low carbon energy such as the Energetik network.
14. Furthermore, the CAP is also aligned with the Council's overarching Blue and Green Strategy, along with the emerging Local Plan and Transport Strategy. This strategic alignment ensures a cohesive approach towards sustainability and climate resilience across all of Enfield's development and infrastructure planning

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**Report Author:** Vera Vajda
Climate Action and Sustainability Lead Officer
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## Appendices

Appendix A – Enfield's Climate Action Plan 2024

Appendix B - Enfield Local Area Energy Plan 2023

## Background Papers

Enfield's Climate Action Plan 2020

enfield-climate-action-plan-2020-environment.pdf

Delivering Net Zero study 2023

Delivering Net Zero

## Departmental reference number, if relevant:

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# Climate Action Plan 2024
# Revision 2.0

Environment Scrutiny Panel

18th April 2024

# Background

**Same priorities** established in 2020, responding to:

- our progress since 2020
- the changing policy, regulatory, economic and technological context
- the feedback and ideas of our partners

# Vision

We will work with our staff, suppliers, residents, businesses, schools, community organisations, statutory partners and the government to become a carbon neutral organisation by 2030 and create a carbon neutral borough by 2040.

# Themes

## Carbon neutral council

- Carbon neutral council buildings
- Decarbonised travel
- Resource efficiency
- A climate conscious organisation

## Carbon neutral borough

- Carbon neutral and climate resilient buildings
- Carbon neutral, sustainable and active travel
- Zero waste and circular economy
- Decarbonised energy systems
- Nature and green spaces

# Successes since 2020

**30%** decrease in the Council's direct emissions from the 2017/18 baseline

**6%** decrease in Borough greenhouse gas emissions from the baseline

# Notable Changes from the 2020 Plan

A deliverable Plan:

- Emphasis on affordability and funding
- Actions clearly delegated to owners and aligned with teams' workplan
- Targets and expectations were adjusted to the current and local context
- Shared effort of all stakeholders

OnePlanet Structure

# Context

- The increasing need for urgent action – with impacts on the environment, health and poverty
- Climate risk in Enfield
- Technological advances and the transition to a green economy
- The financial challenge
- Developing our evidence base
- Assumptions, constraints and gaps

# Context

Our success also depends on changes in national policy, further grid decarbonisation and significant additional investment from the Government.

Along with other public sector organisations, private and voluntary and community sector groups, we are calling on Government to increase the investment and the powers available to local government so we can act at the scale and urgency required.

# Timeline for finalising the Climate Action Plan

| What | When |
|---|---|
| Draft Plan reviewed in detail by Resources; Environment & Communities; Housing and Regeneration Exec Directors and Director leads | January–February 2024 |
| Draft Plan presented to Cabinet Member by Exec Director E&C | 28th February 2024 |
| **Draft Plan presented to Environment and Climate Action Scrutiny Panel by Exec Director E&C** | **18th April 2024** |
| Updated Plan presented to EMT by Exec Director E&C | 23th April 2024 |
| Draft new Plan shared with Informal Cabinet (***to discuss with Cabinet Member)*** | 19th May 2024 |
| Draft Plan approved at Cabinet (TBC) | 12th June 2024 |



ENFIELD Council

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# Enfield Climate Action Plan
# Draft for internal coordination

**Overall notes:**

Graphics and formatting to be added after content finalised.

March 2024

ENFIELD Council

# Enfield Climate Action Plan 2023

ENFIELD Council

# Contents

# Foreword

## Introduction from Cllr Ergin Erbil Deputy Leader and Climate Action Lead

Our planet is facing a real and imminent threat from climate change.

The Intergovernmental Panel on Climate Change's synthesis report in 2023 served as a "final warning" about the urgent need to act on climate change to prevent catastrophic consequences for communities around the world.

The last two years have seen unprecedent fires across Turkey, Greece, Spain, Italy and the USA. Without action these will be just the start of many changes that could prove unstoppable. In Enfield, the extreme heatwave of summer 2022 saw UK temperatures rising above 40C for the first time and wildfires causing the busiest day for the London Fire brigade since World War II.

The effects of climate change are also unfairly distributed, with more vulnerable populations dealing with food insecurity, drought and overheating.

The emergency is real and action in response must be local, national and global. Enfield Council declared a climate emergency in 2019 and published our first Climate Action Plan in 2020.

This review and update of our 2020 plan builds on our successes so far, and responds to the rapidly changing context we're operating in. We have also further developed our approach based on what we have learnt since 2020 and we have listened to the feedback and ideas of local people and our partners.

Our overall aims remain unchanged - the Council will be carbon neutral by 2030 and the borough by 2040. Thorough internal engagement has taken place to ensure climate action is embedded into every team and department, while extensive external engagement has brought us closer to community, education and business organisations who are aligned to deliver these aims together. We cannot do this alone.

In 2023, we agreed a new Council Plan which sets out our plans to invest in Enfield over the next four years and beyond. Our priorities include clean and green places; strong, healthy and safe communities; thriving children and young people; more and better homes; and an economy that works for everyone. Responding to the climate emergency through adaptation and mitigation is a key part of all these priorities and we have a cross cutting principle to be climate conscious in all that we do. Our aim as an administration is to deliver positive outcomes for all our communities, now and in the future. Through our actions and those of our community, we will play our part in combating and adapting to climate risks.

This Plan has been guided by discussion and engagement with staff across the Council, with our partners and with our communities. It has been subject to discussion and development with elected members at the Environment Forum and the Environment and Climate Action Scrutiny Panel. It has also been informed by engagement with national and regional climate change organisations and other local authorities.

Thank you to everyone who has contributed to the development of this revised Climate Action Plan for Enfield, and to all those who will be working with us to deliver on it in the months and years ahead.

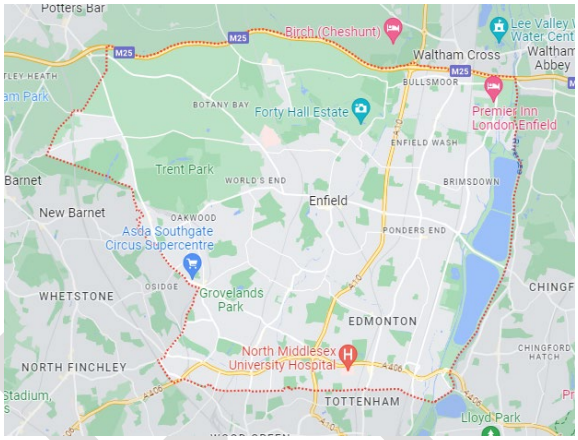
Cllr Ergin Erbil

Deputy Leader of Enfield Council

Climate Change Portfolio Holder

# Our Vision for Climate Action

We will work with our staff, suppliers, residents, businesses, schools, community organisations, statutory partners and the government to become a carbon neutral organisation by 2030 and create a carbon neutral borough by 2040.




Enfield Council as an organisation

Carbon Neutral by:

**2030**

London Borough of Enfield as geographical area

Carbon Neutral by:

**2040**

In summer 2019, we signed a Climate Emergency Pledge, which commits us to:

- Make Enfield Council a carbon neutral organisation by 2030.
- Divest the Council from investment in fossil fuel companies.
- Only use environmentally friendly products where we are able to do so.
- Make our supply chain carbon neutral through ethical procurement.
- Work with local partners and communities and positively promote changing behaviours in Enfield to limit or stop activities scientifically linked to climate change.

This plan sets out how we are delivering on this pledge.

The Government has set a national target to be carbon neutral by 2050. We believe action needs to be taken faster than this to prevent climate breakdown and we are committed to using our statutory powers and our role as facilitator and influencer, to work together with residents, businesses, the community and voluntary sector and other public sector partners to achieve carbon neutrality in the borough by 2040.

Our success also depends on changes in national policy, further grid decarbonisation and significant additional investment from the Government. Along with other public sector organisations, private and voluntary and community sector groups, we are calling on Government to increase the investment and the powers available to local government so we can act at the scale and urgency required.

| | Carbon Neutral Council | | | Carbon Neutral Borough | | |
|---|---|---|---|---|---|---|
| Scopes | **1** | **2** | **3** | **1** | **2** | **3** |
| Type of calculation | Organisational emissions | | | Territorial emissions using Borough Boundary | | |
| Status | Commitment to Carbon Neutral | | Monitoring and Methodology in progress. | Commitment to Carbon Neutral (Territorial emissions) | | Currently monitoring waste and depending on LEGGI |
| Emissions reduction and date | 2030 for 73% reduction. | | Date to be set | 2040 for 64% reduction. | | Date to be set |
| Offsetting | Final 25% offsetting from 2030 and beyond. Sequestration or Offset method to be confirmed. | | Explore how we influence partners and value chain. | Explore and facilitate long term borough sequestration and offset projects. | | |

# Executive Summary

Our 2024 Climate Action Plan builds upon the priorities we established in 2020 in our first plan, responding to our progress so far, the changing policy, regulatory, economic and technological context, and the feedback and ideas from our partners.

We have strengthened our evidence base since 2020, including through commissioning our Local Area Energy Plan and by further refining our methodology for how we measure the greenhouse gas emissions produced by the Council. This has also enabled us to develop our plans with a greater understanding of current emissions.

## Context

Global, national and regional policy, the economic context, the technological context and climate risk have all changed since 2020. Each year, Conference of the Parties (COP) achieves new agreements, new technologies emerge, existing ones become cheaper and more efficient, professional bodies provide useful tools and the evidence base for climate action develop. At the same time climate risk is increasing and the links between poverty, health and climate risks become more pronounced.

Locally, we have seen these risks play out, with increases in extreme weather events, rising living costs and the increasing impact of increasing poverty impacting residents. We also have new opportunities to act because of the increasingly rich partnerships developing across the borough, as well as with other London boroughs, the successful initiatives we've delivered to date and as a result of our improved evidence base, including our Local Area Energy Plan and a comprehensive study on *Delivering Net-zero* co-commissioned with 18 other London councils.

We have developed our refreshed plan in the context of these new challenges and opportunities.

## Our principles

We will deliver climate action using the following principles:

- Robust governance and decision making
- Affordable climate action
- Fair and inclusive climate action
- Vigorous and transparent carbon accounting and offsetting

The climate action we take will not impose additional financial burden for the Council or penalise disadvantaged groups. We will make investments to adapt and mitigate the effects of climate change in a way that reduces future costs

and therefore generates longer term savings, and in a way which tackles inequality and poverty. This includes green jobs and employment opportunities to strengthen our workforce and support our local economy, Our climate action aims to attract new and additional finance into the council and the borough that has co-benefits for Enfield residents and all stakeholders.

## A Carbon Neutral Council

To meet our target of being a carbon neutral Council by 2030, we will reduce carbon emissions the Council creates from the operation of our own buildings (including our libraries, civic centre, council housing, maintained schools, leisure centres and other council buildings); from our street lighting and from our council fleet of vehicles; and from how our staff commute to and from work and travel during the working day. We are also working to reduce emissions from the goods and services we purchase, and intend to reduce, re-use and recycle more from council buildings as well as develop initiatives to offset our remaining emissions. This involves supporting our staff in all teams to understand and take climate action.

| A carbon neutral organisation by 2030 | |
|---|---|
| **Carbon neutral council buildings**<br>Buildings owned and operated by the council will be carbon neutral by 2030<br>*Pic of building?* | **Decarbonised council travel and street lighting**<br>Council vehicle fleet will be carbon neutral by 2030<br>*Pic of truck / van?* |
| **Resource efficient Council**<br>The council will be water and resource efficient implementing best practice recycling<br>*Pic of recycling logo?* | **Climate conscious organisation**<br>Decision making, spending, procurement and pension investment drives positive change<br>*Pic of person thinking of an idea (lightbulb?)* |

## A Carbon Neutral Borough

We will take coordinated actions with our partners across the borough to reduce carbon emissions from all sectors to achieve a carbon neutral borough by 2040. We will also adapt to the consequences of the climate change that we are already experiencing and which we will experience in the years ahead.

Our 'spheres of influence' range from direct initiatives such as local planning regulation through to engaging and working in partnership on community initiatives. Action includes enabling carbon neutral, sustainable and active travel; achieving carbon neutral and climate resilient buildings through planning policy and retrofit; reducing waste through enabling a circular economy; and decarbonising the energy sector. We also set out our plans for enhancing biodiversity and protecting natural landscapes across Enfield which will capture carbon emissions and help us to manage flood risk and mitigate against urban heating as part of our climate adaptation work.

| A carbon neutral Borough by 2040 | |
|---|---|
| **Carbon neutral and climate resilient buildings**<br>Carbon neutral buildings by 2040<br>*ICON of lots of homes* | **Carbon neutral, sustainable and active travel**<br>Carbon neutral travel by 2040<br>*ICON of walking, bike, bus, car* |
| **Reduce, Reuse, Recycle**<br>Waste in the brough reduced by 30% by 2040<br>*ICON of circular economy arrows* | **Decarbonised energy systems**<br>Carbon neutral energy systems carbon neutral by 2040<br>*ICON of solar panels feeding homes along a cable* |
| **Resilient urban and native natural environment**<br>Increasing resilient urban and natural environment by 2040<br>*ICON of trees, flowers* | **A climate conscious organisation**<br>Residents, businesses and local partners engaged and committed to achieve a carbon neutral borough by 2040<br>*ICON of lots of people together* |

# Successes 2020 to 2023

To be displayed as infographics

## Council

**30% decrease in the Council's direct emissions from the baseline**

**Carbon neutral council buildings**

- 10 heat pumps installed in our council buildings
- Piloted our first connection of the Energetik heat network to a school building
- Installed 247 kWp of solar panels at council and community buildings and three maintained schools

**Decarbonised travel**

- 18% of the council's fleet is electric
- Replaced all street lighting to LED

**A climate conscious organisation**

- Launched our new Sustainable and Ethical Procurement Policy
- Reported to and received a score of A and A- for our Carbon Disclosure Project (CDP) submission in three consecutive years, demonstrating the Council's commitment to climate adaptation and mitigation.

## Borough

**6% decrease in Borough greenhouse gas emissions from baseline**

**Carbon neutral and climate resilient buildings**

- Deep retrofit of ten Council homes in Haselbury

**Carbon neutral, sustainable and active travel**

- 3.9 km of new cycle routes added to the network from 2021/22 baseline
- 20 school streets

**Reduce, Reuse, Recycle**

- Re-use shop at Barrowell Green Recycle centre
- Excess Materials Exchange launched helping us to reuse materials from entire dismantled buildings in Meridian Water

**Decarbonised energy systems**

- 709 homes connected to the heat network since March 2020
- Completed our Local Area Energy Plan (LAEP), published with this Plan, serving as basis for development of other subregional LAEPs

**Nature and green spaces**

- 80 hectares of new woodland created
- 1,905 street trees planted from 2021/22 baseline
- Delivered 112 new rain gardens and 4 new wetlands, as well as the Albany Park River Restoration since 2020

# The context

The trajectory of global, national and regional science-based requirements all limit global warming to below 1.5°C when compared to pre-industrial levels and reach global net zero by 2050. This is the backdrop for Enfield's Climate Action Plan.

## The increasing need for urgent action on climate, health and poverty

The last three years has seen the climate crisis accelerate in parallel with the Covid-19 pandemic and cost-of-living crisis, highlighting the need for urgent action to reduce carbon emissions and restore nature, while also addressing inequality, poverty and poor health.

Our revised Plan includes more emphasis on the co-benefits of climate action on improving the health, wellbeing and financial resilience of our residents.

Responding to climate change involves two major responses: mitigation (reducing greenhouse emissions) and adaptation (reducing the risks to people from changes to the climate), both of which have many major wider benefits for society. Mitigation strategies improve public health, reduce NHS expenditure, improve energy security and boost employment in emerging green business sectors. Improving green spaces to capture carbon and reduce impacts of flooding and heatwaves will improve physical and mental health – and help us in our response to the biodiversity crisis too.

These co-benefits make climate investment extremely cost-effective over the medium and long term.

## Climate risk in Enfield

The International Panel for Climate Change (IPCC) has reported that effects of climate change are already 'widespread, rapid and intensifying'[1] and 'unequivocally' caused by human activity. London is having hotter, drier summers and warmer wetter winters.

The main climate risks for Enfield residents are extreme heat, drought and flooding. Enfield experiences flood risk due to the network of watercourses that flow through the borough as well as incapacity of our dated drainage systems. This is exacerbated by urban creep and the increasing intensity of rainfall events.

Climate risk compounds the issues of deprivation in the east of the borough. Most of the properties at risk of flooding are in the Lee Valley Area, which was historically an area of marshland. Land is lower lying in the Edmonton area compared to that in the west of the borough and it is where the Salmons Brook and Pymmes Brook meet to join the River Lee. Surface water flooding

[1] Remarks by Hoesung Lee, the IPCC Chair during Working Group III

due to heavy rainfall is particularly high risk, causing the drainage systems to fail.

As with flood risk, wards to the east of the borough which experience higher level of deprivation, are also more at risk from extreme heat. As a dense urban environment London suffers from a significant urban heat island effect. In more deprived areas, poor housing, lack of green space, poverty and high numbers of elderly or very young people and those with long term conditions combine to concentrate risk in already marginalised communities. Enfield also experiences fluvial flood risk due to the flood plain of the river Lea.

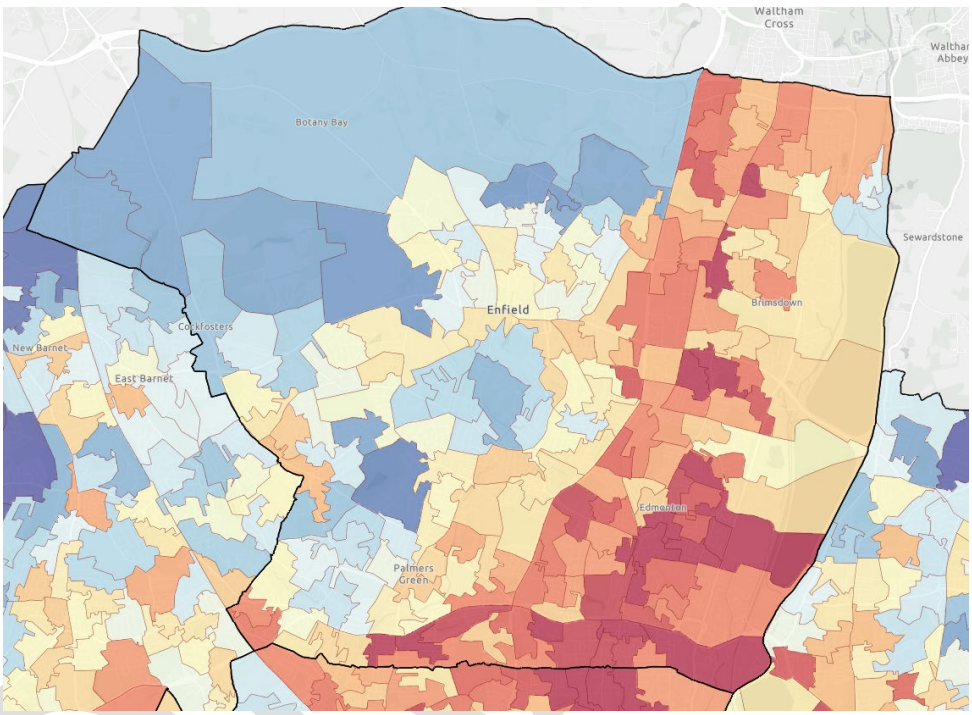



Figure 1 - Climate risk in Enfield, GLA climate risk mapping 2022

## Technological advances and the transition to a green economy

Some initiatives and technological options that were only emerging, or considered innovative three years ago, have now become more mainstream. For example, there have been significant developments in electric vehicle manufacturing and charging and solar panels are becoming increasingly affordable. We have developed our plans in response to these new opportunities and will continue to do so as technology advances further and funding becomes more available to deliver, anticipating that these technologies will also help reduce costs.

To respond to new technology and opportunities to deliver climate action, we need to skill, re-skill and develop our workforce across multiple teams. This includes training in retrofit and low carbon heat for council housing, facilities management and planning teams, low carbon procurement for commissioners

and procurement teams, and low carbon finance opportunities for all teams needing to think differently about how to resource local climate action.

We also need to respond locally to the transition to a green economy so that local people do not miss out on accessing green jobs. Estimates by the LGA currently predict that in 2050 only 0.02% of direct jobs in low-carbon and the renewable energy sector in London will be in Enfield. We need to work to change this so that our local economy benefits from new green jobs and so that local people can access green jobs within the borough.

We need to ensure local people get the skills they need to access green jobs in the wider regional economy too. Nationally, the low-carbon and renewable energy economy is defined as consisting of low-carbon electricity; low-carbon heat; alternative fuels; energy efficient products; low-carbon services and low-emission vehicles. The Office of National Statistics have defined green jobs as 'employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change.'[1]

## The financial challenge

Like local authorities across the country, we are facing unprecedented financial challenges with rising inflation, significant interest rate increases, a cost-of-living crisis and increasing numbers of households in need of support putting increased pressure on all our front-line services – with insufficient government funding to meet the increase in demand and costs.

Our Plan includes short and medium-term actions we are taking now with the resources available to us, in the context that we will need flexibility to deliver in rapidly changing circumstances. We are also committed to taking advantage of all available grant funding to mitigate and adapt to climate change, recognising the longer-term positive impact this can have on the council's financial position.

Our Plan also includes longer term action, necessary to reach our goals, which is not yet funded – because the funding will need to come from budgets in future years. With the current short-term funding mechanisms for local government, and the lack of sufficient sustainable funding, we cannot yet plan in any detail for how these longer-term actions will be funded – which is a huge challenge across the local government sector.

Along with other local authorities across the country, we are calling on the Government to put in place the necessary resources and powers so that we can deliver on all the actions set out in this plan, in time to meet our 2030 and 2040 targets. We are calling on Government to consolidate the different funding streams, reduce competitive bidding processes, give longer lead-in times where bidding remains and provide funding over the medium rather than the short-term with multi-year funding arrangements where possible. Non-competitive funding reduces administrative burdens and ensures that allocation of funding is based on need and opportunity rather than bidding capacity.

## Developing our evidence base

### Local Area Energy Plan for Enfield

In 2022, Enfield Council was supported by the Mayor of London and the European Regional Development Fund (ERDF) to fund the first London borough-wide Local Area Energy Plan. A Local Area Energy Plan is an energy planning process which is considered the best practice approach for local governments to set decarbonisation pathways. A Local Area Energy Plan is a data-driven, whole energy system, evidence-based approach to set out the most effective route for a local area to contribute to meeting net-zero targets.

Our Local Area Energy Plan sets out the cost optimal pathway to the borough being carbon neutral by 2040, establishing a future vision of a 'Carbon neutral Enfield'. The process included non-technical analysis, stakeholder engagement and extensive detailed analysis of heat, transport and power demands of our energy system against a decarbonisation pathway to net-zero. The technical output is detailed analysis, recommendations and outputs alongside detailed mapping.

The Local Area Energy Plan sets out detailed recommendations on the steps we need to take to reach our carbon neutral target, which have been embedded into this updated Climate Action Plan and supporting implementation plans. Our Plan also reflects the targets set in interim years, showing the trajectory we need to take to meet our carbon neutral objectives.

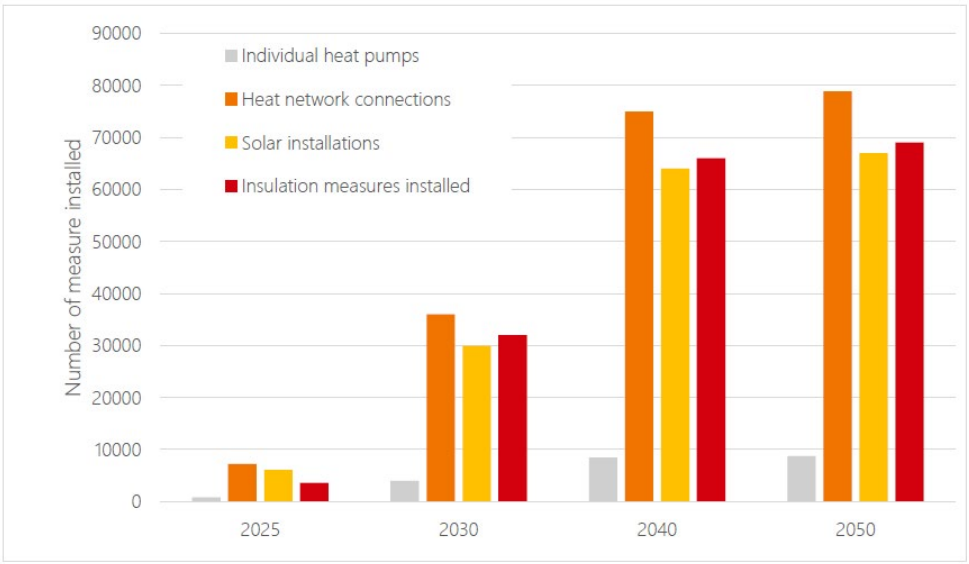



Figure 2 - Number of installation of measures

Meeting these targets is no easy undertaking, with a substantial cost to deliver the required measures. The Council cannot deliver this alone, with a whole systems solution requiring all stakeholders ranging from all levels of government, utilities, businesses and residents to come along on the journey.

### Consumption based emissions

In July 2019, London Councils Transport and Environment Committee (TEC) Executive agreed that London Councils should develop support for borough action on climate change and one of the seven work streams is 'One World Living – Reducing London's Consumption Emissions'. In 2021, University of

Leeds was commissioned to provide consumption-based emissions for the 32 London Boroughs and the City of London. This enables Enfield to have a deeper understanding of the climate implications of the actions taken by our residents, helping us identify where there are opportunities for change.

The output of this study forms a baseline for consumption-based emissions in Enfield. The study showed that Enfield is 12th out of the 33 boroughs for per capita emissions, an improvement from 18th in 2001, with 1 being the lowest and 33 being the highest figure, showing a trend in the right direction. The study also shows that 60% of emissions produced are from spend within the UK with 75% from within Europe.

Enfield has one of the largest industrial areas in London, with manufacturing forming 11% of our emissions, showing the opportunity to work with partners to move towards more sustainable manufacturing processes.

Our largest emissions sources are from direct household, forming 26% of all consumption-based emissions. This shows the importance of working together to enable and encourage our residents to make positive changes.

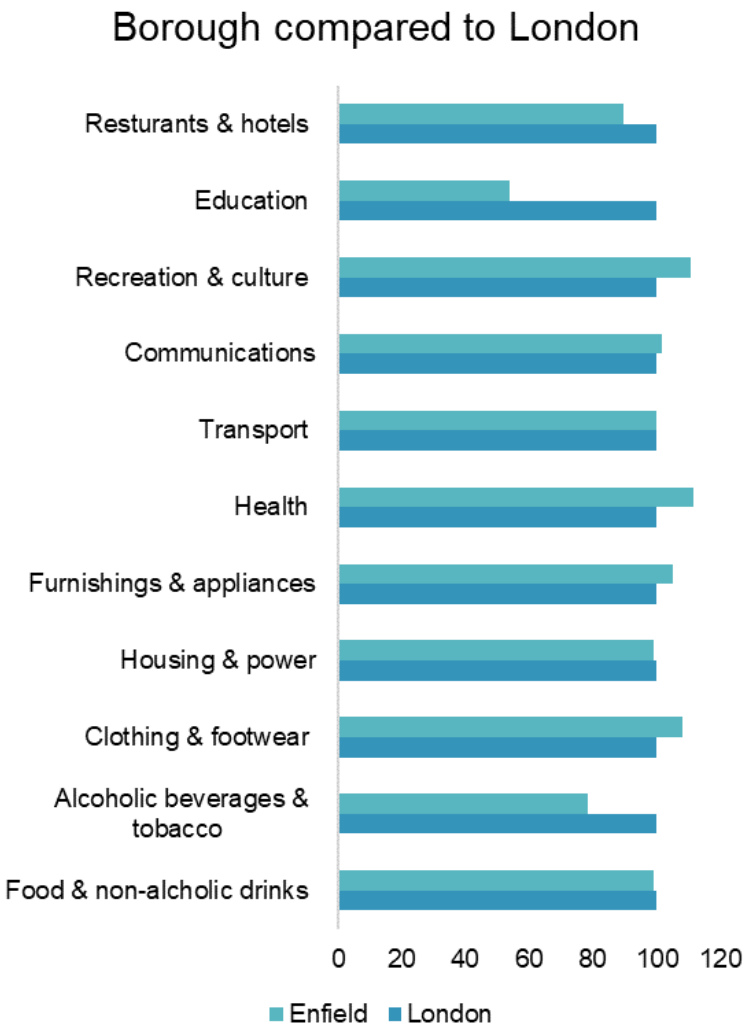



Figure 3 - Product based emissions ($tCO_2$) 2018 (Baseline)

### Engagement with residents and partners

In December 2022 and January 2023, we asked Enfield residents and stakeholders to give us their views on our 2020 Climate Action Plan and their ideas for future action. We ran events across the borough and also asked for feedback via an online questionnaire. Through this engagement, we heard from 136 local people with their views on our 2020 Plan and future approach.

We identified the following themes from this engagement:

- **Working in partnership** - There so are many opportunities to work together with our informed and motivated community. We can only achieve our goal of a carbon neutral borough by 2040 if the Council, public sector and voluntary and community sector partners, local businesses and residents work together.
- **Climate as a co-benefit** – Action to reduce climate change is widely understood as an imperative, but people are comfortable with it being a secondary outcome, or 'co-benefit', of another initiative – for example one that could save money.
- **Homes and heating** - Energy costs, heating efficiency and retrofit of buildings is foremost in everyone's minds, and people told us that they are prepared to put up with some disruption and some short-term costs to improve their buildings.

## Assumptions, constraints and gaps

This is a strategic document which focuses on delivery against the Council's Climate Emergency Declaration. Its intention is to cover all areas related to climate mitigation and adaption, but it cannot singlehandedly cover all environmental or sustainability issues as it relies on other documentation and strategies to cover these.

Our long-term Climate Action Plan assumes a 'best guess' of the evolving context around us. However, there are still many uncertainties as national policy is still emerging and central government has, at the time of publication of this Plan, downgraded its policies. We have to assume that there could also be unexpected forthcoming crises similar to previous ones, which could impact on this plan.

There are constraints on delivering this Climate Action Plan, the most obvious being finance and external policy decisions. Whilst these should not excuse holding back, they do have to be considered if the plan is to be realistic.

# Principles for climate action

The way in which we take climate action is critical. In delivering on all our priority areas, we will always do so using the following principles:

- Robust governance and decision making
- Affordable climate action
- Fair and inclusive climate action
- Vigorous and transparent carbon accounting and offsetting

The climate action we take will not impose additional financial burden that the Council cannot fund, and it will not penalise disadvantaged groups.

As a local government, we will proactively work with Government to make investments to adapt and mitigate the effects of climate change in a way that reduces future costs and therefore generates longer term savings, and in a way which tackles inequality and poverty. Although climate change and climate breakdown affect all of us, the impacts disproportionately impact disadvantaged communities. This is the case globally and within regional areas too, including Enfield.

Considered and planned climate action can help us protect and improve outcomes for the most disadvantaged communities in the borough. It can attract new and additional finance into the council and the borough that has co-benefits for Enfield residents and all stakeholders, and we will take all opportunities available to us to draw this investment into Enfield.

| Principle | This means…. |
|---|---|
| **Robust governance and decision making** | Climate action has robust and integrated governance and holistic climate conscious decision making is used throughout the council.<br>There is a robust approach to coordinating and monitoring the delivery of the actions in this plan and we will measure success using the indicators we have identified for each priority and action.<br>We will publish an annual progress report against our performance indicators and an annual emissions report tracking our journey to carbon neutrality. |
| **Affordable climate action** | All funding options and incentives are maximised and lobbying increases available budgets. Realistic and affordable business cases will be created for delivering all the actions in the Plan, using funding opportunities that become available, and making investments that facilitate future financial savings for the Council and our residents.<br>Action will not be taken where there is not a realistic and costed plan for delivery. This will mean our Plan may need |

| | |
|---|---|
| | to evolve and change over time through to 2040, to take account of the changing context we are operating in.<br><br>We will lobby national Government to consolidate the different funding streams, reduce competitive bidding processes, give longer lead-in times where bidding remains and provide funding over the medium rather than the short-term with multi-year funding arrangements where possible. Non-competitive funding reduces administrative burdens and ensures that allocation of funding is based on need and opportunity rather than bidding capacity – and allows all available capacity within local government to be focused on delivering climate action at the pace and scale required.<br><br>We will also lobby Government to make significant investment in reducing carbon from our buildings and transport and energy systems. |
| **Fair and inclusive climate action** | Climate action protects the most vulnerable people in the borough from the climate changes that are already happening or are now inevitable.<br><br>Climate action helps us tackle longstanding inequalities, by tackling health inequality through better air quality, improving the conditions of our homes and neighbourhoods, increasing access to nature and by supporting livelihoods through creating new good quality jobs and reducing fuel poverty.<br><br>In all climate action we take, we undertake a robust equality impact assessment to ensure that action does not discriminate against anyone because of their protected characteristic, and that we are using every opportunity to advance equality of opportunity for people facing disadvantage. |
| **Robust and transparent carbon accounting and offsetting** | Our carbon accounting, compensation and offsetting programme will bring wider community value and we will be transparent about our approach at all times.<br><br>We use the international Greenhouse Gas Protocol, a globally accepted standard for measuring emissions that is used as the system behind reporting frameworks such as CDP.<br><br>Our key focus is carbon reduction, but for our council target we will also need to offset our residual emissions to become carbon neutral. This will be built into long term budgets and we will use offset schemes that are local, verifiable, have high impact, and bring community benefits for the borough.<br><br>For our borough target we will explore ways that we can facilitate offsetting the residual borough emissions.<br><br>We will also work with London Councils to establish a methodology to monitor and reduce the boroughs consumption-based emissions. |

## Our action plan

| O.P1 | Robust governance and decision making | |
|---|---|---|
| O.P1.A1 | **Climate conscious decision-making** | Implement processes to assess climate change implications in all decisions we take, review options for increased robustness including integrating carbon calculations and standardised monitoring and decision weighting |
| O.P1.A2 | **Monitoring and reporting** | Annually and publicly report on Council and Borough GHG emissions and progress against the Climate Action Plan. Monitor progress internally through tracking of corporate indicators assigned to services |
| O.P1.A3 | **Continuous review** | Continually assess effectiveness of the Climate Action Plan actions and targets in delivering the required outcome |

| O.P2 | Affordable climate action | |
|---|---|---|
| O.P2.A1 | **External funding opportunities** | Track, bid for and spend grant and low-cost loan funding for projects to deliver carbon neutral trajectory and its co-benefits |
| O.P2.A2 | **Resourcing and financing of new capital projects** | Build in necessary internal resourcing and costing of carbon neutrality into the early stages of capital projects, with provisional funding targets so once funding is secured further development work is not needed |
| O.P2.A3 | **Use of financial incentives** | Explore financial incentives and review options for lower carbon choices with finance and commercial teams. |

| O.P3 | Fair and inclusive climate action | |
|---|---|---|
| O.P3.A1 | **Equality Impact assessments** | Undertake Equality Impact Assessments to inform all key decisions relating to climate adaptation and mitigation |

| O.P4 | **Vigorous carbon accounting and offsetting** | |
|---|---|---|
| O.P4.A1 | **Carbon price** | Pilot the use of HM Treasury carbon price in business cases, options appraisals, and as internal accounting for project incentives and levies |

| | | |
|---|---|---|
| O.P4.A2 | **Council carbon compensation fund** | Continue to maximise the incoming council carbon offset funds and the projects that are funded |
| O.P4.A3 | **Borough carbon fund** | Explore and support local/community carbon offset funds for investment in carbon mitigation projects in Enfield |
| O.P4.A4 | **Carbon offsetting** | Establish mechanisms to monitor local council enabled carbon offsetting in borough, and identify projects and budget to offset all council residual scope 1 and 2 emissions from 2030, and borough residual emissions from 2040 |

## Measuring success

| O.P | Principles for climate action | |
|---|---|---|
| O.P1 | Robust governance and decision making | |
| O.P1.M1 | To be developed by 2025 | |
| O.P2 | Affordable Climate Action | |
| O.P2.M1 | **Climate action resourcing** | (£) Council funds annually allocated to climate action resourcing and delivery |
| O.P2.M2 | **Funding raised for climate action** | (£) Grants secured per year related to climate action |
| O.P3 | Fair and inclusive climate action | |
| O.P3.M1 | To be developed by 2025 | |
| O.P4 | Vigorous Carbon accounting and offsetting | |
| O.P4.M1 | **Carbon offset per year in borough** | ($tCO_2$/yr) Nature based carbon offset per year in borough |
| O.P4.M2 | **Organisational natural offsets** | ($kgCO_2e$) Natural environment offsets invested in to offset council carbon emissions |

# Carbon neutral council

## Our vision

***By 2030 the Council will be a carbon neutral organisation. Enfield Council's operations will reduce scope 1 and 2 emissions by 73% from our baseline in 2018/19 and offset the remaining emissions to zero. Council buildings and schools will have reduced energy demand and decarbonised heating systems and all energy will be supplied by renewable energy. The Council's fleet will be decarbonised and in all the decisions we make, we will ensure that the lowest amount of carbon possible is emitted.***

| | |
|---|---|
| **Carbon neutral council buildings** | By 2030 all buildings owned and operated by the Council will be decarbonised and support the green economy through a combination of building rationalisation, energy efficiency investment, heat decarbonisation and utilisation of renewable energy. This will be demonstrated by a 73% reduction from our 2018/19 baseline by 2030, with year-on-year reductions in energy and carbon emissions and an increase in installed solar capacity. |
| **Decarbonised council travel and street lighting** | By 2030, the Council will have decarbonised council travel through reducing the overall size of our fleet and investing in decarbonised vehicles, reducing energy consumption from street lighting infrastructure and supporting staff to use low and zero carbon forms of transport. |
| **Resource efficient Council** | By 2030, the Council will be resource efficient, minimising water consumption and waste produced, implementing best practice in recycling and circular economy principles. |
| **Climate conscious organisation** | By 2030, Council staff and partners will be climate conscious in all decisions we make and actions we take. This includes ensuring pension funds are sustainably invested, using all procurement activity to make positive changes towards climate action and using every opportunity to mitigate and adapt to climate change. |

## Council carbon footprint and our trajectory to carbon neutrality

A carbon footprint is the total amount of emissions an organisation will emit in the delivery of its objectives. This may be in the form of energy use or an organisational fleet. We measure our carbon footprint over three areas:

| | |
|---|---|
| **Scope 1** | Carbon that is emitted directly from the council's gas usage and vehicle fleet. |
| **Scope 2** | Carbon that is emitted from electricity usage in council buildings and street lighting. |
| **Scope 3** | Carbon emissions from sources that the council does not own or control but are within our value chain and can therefore influence. This includes emissions associated with business travel, procurement, waste and water. It also includes estimated emissions from energy used by residents in council homes and capital goods for the construction of new homes. |

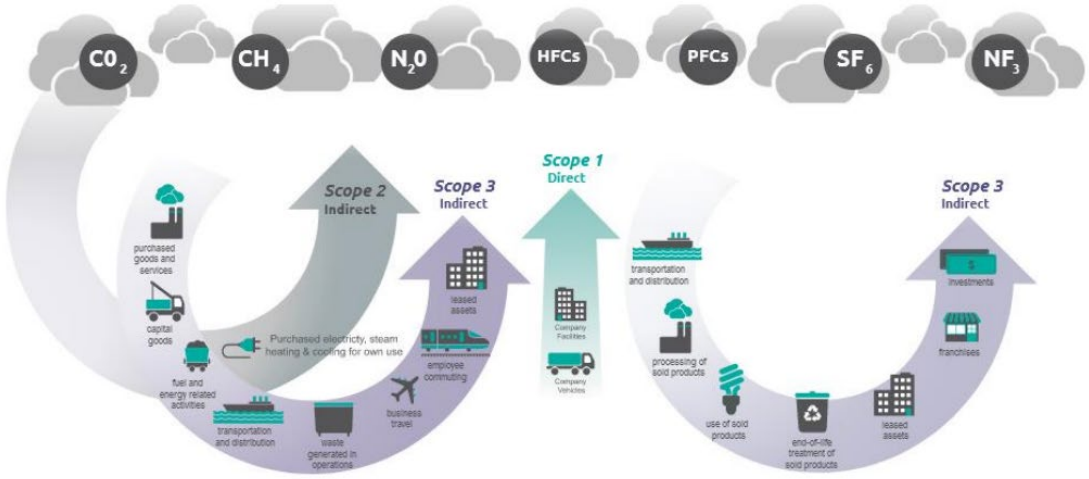



Figure 4 Overview of GHG Protocol scopes and emissions across the value chain

Historically, carbon emissions reporting has concentrated on only scope 1 and 2 emissions. Recognising the severity of the climate crisis and the need to work with our partners, as set out in our Climate Action Plan 2020, we are committed to reporting on our scope 3 emissions, establishing new methodologies for more accurate reporting. Whilst we are focusing on reducing scope 1 and 2 to zero by 2030, we recognise we also have an important role to play in being transparent and identifying the actions we can take to reduce our scope 3 emissions as well.

Enfield Council reduced its emissions by around 50% between 2009 and 2019, halving our carbon footprint in 10 years. This was achieved by investing in our buildings to make them more energy efficient, investing in low carbon energy sources and consolidating our operations into fewer buildings.

**Baseline**

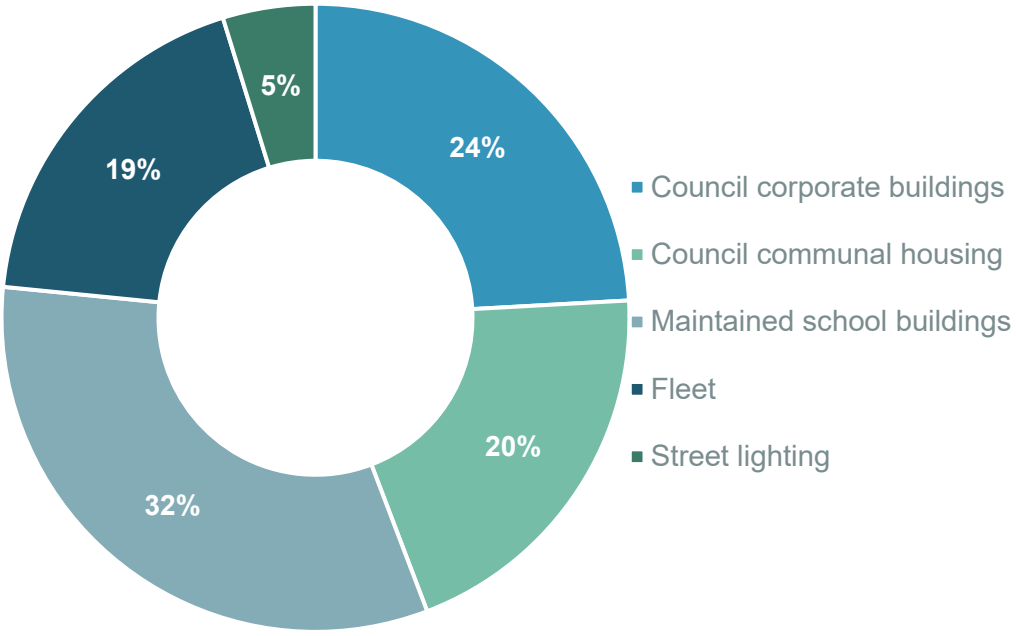
In the development of the Climate Action Plan 2020, Enfield Council calculated a new baseline utilising 2018-19 data year, to measure the footprint of our own operations. Since then, we annually reported, following the GHG

companies reporting methodology, against this baseline to measure improvement and progress toward our target.

## The Council's scope 1,2 and 3 emissions

| Council direct, indirect and influencing emissions | | | |
|---|---|---|---|
| **Council scope 1, 2 and 3 (tCO2e)** | 2018/19 | 2021/22 | 2022/23 |
| | Baseline | Previous | Current |
| **Scope 1** Direct emissions from fleet and buildings | 11,199 | 11,527 | 9,908 |
| **Scope 2** Indirect emissions from purchased electricity | 10,709 | 6,134 | 5,347 |
| **Scope 3** Indirect emissions from council influence | 81,256 | 43,732 | 39,920 |
| **Total scope 1, 2, 3 emissions** | **103,165** | **61,157** | **55,175** |

## The Council's scope 1 and 2 emissions



## The Council's scope 3 emissions

| Council influencing emissions | | | |
|---|---|---|---|
| **Council Scope 3 (tCO2e)** | **2018/19** | **2021/22** | **2022/23** |
| Capital Goods | 45,440 | 588 | 7,721 |
| Fuel and energy related activities | 913 | 543 | 488 |
| Water | 48 | 62 | 68 |
| Business Travel | 139 | 96 | 104 |
| Employee commuting | No data | 2,230 | 2,040 |
| Upstream leased assets | No data | 237 | 243 |
| Downstream leased assets | 32,237 | 38,057 | 27,402 |
| Franchises | 2,479 | 1,919 | 1,855 |
| **Total Scope 3 Emissions (tCO2e)** | **81,256** | **43,732** | **39,920** |

### Carbon neutral trajectory

Below is our projected trajectory towards carbon neutrality for our Council scope 1 and 2 emissions. This trajectory has been established using science-based targets methodology, setting a reduction target which is in alignment with the Paris agreement. At the time of the publication of this plan in 2024, we are on trajectory.

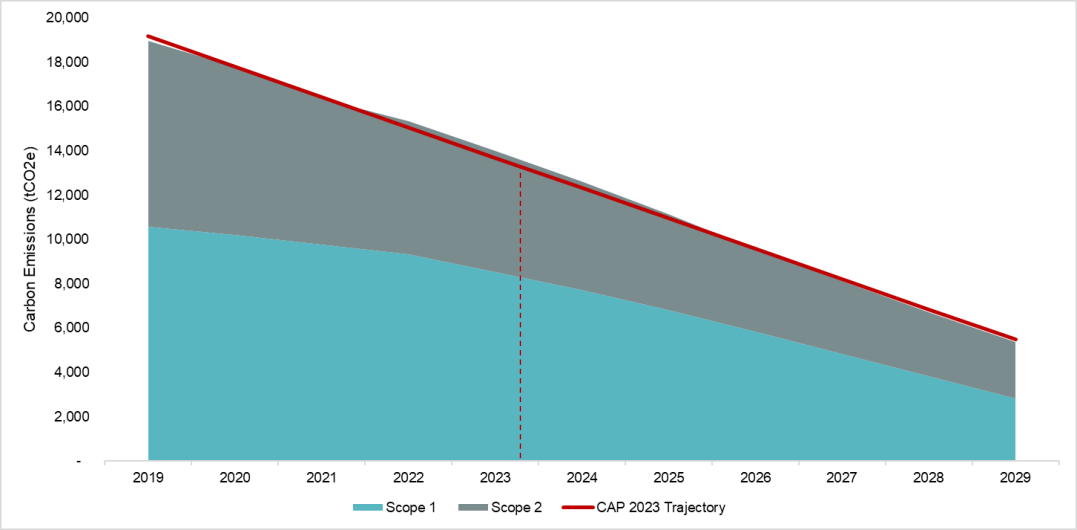



Figure 5 Enfield Council scope 1 and 2 2030 decarbonisation trajectory

### Carbon offsetting

Reducing emissions through direct action will be our main approach to becoming a carbon neutral organisation. But there will be c.20% of emissions

which are currently not practically or financially possible to reduce, these are called “residual emissions”. This will likely include:

- Emissions from the UK power grid, based on carbon content of the national grid, which is projected to massively decarbonise by 2030
- Emissions from the heating and hot water systems of hard-to-treat buildings or buildings where at the point of heating system replacement there was no viable low-carbon alternative. This may be in areas of the borough which are awaiting strategic growth of the heat network to decarbonise as part of the 2040 plan
- Emissions from fleet vehicles for which no low-carbon fuel or electric vehicle product alternative is available at time of replacement

From 2030, the Council will offset all residual scope 1 and 2 emissions to zero. Carbon offsetting will be undertaken through the allocation of funds and delivery of in-borough offsetting projects such as renewable energy generation and investment in natural offsetting through green infrastructure (carbon sequestration). All projects will provide additionality, avoid double counting, ensuring best practice is followed seeking 3rd party accreditation where necessary. This will be budgeted utilising the HM Treasury cost of carbon guidance. The Council will develop a robust offsetting framework as set out in the action plan.

## Milestones and targets

| Carbon neutral organisation by 2030 | | 2018 Baseline | 2025 | 2030 |
|---|---|---|---|---|
| Council scope 1 and 2 carbon emissions | (tCO2e/yr) Council total scope 1and2 corporate emissions | 21,908[2] | 15,062 | 5477 |
| Council scope 1 and 2 carbon emissions reduction | (%) Reduction of council scope 1and2 corporate emissions over 2019 baseline | 0% | 42% | 75% |
| Carbon neutral council buildings | | | | |
| Operational buildings emissions | (tCO2e/yr) Council corporate scope 1 and 2 emissions | 4978 | 2640 | 1274 |
| Maintained school buildings emissions | (tCO2e/yr) Council maintained school scope 1 and 2 emissions | 4889 | 4271 | 1773 |
| Community housing asset emissions | (tCO2e/yr) Council communal housing scope 1 and 2 emissions | 6072 | 2737 | 1246 |
| Decarbonised council travel | | | | |
| Annual carbon of street lighting (market) | (tCO2e/yr) Annual scope 2 emissions from street lighting contract (market based) | 2478 | 753 | 405 |
| Council fleet emissions | (tCO2e/yr) Annual carbon emissions from the council's directly managed fleet vehicles | 2470 | 2238 | 684 |
| Council resource efficiency | | | | |
| Council waste diversion rate | (%) of council waste from corporate sites which is recycled, reused or composted | We are working to establish a measure for this metric | | |

[2] This figure does not align with the original 2020 baseline as we have since improved the granularity of our reporting.

| Working together to be climate conscious | | | | |
|---|---|---|---|---|
| Fossil fuel divestment | % Invested of total pension fund invested in fossil fuels | We are working to establish a measure for this metric | | |
| Employees empowered to take climate action | (%) Percentage of employees who answer positively to annual staff survey question " Do you feel empowered to take climate action in your work? | We are working to establish a measure for this metric | | |

# Council: Buildings

## Our vision

***By 2030 all buildings owned and operated by the Council will be decarbonised and support the green economy through a combination of building rationalisation, energy efficiency investment, heat decarbonisation and utilisation of renewable energy. This will be demonstrated through a 73% reduction from our 2017/18 baseline by 2030, with year-on-year reductions in energy and carbon emissions and an increase in installed solar capacity.***

Council buildings include all council owned and operated buildings, recognising our role as a building owner, occupier and operator. This includes our offices, depots, libraries, youth centres, family hubs, council housing community halls, council housing stock and buildings we rent commercially to other operators.

| | | |
|---|---|---|
| C.BU.1 | **Decarbonised operational buildings** | By 2030, Council operational buildings will be rationalised and the carbon emissions from our remaining estate will be reduced through an energy efficiency and heat decarbonisation programme, delivered as increased funding becomes available. |
| C.BU.2 | **Decarbonised maintained schools** | By 2030, Enfield Council's maintained schools will be decarbonised by 64% from our baseline. Schools will be supported and empowered to decarbonise and benefit from improved estates. |
| C.BU.3 | **Decarbonised council housing assets** | By 2030, landlord energy supply to council housing will be decarbonised by 79% from our baseline through decarbonisation of communal heating systems and renewable energy investment. We will achieve year on year reductions in energy and carbon emissions and increases in solar capacity installed with savings passed on to residents. |
| C.BU.4 | **Retrofit of Council homes** | By 2030, all existing directly managed council housing will be carbon neutral and housing energy inefficiency will no longer contribute to fuel poverty. All council homes will have an average rating of EPC C (>70) at least and moving towards B (>80) where affordable. |
| C.BU.5 | **Carbon neutral council-led development** | By 2030, all buildings developed by the Council will be carbon neutral and resilient. Leading by example, the Council will minimise whole-life carbon impact of all developments and require the highest standards from development partners. |

| | | |
|---|---|---|
| C.BU.6 | **Carbon neutral commercial landlord** | By 2030, EPC B average will be achieved for all investment properties through the council utilising powers as a landlord to support, encourage, and enable retrofit of commercial properties. |
| C.BU.7 | **Climate resilient buildings** | By 2030, council owned and maintained buildings will be resilient to a changing climate, with reduced risk of overheating and flooding and with opportunities for further adaptation in the future if required. |

## Why is this important

Decarbonising buildings is a challenge at every scale. The UK's built environment is responsible for 25% of the UK's greenhouse gas emissions. The Mayor of London has committed to going beyond the national target with an aim to be carbon neutral by 2030. Our homes and workplaces in Enfield make up over 3% of London-wide building emissions.

We recognise our role in decarbonising the large number of buildings we own in the borough, ranging from council operational properties, council commercial assets and council homes. We have estimated that buildings used for day-to-day council's operations and occupied by our maintained schools, make up almost 5% of non-residential borough wide emissions, and our council housing makes up almost 10% of the domestic emissions in the borough. This does not include the numerous commercial properties the council leases, such as many of our leisure and shopping centres in the borough.

In addition, the Council is continuing to address challenges including ever increasing financial pressures and continued need to deliver affordable high-quality housing and school spaces for our residents and their families.

We recognise the co-benefits that come with decarbonisation including improved working, learning and community spaces for our staff, residents and children and young people, positively impacting the physical and mental health of our community. Through the decarbonisation of our buildings, we can lead by example, supporting the creation of green jobs in the borough.

## Our asks of others

- Long-term, consistent funding from Government which not only supports but enables the decarbonisation of heat and acknowledges the significant investment needed in buildings to bring them up to modern standards to utilise the best in new technology.
- Viable financing options from Government and the private sector for delivering a fabric-first approach to address the fuel-poverty challenge, aligning funding with an increased aspiration in reducing fuel-bills, home decency and increasing quality of life for our residents.

## Local story: Decarbonising our public buildings

Enfield council have been investing in energy saving measures in our public buildings for many years, demonstrated by our previous achievements reducing our emissions by around 50% between 2009 and 2019, halving our carbon footprint in 10 years. This was achieved by investing in our buildings to make them more energy efficient, investing in low carbon energy sources and consolidating our operations into fewer buildings

In 2020 we made steps to further decrease our emissions, securing funding through Phase 1 of the Public Sector Decarbonisation Scheme, with £3.1m invested over 15 sites. The council installed 10 heat pumps, to reduce our reliance on natural gas and piloted our first connection of the heat network to an existing school building. We invested in insulation and energy saving technologies and installed 247 kWp of solar panels at council office and community buildings and three maintained schools.

## Our action plan

| C.BU1 | Decarbonised operational buildings | |
|---|---|---|
| C.BU1.A1 | Planning, funding and delivery | Develop a two-phase strategic plan and business cases to rationalise 30% of the Council's operational estate, and secure funding to decarbonise the remaining portfolio including investing in energy saving opportunities and low-carbon heating systems. |
| C.BU1.A2 | Skills, monitoring and operational improvements | Develop robust data gathering and storage processes ensuring active metering and monitoring to enable operational insight and improve reporting. Invest in training, skills and operational improvements to support decarbonisation of public buildings |
| C.BU1.A3 | Low-carbon energy installation and procurement | Invest in renewable energy prioritising on-site opportunities that provide additionality. Identify opportunities for increased carbon reduction through energy procurement |

| C.BU2 | Decarbonised maintained schools | |
|---|---|---|
| C.BU2.A1 | Schools retrofit planning, funding and delivery | Align maintained schools' capital programme with decarbonisation opportunities, and support schools with decarbonising whilst upgrading assets |
| C.BU2.A2 | Schools low-carbon energy installation and procurement | Support schools to access funding for building upgrades and decarbonisation. Submit for capital funding from the Public Sector Decarbonisation Scheme for minimum 1 school per round of funding |
| C.BU2.A3 | Renewable energy for maintained schools | Support schools with access to renewable energy to decarbonise energy supply and reduce bills |

| C.BU3 | Decarbonised council housing assets | |
|---|---|---|
| C.BU3.A1 | Council housing energy investment programme | Develop strategic plans and business cases to decarbonise council housing communal areas, secure funding and invest in energy saving opportunities and decarbonisation of communal heating systems. |
| C.BU3.A2 | Communal energy systems | Undertake a strategic review of council housing communal energy systems to identify opportunities for connection to heat network and, create shovel ready schemes for future rounds. |

| | | |
|---|---|---|
| C.BU3.A3 | Council housing renewable energy | Invest in renewable energy where a business case can be made, prioritising on-site opportunities that provide additionality and explore affordable opportunities to procure renewable electricity through corporate contracts. |

| C.BU4 | Retrofit of Council homes | |
|---|---|---|
| C.BU4.A1 | Strategic planning | Develop a planned and consistent approach to retrofitting properties and proposed goals to be set out in a carbon neutral aligned Housing Asset Management Strategy which is reviewed at regular intervals. |
| C.BU4.A2 | Delivery and funding | Establish business cases and deliver a programme of works, securing funding required to support the delivery. |
| C.BU4.A3 | Skills gap | Identify skills gaps and upskill inhouse staff and contractors working on behalf of the Council. |
| C.BU4.A4 | Resident engagement | Establish a programme to engage with council housing residents to raise awareness about energy saving and decarbonisation. |

| C.BU5 | Carbon neutral council-led development | |
|---|---|---|
| C.BU5.A1 | **Standardisation and knowledge sharing** | Develop, implement, and enforce net-zero standards for all council-led developments, standardised across departments, in line with best practice guidance available, embedding throughout the design process from inception though to occupation, including prioritising data collection in contracts. Share knowledge between departments on new approaches |
| C.BU5.A2 | **Best practice pilot** | Invest resources to learn from best practice approaches and delivery mechanism, such as Passivhaus and MMC, to identify opportunities and establish template business cases to ensure net zero is achievable |
| C.BU5.A3 | **Monitoring and reporting** | Establish and implement processes for monitoring on environmental performance across all council-led new build developments, including a toolkit to embed expectations into contracts, to provide oversight and drive-up standards of all new developments |

| | | |
|---|---|---|
| C.BU6 | Carbon neutral commercial landlord | |
| C.BU6.A1 | **Council non-residential assets** | Decarbonise council owned commercial assets utilising our role as landlord to encourage, support and enable low carbon technologies and operational improvements. Identify and implement process and policy levers, including reviewing leases as they come up for renewal and embedding as part of asset disposal decision making |
| C.BU6.A2 | **Monitoring and reporting** | Develop an in-depth understanding of energy performance and emissions associated with council investment properties. Utilise centralised data information systems to track status including compliance against national policy |

| | | |
|---|---|---|
| C.BU.7 | By 2030, council owned and maintained buildings will be resilient to a changing climate, with reduced risk of overheating and flooding, and with opportunities for further adaptation in the future if required. | |
| C.BU7.A1 | **Resilience to extreme heat** | Implement building design tools to reduce overheating risk in new and existing buildings and use urban design tools to reduce the urban heat island effect on council-maintained sites. |
| C.BU7.A2 | **Resilience to flooding** | Implement best practices to reduce flood risk on council-maintained sites and council-led developments. |

## Measuring success

| | | |
|---|---|---|
| C.BU | Carbon neutral council buildings | |
| C.BU1 | Decarbonised operational buildings | |
| C.BU1.M1 | Operational buildings emissions | (tCO2e/yr) Council corporate scope 1 and 2 emissions |
| C.BU1.M2 | Operational buildings gas consumption | (MWh) Annual gas consumed by operational building portfolio |
| C.BU1.M3 | Operational buildings electricity consumption | (MWh) Annual electricity consumed by operational building portfolio |

| | | |
|---|---|---|
| C.BU.1M4 | Operational buildings heat consumption | (MWh) Annual heat (from heat network) consumed by council housing communal building portfolio |
| C.BU.1M5 | Solar capacity on operational buildings | (kWp) Total installed solar capacity on council operational buildings |
| C.BU2 | Decarbonised maintained schools | |
| C.BU2.M1 | School buildings emissions | (tCO2e/yr) Maintained on-contract schools' scope 1 and 2 emissions |
| C.BU2.M2 | School gas consumption | (MWh) Annual gas consumed by council maintained schools portfolio (on contract) |
| C.BU2.M3 | School electrical consumption | (MWh) Annual electricity consumed by council maintained schools portfolio (on contract) |
| C.BU2.M4 | Schools heat network connection | (kWp) Total connected heat (from energy network) to council maintained schools |
| C.BU2.M5 | Schools solar capacity | (kWp) Total Installed solar capacity on council maintained schools (all) |
| C.BU3 | Decarbonised council housing assets | |
| C.BU3.M1 | Community housing emissions | (tCO2e/yr) Council communal housing scope 1 and 2 emissions |
| C.BU3.M2 | Community housing gas consumption | (MWh) Annual gas consumed by council housing communal building portfolio |
| C.BU3.M3 | Community housing electrical consumption | (MWh) Annual electricity consumed by council housing communal building portfolio |
| C.BU3.M4 | Community housing heat consumption | (MWh) Annual heat (from heat network) consumed by council housing communal building portfolio |
| C.BU3.M5 | Community housing asset solar capacity | (kWp) Total installed landlord solar capacity on council communal buildings |

| | | |
|---|---|---|
| C.BU4 | Retrofit of Council homes | |
| C.BU4.M1 | Social rented energy efficiency | (#) Median energy efficiency score of social rented properties. Score of 0 to 100, with a score of 100 indicating the most energy efficient property |
| C.BU4.M2 | Council housing EPC rating A–C | (%) Percentage of Council Housing homes with EPC rating A–C |
| B.BU5 | Carbon neutral council-led development | |
| B.BU5.M1 | Whole life carbon of new development | (tCO2e) Whole life carbon of units completed in the reporting financial year |
| B.BU5.M2 | Upfront carbon of new build | (tCO2e) Annual upfront carbon of units completed in the reporting financial year |
| C.BU6 | Carbon neutral landlord | |
| C.BU6.M1 | Council commercial average EPC | (EPC) Average EPC score for council commercial lease properties |

# Council: Travel

## Our vision

***By 2030, the council will have decarbonised travel by investing in a decarbonised vehicle fleet, reducing energy consumption from street lighting and highway infrastructure, and supporting staff to use low and zero carbon forms of transport.***

| | | |
|---|---|---|
| C.TR1 | **Decarbonised street lighting** | Council operated streetlight lighting is decarbonised by identifying energy efficiencies and through utilisation of low carbon renewable energy, demonstrated through year-on-year carbon reductions |
| C.TR2 | **Decarbonised council fleet** | Council's emissions from fleet vehicles decrease by 74% from the baseline by 2030 through a fleet decarbonisation programme. The council's non-HGV fleet will be fully electric by 2030, with residual emissions reduced through vehicle, route and fuel efficiency improvements. |
| C.TR3 | **Staff travel sustainably** | Staff commuting and delivering services on behalf of the council will be in low carbon forms of transport. |

## Why is this important

Improving air quality is a high priority for the Mayor of London and Enfield Council. We appreciate the co-benefits that low-carbon technology brings, including reducing air pollutants and improving public health. With a fleet of more than 400 vehicles, of which many are operating in neighbourhoods across the borough, this is a priority area for the council.

The council is also one of the largest employers in the borough, with over 3,000 staff who travel in and around the borough for work. Many of our staff travel to work from across London and from neighbouring areas. We recognise our role as a responsible employer and we are encouraging our staff to make the best choices for their health and wellbeing, whilst also helping to reduce car traffic in Enfield, London and surrounding areas.

## Our asks of others

- National investment in public transport and active travel, so our staff can travel to work in an affordable and low-carbon way, with private vehicles being the least attractive options
- National investment in upgrading of the power systems, to be aligned for large-scale electrification of vehicles, and reduce the burden on individuals

- Review of incentive schemes (such as plug-in-grant) for commercial vehicle electrification to ensure VAT registered clients are incentivised and supported to switch to electric vehicles.


## Local story: Electrifying our fleet

Enfield have been leading the way in electrifying our fleet investing £1.4m in electric vehicles to date. In 2022 Enfield Council received delivery of the first of four fully electric refuse trucks, Renault's first ever 100% zero-emission electric refuse collection vehicle to reduce the Council's carbon footprint.

## Our action plan

| | | |
|---|---|---|
| C.TR1 | Decarbonised street lighting | |
| C.TR | Energy reduction in street lighting | Continue to identify opportunities to further reduce energy from street lighting through operational efficiencies. |
| C.TR | Low carbon energy for street lighting | Explore opportunities for electricity contracts with increased additionality of renewable energy, alongside local renewably generated assets. |

| | | |
|---|---|---|
| C.TR2 | Decarbonised council fleet | |
| C.TR2.A1 | Council EV fleet procurement | Convert the fleet to electric by 2030 as products become available and affordable. |
| C.TR2.A2 | Fleet EV charging infrastructure | Identify options to provide EV charging infrastructure for council fleet as part of planning for fleet accommodation. |
| C.TR2.A3 | Fleet efficiency and route optimisation | Reduce fuel usage by ensuring vehicles are efficient and continuing to utilise ongoing route optimisation analysis to reduce mileage and fuel consumption. |
| C.TR2.A4 | Lower carbon fuel | To reduce emissions of remaining diesel fleet, continue to utilise lower carbon and emissions GTL fuel with ongoing assessment of options for lower carbon fuel alternatives such as HVO. |
| C.TR2.A5 | EV transition for council contractors | Work with council 3rd party contractors to support electrification of fleet vehicles. |

| | | |
|---|---|---|
| C.TR3 | Staff travel sustainably | |
| C.TR3.A1 | Low carbon staff commuting | Review opportunities to incentivise low carbon commuting by staff. Undertake an annual staff travel survey on commuting methods to better understand usage of private vehicles and develop a staff travel plan. Identify incentives such as EV salary sacrifice scheme and cycle to work scheme to encourage uptake of sustainable travel |

| | | |
|---|---|---|
| C.TR3.A2 | Staff facilities | Ensure staff have access to appropriate facilities and are incentivised to take sustainable, active and low carbon travel including provision of secure bike parking and EV charging along with reviewing car parking provision. |
| C.TR3.A3 | Flexible working emissions reductions | Support flexible working arrangements and identify opportunities to encourage, support and educate about at home energy savings. |
| C.TR3.A4 | Low carbon 'Grey Fleet' | Reduce emissions from the Council's 'Grey Fleet' (employees using their private vehicles for work) by enabling and encouraging staff and partners delivering services on behalf of the Council to use low-carbon and sustainable forms of transport. Identify options for improved accounting for business travel with expenses systems, review mileage policies and identify options to encourage uptake of low-carbon travel |

## Measuring success

| | | |
|---|---|---|
| C.TR | Decarbonised council travel | |
| C.TR1 | Decarbonised street lighting | |
| C.TR1.M1 | Annual carbon of street lighting (market) | (tCO2e/yr) Annual scope 2 emissions from street lighting contract (market based) |
| C.TR1.M2 | Annual carbon of street lighting (location) | (tCO2e/yr) Annual scope 2 emissions from street lighting contract (location based) |
| C.TR1.M3 | Annual energy consumption of street lighting | (MWh) Annual electricity usage from street lighting contract |
| C.TR2 | Decarbonised council fleet | |
| C.TR2.M1 | Council fleet emissions | (tCO2e/yr) Annual carbon emissions from the council's directly managed fleet vehicles |
| C.TR2.M2 | Council electric fleet <3.5t | (%) of Council's directly managed fleet <3.5 tonnes that is fully electric |
| C.TR2.M3 | Council electric fleet >3.5t | (%) of Council's directly managed fleet >3.5 tonnes that is fully electric |

| | | |
|---|---|---|
| C.TR3 | Staff travel sustainably | |
| C.TR3.M1 | Staff sustainable and active transport | (%) staff commuting with sustainable and active transport modes |
| C.TR3.M2 | EV charging for staff | (#) of charging points available to staff at council operational sites |

# Council: Resource efficient organisation

## Our vision

***By 2030, the Council will be resource efficient, minimising water consumption and waste produced, implementing best practice in recycling and circular economy principles.***

***This includes the water we consume at our parks, allotments and in our buildings, and how staff manage and minimise the waste they produce, ensuring we encourage re-use, enable recycling and composting at our sites.***

| | | |
|---|---|---|
| C.WA1 | **Zero waste and circular economy council** | The council has a comprehensive understanding of waste management at corporate offices and has made active improvements to reduce waste, improve recycling and embed circular economy principles. |
| C.WA2 | **Water efficient council** | Council water consumption is reduced, demonstrated through year-on-year water savings. |

## Why is this important

In 2017, the Mayor of London committed to be a zero-waste city by 2026[3]. Enfield Council recognise our responsibility to lead by example, ensuring we are demonstrating best practice within our own operations for how we reduce, re-use, recycle and manage our waste. As an organisation we can embed circular economy principles, supporting the market shift.

We are conscious about how we use all our resources including water. London is in a water crisis, with bleak projections on water shortages over the next 25 years and we are looking at what we can do to reduce the water we use in operations.

## Our asks of others

- National standardisation for commercial waste, including greater oversight and monitoring.
- Water efficiency to become a national priority, with review and introduction of new standards and policies to ensure accurate monitoring and reporting.

[3] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/waste-and-recycling

## Our action plan

| | | |
|---|---|---|
| C.WA1 | Zero waste council | |
| C.WA1.A1 | Council waste and recycling | Overhaul and improve the Council's own recycling and waste sorting and collection from council buildings, and intensify the campaign to educate all staff on recycling, to increase our corporate recycling rates. |
| C.WA1.A3 | Circular economy principles | Implement circular economy principles when replacing physical items and equipment to ensure product life is maximised. |

| | | |
|---|---|---|
| C.WA2 | Water efficient council | |
| C.WA2.A1 | Active water management | Deliver active water management, including leak detection, roll-out of Automatic Meter Reading and ongoing delivery of water saving opportunities in our corporate buildings demonstrated through year-on-year savings. |

## Measuring success

| | | |
|---|---|---|
| C.WA | Council resource efficiency | |
| C.WA1 | Zero waste and circular economy council | |
| C.WA1.M1 | Council waste diversion rate | (%) of council waste from corporate sites which is recycled, reused or composted |
| C.WA2 | Water efficient council | |
| C.WA2.M1 | Council water consumption | (CBM) Cubic meters of water consumption for council corporate sites on the water contract |

# Council: Climate conscious organisation

## Our vision

***By 2030, council staff and partners are supported and empowered to be climate conscious in all aspects of our work, in the Council's role as facilitator, provider and commissioner for goods and services. The Council will have continued to reduce the carbon footprint of its own pension fund and will have increased investment in assets that help avoid carbon emissions, whilst encouraging others to do the same.***

| | | |
|---|---|---|
| C.WT1 | **Climate ready workforce** | Enfield Council's workforce are informed, upskilled and empowered to deliver on climate action |
| C.WT2 | **Climate conscious investment and procurement** | All investment and procurement by the Council is designed to minimise and wherever possible to reduce carbon emissions and to enable adaptation to climate change. |
| C.WT3 | **Low carbon pension funds** | Carbon content of all pensions fund is reduced by a minimum of 75% from the baseline by 2030 through a decrease in fossil fuel investment and an increase in low carbon stocks whilst ensuring resilience to future market effects of climate change. |

## Why is this important

The UK economy is ranked 6th largest in the world[4] and public sector spending is responsible for a total of £1,043.2 billion in 2022/23[5]. Local authorities have huge spending power and must play their part in the transition to national and global decarbonisation. Equally, our pensions should be divested out of fossil fuels and switched to green investments, supporting a better future. Being 'climate conscious' is part of everyone's job, and training on carbon literacy is essential to give everyone the knowledge and tools that they need.

## Our asks of others

- A national system of incorporating the value of carbon in budgeting and decision making in a clear and workable way.

[4] https://www.forbesindia.com/article/explainers/top-10-largest-economies-in-the-world/86159/1

[5] https://obr.uk/public-finances-databank-2022-23/

- National standardisation set by Government for carbon accounting and monitoring within procurement, to support local authorities to embed robust standards which are consistent, measurable and deliverable.

## Local story: Developing a sustainable and ethical procurement policy

In 2022 Enfield Council launched its Sustainable and Ethical Procurement Policy to implement climate action in working with partners and suppliers at the core of Council's operations.


The policy focuses on four main themes: social value, ethical procurement, supporting the local economy and local employment, and climate action. It sets out our commitments as a commissioner; our minimum expectations of suppliers, service providers and contractors; and the ways in which organisations will be expected to demonstrate how they will deliver additional social value when competing for Council contracts.

This new policy sets out how we will procure value for money goods, services and works, whilst maximising social value, protecting the environment, ensuring workers are treated and paid decently and ensuring human rights are upheld in supply chains.

## Our action plan

| | | |
|---|---|---|
| C.WT1 | Climate ready workforce | |
| C.WT1.A1 | Climate Action training and upskilling | Develop and deliver continuous training and support so that staff are equipped with the skills and knowledge necessary to deliver climate action as part of their role. |
| C.WT1.A2 | Climate conscious behaviour | Develop a culture of climate action, through recruitment, developing a behaviours campaign and establishing climate champions. |

| | | |
|---|---|---|
| C.WT2 | Climate conscious investment and procurement | |
| C.WT2.A1 | Low carbon and sustainable food | Offer vegan and vegetarian options at events held by Enfield Council where catering is provided, and source food from local organisations, supporting sustainable food initiatives. |
| C.WT2.A2 | Circular council | Implement and monitor the impact of circular economy principles in Enfield's procurement and purchasing policies, prioritising products by quantity most used by the Council. |
| C.WT2.A3 | Sustainable and Ethical Procurement Policy | Implement the Sustainable and Ethical procurement Policy through all procurement activity undertaken by the Council. |

| | | |
|---|---|---|
| C.WT3 | Low carbon pension funds | |
| C.WT3.A1 | Pension fund carbon reduction | Reduce carbon across the pension fund portfolios, identifying improved ways to account for the carbon content and make active reductions where possible including increasing investment in fossil free equities and renewable energy funds. Continue to divest from fossil fuel investments |
| C.WT3.A2 | Climate resilience assessment | Undertake a climate resilience assessment in line with HM treasury requirements |

## Measuring success

| | | |
|---|---|---|
| C.WT | Climate conscious organisation | |
| C.WT1 | Climate ready workforce | |
| C.WT1.M1 | Employees empowered to take climate action | (%) Percentage of employees who answer positively to annual staff survey question "Do you feel empowered to take climate action in your work?" |
| C.WT1.M2 | Climate training events delivered | (#) Number of employees who have attended a climate training event |
| C.WT2 | Climate conscious investment and procurement | |
| C.WT2.M1 | SEPP compliant contracts - Value | (£) Procurement spend Council-wide with Sustainable and Ethical Procurement Policy compliant contracts by value |
| C.WT2.M2 | SEPP compliant contracts - Volume | (#) Procurement spend Council-wide with Sustainable and Ethical Procurement Policy compliant contracts by volume |
| C.WT2.M3 | SEPP contracts minimum standards | (%) Percentage of contracts (by spend) adhering to minimum levels of the Sustainable and Ethical Procurement Policy in minimum 2 categories (e.g. travel, carbon emissions) |
| C.WT2.M4 | SEPP contracts preferred standards | (%) Percentage of contracts (by spend) adhering to preferred or enhanced levels of the Sustainable and Ethical Procurement Policy in minimum 2 categories (e.g. travel, carbon emissions) |
| C.WT3 | Low carbon pension funds | |
| C.WT3.M1 | Carbon reduction of pension fund | (%) Reduction of carbon content of equity bond pension fund portfolio over 2019 baseline |
| C.WT3.M2 | Fossil fuel divestment | (%) Invested of total pension fund invested in fossil fuels |
| C.WT3.M3 | Clean energy investment | (%) Invested of total pension fund invested in renewable and clean energy infrastructure |

# Carbon neutral borough

## Our vision

By 2040, the borough will be carbon neutral and resilient by reducing emissions from buildings, travel, energy and waste, enhancing the natural environment and promoting sustainable lifestyle choices. This will be achieved with a 40% reduction in scope 1 and 2 emissions by 2030 and 90% by 2040 from our baseline.

| | |
|---|---|
| **Carbon neutral and climate resilient buildings** | Buildings in Enfield will be carbon neutral and resilient to the impacts of climate change with a reduction of fossil fuel heating carbon emissions of 44% from our baseline by 2030 and 100% by 2040. |
| **Carbon neutral, sustainable and active travel** | Journeys in Enfield will be low or zero carbon and affordable, convenient and healthy with a reduction of road-based carbon emissions of 44% from our baseline by 2030 and 92% by 2040. |
| **Decarbonised energy systems** | Enfield's energy systems will enable the net zero transition through an increase in low carbon electricity and connection to low carbon heat from a heat network. |
| **Reduce, reuse, recycle** | Enfield will have a circular economy with increased recycling, composting, and waste used as a resource resulting in overall waste reduction of 30% from our baseline by 2040. |
| **Resilient urban and rural natural environment** | Effects of climate change and extreme weather on residents and businesses will be reduced through enhanced urban and rural natural environment with improved biodiversity, air quality and access to green spaces. |
| **Working together to deliver the Climate Action Plan** | Enfield residents, businesses and local partners will be engaged, committed and coordinated to deliver the Climate Action Plan. |

## Borough carbon footprint and trajectory to carbon neutrality

Our borough carbon footprint is the total amount of greenhouse gas emissions occurring due to activities within London Borough of Enfield's geographical boundary. These are also known as "territorial" emissions. Carbon emissions are categorised under three scopes:

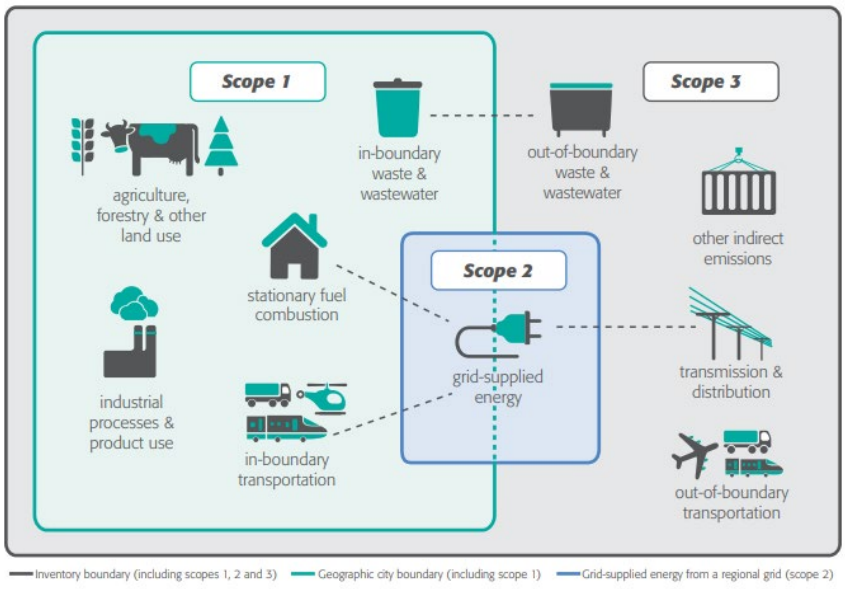
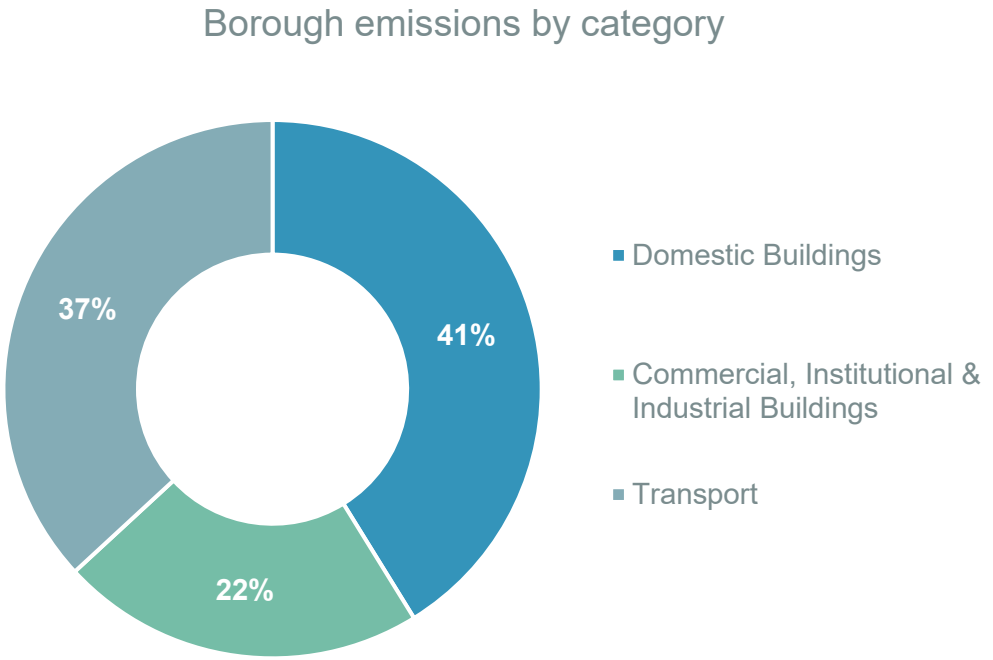



Figure 6 - Sources and boundaries of city GHG emissions (GHG protocol)

| | |
|---|---|
| **Scope 1** | Carbon that is emitted directly from a source within the borough's boundaries such as use of fuel for heating of buildings and in transportation. |
| **Scope 2** | Carbon that is emitted from the use of grid-supplied electricity, heat or other energy within the borough. |
| **Scope 3** | All other carbon emissions that occur outside the borough due to activities occurring from within the borough, such as from the items we buy and the way we travel. |

### Scope 1 and 2 Baseline

Enfield's carbon baseline has been reviewed and revised based on our scope 1 and 2 emissions for a 2018 base year which aligns with best practice reporting using the Greenhouse Gas Protocol and the Science Based Target setting methodology.




Our baseline includes emissions from buildings and transport. Waste has been excluded from our borough carbon emissions baseline as it is being assessed by the Mayor of London at a London-wide scale, which better reflects how waste is managed and processed across the city.

The data is made available to boroughs by the GLA from regionally and nationally compiled data.

### Borough's scope 1 and 2 emissions

| Borough emissions by category (ktCO2e) | | | | |
|---|---|---|---|---|
| - | Reporting Year [Data Year] | 2019/20 [2017] | 2021/22 [2019] | 2022/23 [2020] |
| Scope 1 & 2 | Domestic Buildings | 438 | 414 | 409 |
| Scope 1 & 2 | Commercial, Institutional & Industrial Buildings | 253 | 232 | 218 |
| Scope 1 | Transport | 370 | 427 | 366 |
| **Total Scope 1 & 2** | | **1061** | **1073** | **993** |

Previously, we have only reported on our territorial emissions, however, we recognise we are part of a larger global system. Supported by work commissioned by London Councils we can establish our consumption-based emissions. These are emissions which are driven by consumption from those living and working within the borough and are calculated based on what residents are spending their money on.

## Carbon neutral trajectory

The trajectory below sets out the trajectory of the borough's scope 1 and 2 carbon emissions and journey towards becoming a carbon neutral borough by 2040. Changes in technology, policy and consumer behaviour will impact on this timeline. As we get nearer to 2040, the planned actions are less certain and specific. However, this graph shows the trajectory we need to take as a borough, setting the scene for the actions we can take and the support we need from others to achieve this goal. We expect by 2030 to have reduced our carbon footprint by 40% and by 2040 by 90%, aligning with the 1.5°C pathway.

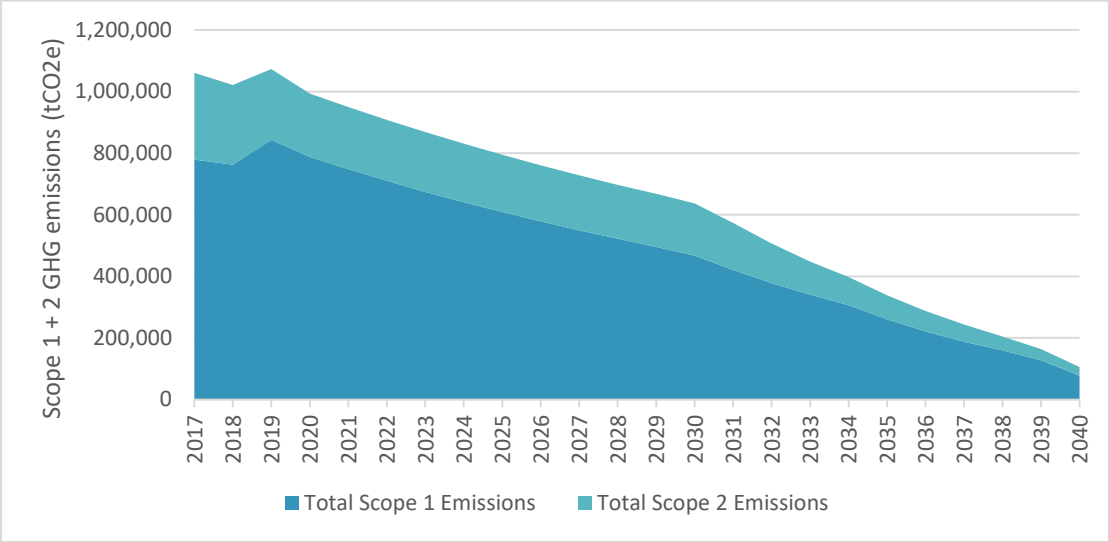



Figure 7 - Enfield borough scope 1 and 2 2040 decarbonisation trajectory

In the following section we have set out the major milestones we expect to achieve to meet this trajectory. We have set out the short-term and long-term milestones we are looking to meet. This will be updated periodically and is based on the evidence base behind the trajectory.

## Carbon offsetting

We do not see carbon offsetting as a way of meeting our target, but it is a necessary step to balance emissions that cannot be removed. Our carbon neutral trajectory is set against the Paris agreement reduction targets of a 1.5°C pathway, ensuring we are playing our part in meeting UK net-zero.

We will:

1. Reduce our scope 1 and 2 emissions in line with the targets to meet the 1.5°C target as set out by the Paris Agreement
2. Balance our residual scope 1 and 2 emissions in-borough through an offsetting programme will which brings wider community value, using the international Greenhouse Gas Protocol, a globally accepted standard for measuring emissions that is used as the system behind reporting frameworks.

3. Develop an understanding of our scope 3 emissions and set reduction and neutrality targets for our scope 3 emissions by 2050.

## Milestones and targets

| Carbon neutral borough by 2040 | | 2019 Baseline | 2025 | 2030 | 2040 |
|---|---|---|---|---|---|
| **Borough wide emissions** | ($ktCO_2e$) Borough wide scope 1 and 2 carbon emissions | 1061 | 908 | 586 | 159 |
| **Reduction over baseline** | (%) reduction of borough scope 1 and 2 emissions over baseline year | 0% | 14% | 45% | 85% |
| **Carbon neutral and climate resilient buildings** | | | | | |
| **Annual borough building emissions** | ($tCO_2e/yr$) Annual scope 1 carbon emissions from all buildings in Enfield | 691 | 591 | 381 | 104 |
| **Carbon neutral, sustainable and active transport** | | | | | |
| **Annual borough road transport emissions** | ($tCO_2e/yr$) Annual total GHG emissions from road-based transport in Enfield | 370 | 317 | 204 | 55 |
| **Zero waste and circular economy** | | | | | |
| **Annual borough waste emissions** | (kg/hh) Annual waste per household | 631.62 | 412 | TBD | TBD |
| **Recycling rate** | (%) Household waste sent for recycling | 33% | 49.5% | TBD | TBD |
| **Decarbonised energy systems** | | | | | |
| **Borough solar PV capacity** | (MW) renewable electricity utilising Solar PV installed capacity in Enfield | 6 | 24 | 134 | 311 |
| **Heat network connections** | (#) Total number of properties (domestic and non-domestic) connected to the heat network | 743 | 7200 | 36000 | 75000 |

# Borough: Buildings

## Our vision

Buildings in Enfield will be carbon neutral and resilient to the impacts of climate change with a reduction of fossil fuel heating carbon emissions of 44% from our baseline by 2030 and 100% by 2040.

Buildings account for over a third of the Council's carbon emissions and decarbonising existing and new buildings is essential to achieve our target. This will include working with all stakeholders to improve planning policy, upgrade the fabric of our existing homes and changing the way in which we build new homes. We also have a role to play in enabling the upskilling and reskilling of local people, including our own workforce, in green construction skills.

| | | |
|---|---|---|
| B.BU1 | **Carbon neutral planning system** | By 2040, our planning system will ensure the delivery of carbon neutral and resilient new buildings and high-quality retrofit, achieved through robust planning policy and approval process. |
| B.BU2 | **Low-income and vulnerable residents** | By 2040, low income and vulnerable residents will be safe, secure and comfortable in their homes resulting in a reduction in fuel poverty and a reduction in excess deaths. |
| B.BU3 | **Carbon neutral homes** | By 2040, domestic emissions will be reduced across the borough, by working with partners, sharing information and utilising statutory powers to encourage retrofit resulting in a borough-wide average EPC B. |
| B.BU4 | **Carbon neutral public, commercial and industrial buildings** | By 2040, reduced emissions and EPC B average will be achieved for non-residential buildings through the council utilising statutory powers to encourage retrofit. |
| B.BU5 | **Green skills and employment** | By 2040, Enfield will have a highly skilled local workforce of professionals to deliver on building decarbonisation, with thriving local green employment opportunities including digital green skills and tracking progress. |
| B.BU6 | **Climate resilient built environment** | By 2040, buildings across the borough will be resilient to a changing climate, with reduced risk of overheating and flooding and with opportunities for further adaptation in the future if required. |

## Why this is important

The built environment is responsible for 39% of global carbon emissions, with emissions relating to both the construction and operation of buildings. Emissions from buildings in Enfield make up 60% of our emissions, with homes in Enfield accounting for an estimated 38% of the borough's total emissions. The majority of those emissions are from the burning of fossil fuels to heat our homes.

80% of the buildings that will be in use in the UK in 2050 have already been built[6] and therefore to meet the UK's commitments to the Paris Agreement targets priority needs to be placed on retrofitting and refurbishing existing buildings, and decarbonising the energy we use. The Mayor of London has made commitments to decarbonise heating across the capital, with targets to increase the number of heat pumps and heat network connected buildings, to reduce reliance on natural gas in addition to understanding the importance of renewable energy.

There is also an increasing global understanding around the emissions associated with the construction of new buildings due to the manufacturing, construction and deconstruction process, creating a renewed focus on how we can reduce the carbon embedded in the construction of new buildings.

In the context of a changing climate, it is also important that buildings and the built environment are resilient to the future climate. UK summers are becoming hotter with more frequent heatwaves and droughts, while sudden outbursts of rain are causing flooding.

To meet the challenge, we need to both ensure new buildings of all types are built to the highest sustainability standards; and retrofit existing buildings to significantly reduce the amount of carbon they emit and ensure they are resilient to extreme weather. This requires substantial financial intervention from Government, a comprehensive investment plan and private sector buy-in, as well as a skilled workforce.

## Our asks of others

- Central Government to consolidate the different funding streams for retrofit and low carbon new-build and reduce competitive bidding processes, give longer lead-in times where bidding remains and provide funding over the medium rather than the short-term with multi-year funding arrangements where possible. Non-competitive funding reduces administrative burdens and ensures that allocation of funding is based on need and opportunity rather than bidding capacity.
- Central and regional government to provide accessible funding streams and back investment to incentivise low carbon retrofit for the able-to-pay market and private-rented market.

[6] UKGBC response to the CCC housing report

- Central government to remove, or significantly reduce, VAT on materials used for retrofitting, to accelerate the conversion of homes to zero carbon homes across all tenures.
- Central government to accelerate the adoption of the Future Homes Standard ensuring alignment with best practice such as Passivhaus standard nationally.
- Central and regional government to set clear restrictions for demolition and incentives to prioritise refurbishment over demolition.
- Central government to support the legal basis for reclaim of abandoned, underused spaces and dwellings for meanwhile uses or temporary accommodation.

## Local story: Decarbonising homes in Haselbury

Ten homes in Haselbury ward have undergone a deep retrofit, converting them into warm, affordable and environmentally efficient homes.

With funding from the Retrofit Accelerator Programme, Enfield Council delivered the project with partners Osborne Property Services and supported by the Mayor of London with funding from the Department for Energy Security and Net Zero.

The ten ageing houses were transformed to highly efficient homes with triple-glazed windows and high-performance doors to retain warmth inside, solar panels, a new efficient heating and ventilation system to regulate the temperature of the home and insulation of external walls to help regulate the temperature. The gas boilers were replaced with Air Source Heat Pumps, which has lower carbon emissions.

This work, led by Enfield Council, is part of a three-year Innovation Partnership with seven social landlords delivering net zero housing retrofits in London and nationally. The investment in Enfield is worth more than £500,000.

The works support the priorities and principles to decarbonise Enfield Council's housing stock and reduce energy bills, easing residents' by helping to combat fuel poverty.

## Our action plan

| | | |
|---|---|---|
| B.BU1 | Carbon neutral planning system | |
| B.BU1.A1 | Carbon neutral plan making | Deliver a new Local Plan with robust policies to deliver carbon neutral new buildings and support high quality retrofit, building on guidance set out by the London Plan and emerging best practice. |
| B.BU1.A2 | Carbon neutral planning process | Implement and enforce planning policy ensuring the highest levels of carbon mitigation and adaptation measures are achieved, utilising all tools available throughout the planning process, including implementing minimum requirements for embodied carbon. |
| B.BU1.A3 | Post occupancy and building performance evaluation | Monitor delivered performance and close the gap between design and performance in practice for new build developments approved through planning. |
| B.BU1.A4 | Retrofit policy and guidance | Support high-quality retrofit through the planning system with updates to policy, guidance and permitted development rights. |
| B.BU1.A5 | Planning training and support | Upskill and empower planners through access to technical support and delivery of regular training to ensure polices are enforced to the highest standard. |

| | | |
|---|---|---|
| B.BU2 | Low-income and vulnerable residents | |
| B.BU2.A1 | Fuel poverty funding | Work with partners to leverage funding and identify effective delivery mechanisms to support low-income and vulnerable residents at risk of fuel-poverty to upgrade their homes. |
| B.BU2.A2 | Energy advice | Take part in London-wide initiatives to ensure access to simple and meaningful energy efficiency and saving advice, prioritising the most vulnerable residents. |
| B.BU2.A3 | Climate event resilience | Develop an understanding of climate risk facing vulnerable residents in their homes and identify initiatives and mechanisms to ensure their homes and services available are resilient to extreme climate events. |
| B.BU2.A4 | Adaption in health and social care | Work with our health and social care provider colleagues to raise the importance of adaptation and mitigation in the health sector to protect vulnerable residents from extreme weather. |

| B.BU3 | Carbon neutral homes | |
|---|---|---|
| B.BU3.A1 | Council domestic assets | Decarbonise council-owned residential assets[7], such as investment properties, Housing Gateway and Enfield Let homes, by improving monitoring, developing programmes, implementing policies and securing funding. |
| B.BU3.A2 | Private rented sector | Raise the standard of private-rented sector properties, through enforcement under the licensing scheme to raise the EPC standard of private-rented properties in line with standards. |
| B.BU3.A3 | Working with partners | Work proactively with housing associations and other housing providers to share knowledge and embed a zero-carbon approach across mixed tenure organisations. |
| B.BU3.A4 | Retrofit knowledge and communications | Participate in shaping a London-wide approach to retrofit through membership of forums and working groups to share knowledge regarding best practices, tools, technologies and case studies, ensuring clear communication with residents. |

| B.BU4 | Carbon neutral public, commercial and industrial buildings | |
|---|---|---|
| B.BU4.A1 | Business partnerships | Build relationships with the largest emitters in Enfield to identify barriers and opportunities for supporting and showcasing low carbon retrofit. |
| B.BU4.A2 | Engage and communicate | Establish an understanding of existing barriers to retrofit of non-domestic buildings, identifying opportunities for the Council to engage, communicate and support retrofit of all scales in the borough. |
| B.BU4.A3 | Energy efficiency enforcement | Identify mechanisms to utilise powers to enforce increasing energy efficiency standards, such as the Minimum Energy Efficiency Standard (MEES), to upgrade non-domestic buildings in the borough. |

[7] Other than council housing assets, which are addressed in the chapter on carbon neutral council buildings.

| B.BU5 | Green skills and employment | |
|---|---|---|
| B.BU5.A1 | **Green construction skills training** | Work with partners to develop local apprenticeships offering green skills (including digital skills) within the construction industry to increase green skills in the workforce and provide good quality employment opportunities to residents and track the progress. |
| B.BU5.A2 | **Green industries** | Support inward investment from green industries into the borough utilising the council's role in place-making and as a commercial landowner. |

| B.BU6 | Climate resilient built environment | |
|---|---|---|
| B.BU6.A1 | **Resilience to extreme heat** | Implement building design tools to reduce overheating risk in new and existing buildings and use urban design tools to reduce the urban heat island effect through council-led programmes and through our role as a Planning Authority. |
| B.BU6.A2 | **Resilience to flooding** | Implement best practices to reduce flood risk across the borough through council-led flood management programmes and through our role as a Planning Authority. |

## Measuring success

| | | | |
|---|---|---|---|
| B.BU | Overall Outcome | Carbon neutral and climate resilient buildings | |
| B.BU.M1 | Overall Indicator | Annual borough building emissions | (tCO2e/yr) Annual scope 1 and 2 carbon emissions from all buildings in Enfield |
| B.BU1 | Outcome | Carbon neutral and resilient buildings secured through planning | |
| B.BU1.M1 | Indicator | Operational carbon at design stage | (tCO2e) Annual residual operational carbon of all developments required to contribute to the NDCCF |
| B.BU1.M2 | Indicator | Number of units on 'Be Seen' portal | (#) Number of reportable units logged on the 'Be seen' portal |
| B.BU2 | Outcome | Low-income and vulnerable residents supported | |
| B.BU2.M1 | Indicator | People in Enfield in fuel poverty | (%) Proportion of households in fuel poverty |
| B.BU3 | Outcome | Carbon neutral homes | |
| B.BU3.M1 | Indicator | Emissions from residential buildings | ($tCO_2e$/yr) Annual scope 1 and 2 carbon emissions from domestic buildings in Enfield - as reported by LEGGI |
| B.BU3.M2 | Indicator | Efficiency score of private rented sector properties | (SAP score) Median energy efficiency score of private rented sector properties (Score of 0 to 100, with a score of 100 indicating the most energy efficient) |
| B.BU3.M3 | Indicator | Efficiency of owner-occupied properties | (SAP score) Median energy efficiency score of owner-occupied properties (Score of 0 to 100, with a score of 100 indicating the most energy efficient) |
| B.BU3.M4 | Indicator | Private rented properties with F and G rating | (#) Number of private rented properties registered with the Council's Private Rented Property Licensing with F and G rating |
| B.BU4 | Outcome | Carbon neutral public, commercial and industrial buildings | |
| B.BU4.M1 | Indicator | Emissions from industrial and commercial buildings | ($tCO_2e$/yr) Annual scope 1 and 2 carbon emissions from industrial and commercial buildings in Enfield - as reported by LEGGI |

| B.BU5 | Outcome | Green skills and employment | |
|---|---|---|---|
| B.BU5.M1 | Indicator | Green jobs in the borough | (#) Number of green jobs in the borough |
| B.BU5.M2 | Indicator | Green skills training | (#) Number of local people gaining a 'green skills' qualification at the Meridian Water Skills Academy |

# Borough: Travel

## Our vision

Journeys in Enfield will be low or zero carbon and affordable, convenient and healthy with a reduction of road-based carbon emissions of 44% from our baseline by 2030 and 92% by 2040. This will be achieved by working with national and regional partners to increase walking and cycling (active travel); enhance public transport options; reduce the need for private car journeys; and develop charging infrastructure for electric cars, vans and buses.

| | | |
|---|---|---|
| B.TR1 | **Increase in active transport** | By 2040, Enfield residents will have access to more high-quality and safe cycling, walking and wheeling routes and facilities across the borough, encouraging everyone to enjoy active travel |
| B.TR2 | **Improved public transport** | By 2040, there will be greater capacity on the public transport network, with buses powered by non-fossil fuels resulting in an increase in public transport usage |
| B.TR3 | **Reduced private vehicle usage and ownership** | By 2040, the use of private vehicles will be significantly reduced with a decrease in the number of vehicles and distance travelled by car. Residents will be able to access shared mobility options such as car clubs |
| B.TR4 | **Reduced emissions from transport providers and logistics** | By 2040, emissions related to public transport, deliveries and business vehicles will be reduced through transition to more efficient and lower carbon transport |
| B.TR5 | **Increase in electric vehicles** | By 2040, most vehicles in Enfield will be electric, with sufficient infrastructure in place to support the transition to enable people to choose electric vehicles |

## Why this is important

Transport emissions make up 20% of emissions and are the fastest growing source of emissions worldwide.[8] Fair and green travel are related to eight out of the seventeen proposed Sustainable Development Goals (SGDs), illustrating the cross-cutting role that transport has in sustainable development.[9]

The UK is committed to achieving net zero emissions by 2050, and reducing travel emissions are an important part of delivering on this commitment. In September 2023, the UK Government set out that 80% of new cars and 70% of new vans sold in Great Britain, are to be zero emission by 2030. This will increase to 100% by 2035[10]. To effectively prepare for the transition, we need to enhance local infrastructure needed for convenient electric transport and better alternatives. We will use our Local Energy Plan to help us with this.

In August 2023, the Mayor of London expanded the Ultra Low Emission Zone (ULEZ) to cover all London boroughs[11], reducing the air pollution that causes thousands of Londoners to die prematurely. One of the co-benefits of this will be the reduction of London's carbon transport emissions.[12]

In Enfield, transport emissions account for an estimated 40% of the borough's total emissions. A range of factors contribute to this total, including levels of local car ownership, air pollution from our major roads and travel infrastructure, energy supply and the carbon from making new vehicles. A dual approach includes two key elements: increasing the convenience of and access to better public and active travel, while transitioning vehicles to electric.

As we move towards low carbon transport, prioritising walking and cycling, we will provide a fairer and healthier environment for our residents. We will also contribute towards achieving the Mayor of London's target to increase active and sustainable mode share across London to 80%.

Speaking to our community as part of the external engagement we understood that public transport and walking were important to our residents who preferred better and safer existing modes of transport rather than new solutions. There was a need for a clearer understanding that the reduction in car use needs to be compensated by other options, and that EV charging needed to be fairly distributed. This includes in public carparks, workplaces and on shopping streets.

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[8] https://www.statista.com/topics/7476/transportation-emissions-worldwide/#topicOverview

[9] https://sustainabledevelopment.un.org/content/documents/8656Analysis%20of%20transport%20relevance%20of%20SDGs.pdf

[10] Government sets out path to zero emission vehicles by 2035 - GOV.UK (www.gov.uk)

[11] https://tfl.gov.uk/modes/driving/ultra-low-emission-zone/ulez-expansion-2023

[12] https://www.london.gov.uk/press-releases/mayoral/mayor-announces-bold-plans-for-a-greener-london

## Our asks of others

- Improved low carbon public transport in Enfield delivered by partnership work with Transport for London, train operating companies and Network Rail.
- Greater central government funding for Transport for London to enable investment in connectivity in the public transport network in Enfield.
- Greater investment from national government to enable cheaper public transport.
- National and regional investment in cycle and walking infrastructure.
- National messaging to support a culture change away from car dependency.
- Stronger and more joined-up policy for sustainable charging infrastructure for electric vehicles of all types.


### Local story: Three new school streets in 2023

We launched a further three ‘school streets’ in early 2023 at primary schools in the borough to improve road safety for children. School street also encourage more Enfield pupils to walk, cycle and scoot to school safely.

This brings the total 16 permanent projects now in place and still more in the making. The latest additions were launched at Houndsfield Primary School in Edmonton, Hazelwood Primary School in Palmers Green and Wilbury Primary School, near North Middlesex Hospital.

The schemes involve closing roads outside school entrances during arrival and departure times for children and have the added benefit of reducing their exposure to air pollution from car traffic.

## Our action plan

| B.TR | Carbon neutral, sustainable and active transport | |
|---|---|---|
| B.TR.A1 | **Transport and travel plan** | Create a coordinated Travel Plan for the borough which aligns incorporating sustainable and active travel objectives, network management and low-carbon transport in line with this Climate Action Plan. |

| B.TR1 | Increase in active transport | |
|---|---|---|
| B.TR1.A1 | **Active travel network** | Deliver a high-quality borough-wide walking, cycling and wheeling network, including improved pedestrian crossings, upgraded footways, cycleways, cycle parking and shared e-cycle, cargo bike and micro-mobility schemes. |
| B.TR1.A2 | **Quieter, safer neighbourhoods** | Encourage active travel by delivering quieter, safer neighbourhoods with school streets and other network management measures. |
| B.TR1.A3 | **Active travel in planning** | Encourage development and urban design which favours sustainable and active travel and reduces reliance on private cars, including increasing the provision of cycle parking and access to shared mobility in new developments, enforced through the planning system. |
| B.TR1.A4 | **Sustainable streetscape works** | Ensure alterations and maintenance to streets, roads, highways and infrastructure which enable active travel are constructed using sustainable materials and with an awareness of the embodied carbon involved. |

| B.TR2 | Improved public transport | |
|---|---|---|
| B.TR2.A1 | Public transport access | Work with transport partners and local community groups to increase public transport service provision, including delivering new infrastructure across the borough |
| B.TR2.A2 | Low emission public transport | Work with partners to decrease the emissions from public transport, including increasing the number of low and zero emission buses |

| B.TR3 | Reduced private vehicle usage and ownership | |
|---|---|---|
| B.TR3.A1 | Car parking provision | Limit the provision of car parking spaces on new developments in line with the London Plan and review existing kerbside space allocation according to desired mode of travel. |
| B.TR3.A2 | Car clubs and mobility hubs | Support the provision of car clubs where it reduces car use and ownership, engaging with Car Club providers and exploring opportunities for mobility hubs. |
| B.TR3.A3 | Network management initiatives | Utilise network management initiatives to incentivise reduced private vehicle ownership. |

| B.TR4 | Reduced emissions from transport providers and logistics | |
|---|---|---|
| B.TR4.A1 | Business transport and logistics emissions | Work with delivery stakeholders and support real estate identification and planning for introducing delivery hubs in town centres, enabling sustainable last-mile delivery in Enfield. |

| B.TR5 | Increase in electric vehicles | |
|---|---|---|
| B.TR5.A1 | EV charging for new developments | Support the delivery of EV charging infrastructure for new developments in line with the London Plan. |
| B.TR5.A2 | Increase public EV charging | Increase the provision of public highway and car park electric vehicle charging infrastructure by 1000 points between 2022 and 2026, meeting demand and encouraging the electric transition for residents and businesses, in a way that is coordinated with all relevant stakeholders. |

## Measuring success

| | | |
|---|---|---|
| B.TR | Carbon neutral, sustainable and active transport | |
| B.TR.M1 | Road emissions | (tCO2e/yr) Annual total GHG emissions from road based transport in Enfield |
| B.TR1 | Increase in active transport | |
| B.TR1.M1 | Sustainable mode share | (%) Walking, cycling and public transport mode share by borough resident based on average daily trips |
| B.TR1.M2 | Traffic levels | (%) Reduction in vehicular traffic |
| B.TR1.M3 | Strategic cycle network proximity | (%) Percentage of population within 400m of strategic cycle network by borough |
| B.TR1.M4 | School streets | (#) Number of school streets added in a year |
| B.TR1.M5 | New cycle routes added to network | (km) Distance of new designated cycle routes added to the network in a year |
| B.TR1.M6 | New cycle parking spaces | (#) Number of new cycle parking spaces installed on public land |
| B.TR1.M7 | New shared mobility spaces | (#) Number of new shared mobility parking spaces installed on public land |
| B.TR1.M8 | Cycle training | (#) Number of people attended the cycle training programme |
| B.TR1.M9 | Infrastructure embodied carbon | (tCO2e/yr) Annual total GHG emissions from embodied energy related to council delivered infrastructure projects |
| B.TR2 | Improved public transport | |
| B.TR..M1 | Daily public transport trips | (#) Public Transport (Rail, Underground/DLR, Bus/Tram) Trips per day (000s) |
| B.TR3 | Reduced private vehicle usage and ownership | |
| B.TR3.M1 | Car ownership in Enfield | (#) Number of licensed vehicles in Enfield |
| B.TR3.M2 | Motor vehicle traffic travel | (Km) Annual vehicle kilometres (millions) |
| B.TR4 | Reduced emissions from transport providers and logistics | |
| B.TR4.M1 | Emissions from freight | (ktoe) Annual road transport energy consumption from Freight vehicles (LGV and HGV) (000s) |

| | | |
|---|---|---|
| B.TR4.M2 | Industrial vehicle emissions | (ktCO2e/yr) Annual GHG emissions from non-road mobile machinery |
| B.TR | Increase in electric vehicles | |
| B.TR5.M1 | EV charging sockets | (#) Total number of EV charging sockets on public highway and in public car parks |
| B.TR5.M2 | Electric vehicles in the Enfield | (#) Total number of electric cars (plug in vehicles) licensed in Enfield (All PIV vehicle types and ownership) |

# Borough: Energy

## Our vision

***By 2040, Enfield's energy systems will enable the net zero transition through an increase in low carbon electricity and connection to low carbon heat from a heat network. This will enable us to deliver on our vision for buildings and transport, by decarbonising heat and power systems. To achieve this, we will work with partners to roll out the uptake of district heating in the borough, prepare for an electric future and increase renewable energy in Enfield.***

| | | |
|---|---|---|
| B.EN1 | **District Heat Network provision in Enfield** | By 2040, the borough will have a highly efficient decentralised energy network, able to supply homes and businesses with low carbon heat. By 2030, 36,000 properties and by 2040 78,800 properties will be connected to the heat network. |
| B.EN2 | **Future energy systems and electrification** | Enfield's energy systems will continue to support the electrification of buildings and heat, through upgrade of power systems and grid infrastructure. |
| B.EN3 | **Access to low-carbon and renewable electricity** | In-borough generated renewable and low-carbon electricity will be increased, with a borough renewable energy installed capacity of 134 MW by 2030 and 311 MW by 2040. |

## Why this is important

We are experiencing an energy crisis, which puts the spotlight on how critical, and in many ways vulnerable, our energy supply systems are.

As the Committee on Climate Change has established, the future of energy in the UK will become more complex and decentralised. Increased renewables, a decarbonised grid, further electrification and an increase in lower carbon products means that making decisions on energy supply is increasingly difficult.

In order to meet the UK's net zero targets by 2050, the Committee on Climate Change (the CCC) and National Grid state that there will need to be an energy mix that is both low carbon and which ensures security of supply for the coming decades. Nationally, this means phasing out gas boilers over 25-35 years, expansion of decentralised energy systems and networks, electrification of heating and transport - switching from gap boilers to heat pumps and from petrol/diesel to electric vehicles for example - and expansion of renewable energy. Renewable energy generation is also a way to offset emissions across the borough and provide green employment opportunities.

The Council-owned decentralised energy network (Energetik) presents an opportunity to create an affordable and low-carbon heating alternative to gas-fired boilers, with the ability to make use of multiple heat sources. The heat

network is being developed to be flexible to future sources of heat, prioritising utilising sources where heat is currently being wasted, such as from the Edmonton EcoPark where heat from the waste incineration and electricity generation process can be utilised.

## Our asks of others

- Central government to review re-establishing solar and renewable subsidies, with clear time limits, to bolster the low carbon economy and allow businesses and residents to access renewable energy at scale.
- Cross-governmental and industry support for the roll-out of heat networks in the UK, including with sustainable funding and by identifying and tackling barriers including retrofitting of existing buildings.
- National Government to invest in large-scale rollout of energy infrastructure.

## Local story: Building the Edmonton EcoPark

The new publicly owned Energy Recovery Facility is under construction to replace the current plant, where non-recyclable household waste from all of North London has been used to generate electricity for the national grid. The benefits of electricity generation from waste are threefold. It avoids waste going to landfill, reduces the cost of waste disposal for council taxpayers and generates cheap electricity, which in turn produces hot water as a by-product which will be used to heat homes, helping to make gas boilers redundant.

## Our action plan

| B.EN | Decarbonised energy systems | |
|---|---|---|
| B.EN.A1 | **Energy infrastructure oversight** | Establish a clear role for the local authority in energy infrastructure planning, to deliver changes to energy systems required to deliver the carbon neutral trajectory as outlined in Enfield's Local Area Energy Plan. |

| B.EN1 | District Heat Network provision in Enfield | |
|---|---|---|
| B.EN1.A1 | **Stakeholder support for heat networks** | Support the delivery of heat networks in Enfield through our role as shareholder of Energetik, and engage in national and regional conversations on sustainable long term planning and funding for heat network expansion. |
| B.EN1.A2 | **Planning support for heat networks** | Plan for the growth of the heat network through strategic planning and utilising levers such as the introduction of planning policy within the new Local Plan to support connections implemented through the planning system. |
| B.EN1.A3 | **Strategic heat network connections** | Identify council-led strategic regeneration, development and retrofit projects for connection to the heat network to support growth. |

| B.EN2 | Electrified future energy systems | |
|---|---|---|
| B.EN2.A1 | **Grid flexibility for EV charging** | Engage with UK Power Network and GLA to shape future flexibility markets that support load levelling for electric vehicle chargers. |
| B.EN2.A2 | **Future of Hydrogen** | Engage with public and private sector stakeholders to reduce uncertainty around the future role of hydrogen in the transport sector. |

| B.EN3 | Access to low-carbon and renewable electricity | |
|---|---|---|
| B.EN3.A1 | **Council owned land** | Undertake a review of Council owned land including carparks and agricultural land, to explore opportunities for large scale renewable energy generation such as solar farms. |
| B.EN3.A2 | **Renewable energy schemes** | Identify, support and promote schemes which encourage uptake of renewable energy across the borough, particularly roof-top solar. |

## Measuring success

| B.EN | Decarbonised energy systems | |
|---|---|---|
| B.EN1 | District Heat Network provision in Enfield | |
| B.EN1.M1 | Council homes connected to heat network | (#) Total number of council managed homes connected to the heat network |
| B.EN1.M2 | Heat network connections | (#) Total number of properties (domestic and non-domestic) connected to the heat network |
| B.EN1.M3 | Heat provided from heat network | (MW) Average peak capacity of heat provided by Energetik heat network |
| B.EN2 | Electrified future energy systems | |
| B.EN2.M1 | Substation capacity | (#) Number of substations serving Enfield overloaded or with less than 5% headroom (red of amber) |
| B.EN2.M2 | Heat pumps in Enfield | (#) Total number of heat pumps installed in the borough |
| B.EN3 | Access to low-carbon and renewable electricity | |
| B.EN3.M1 | Number of solar installations | (#) Number of sites in Enfield with Solar PV installed |
| B.EN3.M2 | Borough solar PV capacity | (MW) renewable electricity utilising Solar PV installed capacity in Enfield |

# Borough: Reduce, Reuse, Recycle

## Our vision

Enfield will have a circular economy with increased recycling, composting, and waste used as a resource resulting in overall waste reduction of 30% from our baseline by 2040.

| | | |
|---|---|---|
| B.WA1 | **Household waste and recycling** | By 2040 we will reduce household waste by 30% and achieve 65% household recycling rates by 2030 through campaigns to improve recycling, reduce food waste, as well as initiatives to share, reuse and repair household items to prevent waste |
| B.WA2 | **Commercial waste and recycling** | By 2040, we will reduce commercial waste and increase recycling by making recycling more widely available to businesses and schools and promoting initiatives to reduce waste. |
| B.WA3 | **A circular economy** | By 2040, we will accelerate the transition to a circular economy in Enfield by empowering residents to consume less and make better choices and enabling local businesses and industries to transition to circular operational models. |

## Why this is important

Earth's resources are finite and although thus far it has been able to accommodate human activity, the limit is stretched further and further each year. In 2023 it is estimated that we will use up our annual ecological capacity[13] within only 7 months, 5 months earlier than 50 years ago.

New initiatives are being introduced nation-wide such as taxes on plastic, banning microbeads and measures to restrict the supply of plastic straws.[14]

The Mayor of London has committed to be a zero-waste city, with an aim that by 2026 no biodegradable or recyclable waste will be sent to landfill, and by 2030, 65% of London's municipal waste will be recycled.[15]

Enfield, in line with the GLA, has a clear policy to prevent waste going to landfill, to prevent toxic substances leaching into the soil, groundwater and waterways; and the release of methane from organic waste when decomposing anaerobically (without oxygen). Food waste in particular

[13] https://www.overshootday.org/

[14] https://www.gov.uk/government/news/uk-leads-the-way-on-ending-plastic-pollution#:~:text=We%20have%20so%20far%20introduced,and%20plastic%2Dstemmed%20cotton%20buds.

[15] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/waste-and-recycling

presents a methane risk, which has a very potent greenhouse gas, highlighting the importance of biodegradable food waste collection for composting and creation of biogas.

Enfield is a member of the North London Waste Authority (NLWA) which is responsible for managing waste for the seven north London boroughs (Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest). Its primary function is to arrange for the transport and disposal of waste collected by these seven boroughs and to promote waste minimisation and recycling. The NLWA is investing in a waste management site at the Edmonton EcoPark, which will include a new energy recovery facility which will utilise currently unused heat from waste processing.

## Our asks of others

- Central and Regional Government to support the transition to a service economy to incentivise high-quality products used for extensive amount of time; and adoption of the sharing economy principles, shifting away from the ownership model to reduce consumption.
- Central Government to introduce a requirement for businesses to manage food surpluses and establish/seek existing paths for re-distribution.
- Central and Regional Government to increase resources to support behaviour change on waste reduction and recycling including campaigns and support systems for households to better plan groceries and meals around food about to expire.
- Review national guidance around the carbon emissions from incineration, to improve clarity, accessibility and transparency.
- Central Government to improve data and set clear consumption-based emission targets and provide guidance on monitoring from different areas - food, clothes, etc. and including the commercial sector.
- Central Government to take prompt decisions to give local authorities time to implement changes without incurring additional contractual costs, recognising that local authorities need a long run-in time to make changes to waste collection and disposal arrangements.

## Our action plan

| B.WA1 | Household waste and recycling | |
|---|---|---|
| B.WA1.A1 | **Strategic planning and working groups** | Work with strategic partners, such as the NLWA and the GLA, to develop and adopt evidenced-based strategic plans which are reviewed on a regular basis. |
| B.WA1.A2 | **Reducing contamination** | Reduce household recycling contamination rates through a mixture of education and enforcement. |
| B.WA1.A3 | **Composting, recycling and residual waste reduction** | Enable and encourage household composting, recycling and waste reduction through provision of services, implementing planning guidance and delivering educational campaigns. |

| B.WA2 | Commercial waste and recycling | |
|---|---|---|
| B.WA2.A1 | **Business plastic reduction** | Support the NLWA on all waste reduction campaigns and business engagement initiatives. |
| B.WA2.A2 | **School and community groups** | Work with schools and community groups to reduce food and residual wate and increase reuse, recycling and composting. |
| B.WA2.A3 | **Commercial recycling** | Develop the Council's commercial recycling service for businesses and organisations. |

| B.WA3 | Circular economy | |
|---|---|---|
| B.WA3.A1 | **Community circular economy** | Facilitate a circular economy in the community through introduction and support for initiatives such as 'fixing factories' and 'libraries of things'. |
| B.WA3.A2 | **Circular construction industry** | Explore and enable a move towards a circular construction industry in Enfield by engaging with local developers and suppliers, implementing policy and supporting innovative tools and platforms. |
| B.WA3.A3 | **Circular businesses** | Work with the NLWA, local businesses and the industrial sector to implement circular economy practices across the borough. |

## Measuring success

| B.WA | Zero waste and circular economy | |
|---|---|---|
| B.WA.M1 | Annual borough waste emissions | (tCO2e/yr) Annual waste related emissions |
| B.WA1 | Household waste reduction, recycling and composting | |
| B.WA1.M1 | Residual waste per household | (kg) Annual quarterly average of residual waste collected per household by weight |
| B.WA1.M2 | Household waste sent for reuse, recycling and composting | (%) Percentage of annual kerbside household waste which is sent to be recycled, reused or composted |
| B.WA1.M3 | Contamination rate at material recycling facility | (%) Percentage of annual average contamination rate at material recycling facility |
| B.WA2 | Waste reduction and recycling for businesses and organisations | |
| B.WA2.M1 | Commercial waste sent for reuse, recycling and composting | (%) Percentage of annual kerbside commercial waste which is sent to be recycled, reused or composted |
| B.WA2.M2 | Waste deterred from landfill | (t) Tonnes of commercial waste deterred from landfill |
| B.WA3 | Circular economy in Enfield | |
| B.WA3.M1 | Reduction in consumption based emissions | (%) Percentage reduction in consumption-based emissions over a 2021 baseline |
| B.WA3.M2 | Material Value Retention on Major construction projects | (%) Percentage from 0 to 100 where 100 would be retaining materials and 0 would be completely new materials for council's strategic regenerations projects |

# Borough: Natural Environment

## Our vision

***By 2040, the effects of climate change and extreme weather on residents and businesses will be reduced through enhanced urban and rural natural environment with improved biodiversity, air quality and access to green spaces. In doing so, we will improve access to nature with all the health and wellbeing benefits this bring and also contribute to tackling the biodiversity crisis.***

| | | |
|---|---|---|
| B.NG1 | **Urban blue and green infrastructure** | By 2040, urban areas will be more resilient to the effects of climate change through increased urban blue and green infrastructure resulting in reduced urban heat island effect and flood risk. |
| B.NG2 | **Green, native and resilient rural areas** | By 2040, the borough will have more high-quality rural areas that positively contribute to borough-wide climate resilience. Rural areas offer a mosaic of different habitats and land uses that strengthen the rural economy, enhance biodiversity, provide carbon mitigation and reduce flood risk. |
| B.NG3 | **Sustainable urban food** | By 2040, we will enhance natural ecosystems through increased sustainable urban food growing. Local food production in the borough will establish a market for producers and consumers, improve public health and reduce food poverty by providing access to locally grown food. |

## Why this is important

In order to align with global climate targets, we need to protect natural resources that provide ecological services to mitigate some of the destruction caused by human development. As part of the commitment in the Government's 25-year Environment Plan, Natural England launched the Green Infrastructure Framework in January 2023, aimed at planners and developers to help reach 40% of green cover in urban residential areas UK-wide, echoed by the Mayor's Environment Strategy which aims for half of London to be green by 2050.

Enfield is one of London's greenest boroughs, including the Lee Valley Regional Park, 123 parks and public open spaces, 37 allotment sites, more than 300 hectares of woodland and 100 km of rivers and streams. We have an important role to play in protecting and enhancing the borough's biodiversity, helping London to respond to the changing climate and helping to decrease carbon through blue and green infrastructure.

As the summers of 2018, 2019 and 2022 demonstrate, our weather is becoming more extreme, with events such as heatwaves, droughts and flooding occurring more regularly and with higher intensity. These tendencies

are amplifying the risk of flooding in vulnerable areas within Enfield, impacting social and critical infrastructure. Unfortunately, the areas with the highest levels of deprivation correspond with the areas where there is the highest flood risk. Thames Water have recently advised that more than 10,000 Sustainable Drainage Systems (SuDS) features need to be delivered in London over the next 25 years to respond to effects from climate change, equating to 400 a year in Enfield.

We need to keep responding to these risks through ongoing work such as proactive flood alleviation work, as well as capitalising on the natural assets the borough has to help offset the emissions we cannot prevent in the coming years. Our approach to blue and green infrastructure is about both mitigating and adapting to climate change, as well as offsetting some of our emissions by capturing carbon. We are aiming to significantly increase carbon sequestration opportunities across Enfield.

## Our asks of others

- Embed adaptation and mitigation to the core of any national planning reforms and National Planning Policy Framework updates.
- Develop a clear national framework for carbon accounting to measure and evaluate carbon emissions against sequestration from blue and green infrastructure projects.
- Government to create and promote a national tool to evaluate the benefits of nature-preservation projects to promote a consistent way to capture and record all added value comprehensively (carbon capture, social value) as well as to enable stacking co-benefits to demonstrate viability and enable blended funding plans for these projects.
- Create conditions to make sustainable diet choices (affordable, local, available) and prioritise preventative measures for health challenges, such as tax cuts for healthy options – fruit and vegetables, whole foods.
- Consolidate the different funding streams, reduce competitive bidding processes, give longer lead-in times where bidding remains and provide funding over the medium rather than the short-term with multi-year funding arrangements where possible. Non-competitive funding reduces administrative burdens and ensures that allocation of funding is based on need and opportunity rather than bidding capacity.

## Local Story: Turkey Brook restoration at Albany Park

A major transformation of Albany Park, and restoration of a section of the Turkey Brook has been completed in October 2022. The project included open spaces enhancements to make them more accessible. Re-routing the river, it is also expected to attract wildlife, improve biodiversity, and with the wetland, protect local homes from flooding. These improvements will bring the community together in Albany Park to learn about sustainability and improve wellbeing of the locals.

The restoration project was jointly funded by the Mayor of London, the Environment Agency and Enfield Council's capital programme. It will continue to create more than 300 metres of improved footpaths and cycleways and an outdoor classroom that can be used by local school children and community groups. New entry points will help connect surrounding neighbourhoods to Albany Park. Enfield Council received funds to create new woodlands and wetlands, as well as to carry out work to restore existing waterways, which includes the Turkey Brook.

## Our action plan

| B.NG1 | Urban blue and green infrastructure | |
|---|---|---|
| B.NG1.A1 | **Resilient new buildings** | Through the planning system, ensure all new developments and existing buildings are safe from flood risk and provide improvements in biodiversity through the implementation of robust policies and application review process. |
| B.NG1.A2 | **Urban green infrastructure** | Explore and implement urban greening and other nature-based solutions used to manage extreme heat and flood risk while also addressing biodiversity, water quality and amenity impact. Continue to deliver our ongoing programme of installing SuDS features such as rain gardens and wetlands throughout urban areas, including in public areas and in school estates. |
| B.NG1.A3 | **Urban greenery** | Develop and deliver a planting programme across urban areas, to increase coverage by an accumulative 2 ha of green space including 2,000 street trees and other greenery by 2027 and review maintenance regime for grass verges to explore opportunities to improve biodiversity networks. |

| B.NG2 | Green, native and resilient rural areas | |
|---|---|---|
| B.NG2.A1 | **Land based carbon emissions** | Establish standardised methodologies for monitoring and reporting carbon emissions from land-use changes and sequestration projects. |
| B.NG2.A2 | **Forest and woodland programme** | Deliver a 10-year restoration and woodland creation programme in the north of the borough to restore natural habitats and create a mosaic of habitats including creating 500 hectares of woodland. |
| B.NG2.A3 | **Sustainable land management** | Implement conservation grazing and other land management practices to improve biodiversity and sequester carbon. |

| B.NG3 | Sustainable urban food | |
|---|---|---|
| B.NG3.A1 | **Land for local food production** | Support a food partnership with organisations to enable commercially viable food production on council-owned land. |

| | | |
|---|---|---|
| B.NG3.A2 | **Food Strategy** | Develop a comprehensive food strategy for the borough to ensure residents and communities have access to healthy and sustainable food by addressing aspects of food production, distribution consumption and waste |
| B.NG3.A3 | **Supporting community initiatives** | Support community initiatives such as Energy Garden to utilise under-used in-between spaces for micro-scale food growing, gardens and Photovoltaic installation. |

## Measuring success

| | | |
|---|---|---|
| B.NG | Resilient urban and native natural environment | |
| B.NG.M1 | **Homes at medium to high risk of flooding** | (%) Percentage of homes at medium to high risk of flooding |
| B.NG.M2 | **Homes at medium to high risk of flooding** | (#) Number of homes at medium to high risk of flooding |
| B.NG.M4 | **Land-use emissions** | (tCO2e) Annual emissions related to land-use change |
| B.NG1 | Urban blue and green infrastructure | |
| B.NG1.M1 | **Wetland sites** | (#) Total number of wetland sites created in the borough |
| B.NG1.M2 | **Number of street trees (net)** | (#) Net number of street trees planted from 2021/22 baseline |
| B.NG1.M3 | **Urban SuDS projects delivered** | (#) Number of urban SuDS projects delivered from baseline |
| B.NG2 | Green, native and resilient rural areas | |
| B.NG2.M1 | **New woodland created** | (ha) Area of new woodland created |
| B.NG2.M2 | **New trees planted in new woodland** | (#) Number of new trees planted in new woodland |
| B.NG2.M3 | **Carbon sequestered from new woodland** | (tCO2/annum) Annual carbon emissions sequestered from woodland (existing and new) |
| B.NG3 | Sustainable urban food | |
| B.NG3.M1 | **Allotments available** | (#) Number of allotment spaces available in the borough |
| B.NG3.M2 | **Land for food productions** | (ha) Area of land dedicated to food production |

# Borough: Working together

## Our vision

***By 2040, Enfield residents, businesses and local partners will be engaged, committed and coordinated to deliver the Climate Action Plan. This will mean that by 2040, we will need to have established strong and thriving networks to facilitate collective climate action with all local stakeholders. Our success in this will in part depend on how we work with national and regional government as well as specialist groups to collaborate on and lobby for policy, law and incentives that will drive decarbonisation nationally and at a borough level***.

| | | |
|---|---|---|
| B.WT1 | **Everyone makes low-carbon lifestyle choices** | By 2040, people who live, work in and visit Enfield will be informed, encouraged and enabled to make low carbon choices. |
| B.WT2 | **Business and external organisation coordination** | By 2040, all businesses (of all sizes), developers, schools, NHS, voluntary, community, charity and religious organisations will be knowledgeable, engaged, committed and coordinated to achieve a carbon neutral borough viably and successfully. |
| B.WT3 | **Regional and national engagement, coordination and lobbying** | The Council will participate effectively in regional and national networks to coordinate, share knowledge and resources and successfully lobby for regulatory, policy and funding changes that enable climate action at scale and at pace. |

## Why this is important

We cannot tackle the climate emergency without working with our partners, communities and businesses and without increasing support from national and regional government. To achieve a carbon neutral borough by 2040, we need to work proactively to encourage behaviours which significantly reduce our carbon footprints. The easier, more attractive and more affordable these choices are, the speedier the uptake will be.

We only have control over around 2 to 5%[16] of our emissions (scope 1 and 2). Other areas we can influence through procurement, policy and leading by example (scope 3). Other areas we can do little more than report on. Each of these 'spheres of influence' needs a different approach.

For every 'sphere of influence', coordination with individuals and groups is essential, so that as a borough, there are no types of emissions left unattended, and all the stakeholders who control these emissions are

[16] https://www.theccc.org.uk/publication/local-authorities-and-the-sixth-carbon-budget/ - page 5 from report

empowered to reduce them, rather than waiting on others. Likewise, coordination reduces the areas where there might be a doubling up, as this can waste effort, create tension and leave people demoralised.

## Our asks of others

- Help from residents, organisations and businesses in delivering impactful carbon reductions in all areas covered in this plan.
- Understanding that our current way of living is leading to the climate change that we are already experiencing and some change to our way of life is inevitable. This Climate Action Plan seeks to make this transition in the best way possible.
- Government to increase the powers of local government to act at the scale and pace required, and to consolidate the different funding streams, reduce competitive bidding processes, give longer lead-in times where bidding remains and provide funding over the medium rather than the short-term with multi-year funding arrangements where possible. Non-competitive funding reduces administrative burdens and ensures that allocation of funding is based on need and opportunity rather than bidding capacity.
- Government to make the policy and regulatory changes called for throughout this Plan to enable us to meet our targets.


## Local story: Leading on retrofit in London

Enfield and Waltham Forest jointly lead London boroughs for the collaborative Retrofit London programme retrofitting homes to reduce carbon emissions, and along with London Councils, were declared winners at the MJ Awards 2022.

Retrofit London brought the 33 London local authorities together to agree a pan-London plan for improving energy efficiency and radically reducing emissions providing potential solutions for other councils across the UK.

As buildings account for about a third of total carbon emissions in the metropolitan area, boroughs are now working together to upgrade their housing stock and decarbonise the built environment, while also reducing fuel poverty and boosting green industries.

## Our action plan

| B.WT1 | Everyone makes low-carbon lifestyle choices | |
|---|---|---|
| B.WT1.A1 | **Climate communications** | Develop and oversee a cross-service climate action communications and engagement plan |
| B.WT1.A2 | **Community coordination and engagement** | Develop stronger links, engage regularly, and promote the work of local environmental groups to help coordinate action across the borough. Utilise existing governance arrangements to share progress and receive feedback |
| B.WT1.A3 | **Resident engagement** | Actively engage with residents across Enfield in areas that are directly or indirectly related to climate change, such as the cost of living and energy crisis. |

| B.WT2 | Business and external organisation coordination | |
|---|---|---|
| B.WT2.A1 | **Business engagement** | Engage and coordinate with business organisations across the borough from micro, SMEs, to the largest emitters, using existing networks, council led forums and identifying where new forums may be needed to address climate change issues if required. |
| B.WT2.A2 | **School engagement** | Engage with schools on operational and educational issues related to climate action. Utilise head teacher and business manager briefings and the Enfield Schools Climate Action Network to share knowledge and information between schools. |
| B.WT2.A3 | **Sustainable building forums** | Engage in building related forums, to share knowledge and coordinate actions. |

| | | |
|---|---|---|
| B.WT3 | Regional and national engagement, coordination and lobbying | |
| B.WT3.A1 | **National government and environmental groups** | Engage with relevant national groups and networks to improve coordination of action and relevant lobbying activity. |
| B.WT3.A2 | **London government and regional groups** | Engage with London groups, such as London Councils, GLA, TFL, neighbouring boroughs and sub-regional working groups to improve coordination of action at a local and regional level and relevant lobbying activity. |

## Measuring success

| B.WT | Working together to achieve carbon neutrality | |
|---|---|---|
| B.WT1 | Everyone makes low-carbon lifestyle choices | |
| B.WT1.M1 | **Residents engaged** | (#) Overall reach of the council's "Greener Enfield" campaign per year |
| B.WT1.M2 | **Community groups engaged** | (#) Number of community groups engaged on climate action related topics |
| B.WT2 | Business and external organisation coordination | |
| B.WT2.M1 | **Enfield climate action group** | (#) Number of active climate action group available for businesses, organisations and schools |
| B.WT3 | Regional and national engagement, coordination and lobbying | |
| B.WT3.M1 | **Regional climate-related forums** | (#) Number of regional forum Enfield Council's participating in |

# Glossary of terms

**Actions**: Actions are how we achieve Outcomes. Actions are split into “Actions” which have flexibility and longevity and “Implementation Actions” are more specific and detailed which are owned by each service team and can be costed in specific business plans.

**Additionality**: The extent to which something happens as a result of an intervention that would not have occurred in the absence of the intervention.

**Blue and Green Infrastructure**: Strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem service.

**Carbon footprint**: The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organisation or community.

**Carbon literacy:** Having a general awareness of climate change and the impact of humankind on the climate.

**Carbon neutral:** Where some emissions are still being generated by an organisation after carbon reductions, these emissions are being offset making the overall net emissions zero.

**Carbon positive:** Activity that goes beyond achieving net zero carbon emissions to actually create an environmental benefit by removing additional carbon dioxide from the atmosphere.

**Carbon pricing:** A carbon price is a cost applied to carbon pollution to encourage polluters to reduce the amount of greenhouse gas they emit into the atmosphere.

**Circular economy:** A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.

**Climate change:** A large-scale, long-term shift in the planet's weather patterns and average temperatures.

**Climate emergency:** The intention to take immediate action and develop policy to mitigate climate change beyond current government targets and international agreements.

**Climate mitigation**: Efforts to reduce or prevent emission of greenhouse gases.

**Climate resilience:** Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.

**Climate risk/adaptation**: Inertia in the climate system means that rising temperatures, changing rainfall patterns, changes in extreme weather events and sea level rise are unavoidable. These impacts will have consequences for business operations, social services, human lives and many other areas vital to economic and social development.

**Climate risk**: Climate risk includes a ratio of severity of the hazard and adaptive capacity to respond to the threat.

**Carbon sequestration**: The long-term storage of carbon. In this instance using natural measures to store carbon.

**Divestment:** This the process of removing an asset for financial, ethical or environmental reasons. In this case divestment is focused on the removal of all fossil fuels from Enfield's pension funds.

**Green House Gas:** Greenhouse gas, any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth's surface and reradiating it back to Earth's surface, thus contributing to the greenhouse effect. There are seven main GHGs that contribute to climate change: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3). Using the conversion factor relating to $CO_2e$ covers all of these GHG's.

**Indicator:** Every outcome has a specific and measurable Indicator. These align with the Council Plan and will be incorporated into reporting in the council and borough.

**Medium to high flood risk**: A risk of at least 25% of the building experiencing a chance of between 1 in 100 (1%) and 1 in 30 (3.3%) of flooding each year, or see the latest Local Flood Risk Management Strategy.

**Location/market-based emissions**: A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice). It derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims.", see: GHG Protocol Scope 2 Guidance

**Low Traffic Neighbourhoods:** Low traffic neighbourhoods involve introducing measures which reduce the number and speed of cars going through a neighbourhood. This encourages more people to cycle and walk, making the streets healthier and more pleasant for people.

**Offsetting:** Carbon offsetting is used to compensate for emissions which may have reached their limit of reduction by using low carbon technology, natural environment or funding an equivalent carbon dioxide saving.

**Orientation:** A design tool that enables new developments passively reduce their energy demand by placing the building to maximise the benefit of the local microclimate to take advantage of the solar radiation, natural daylight and ventilation.

**Outcomes**: Outcomes are what we want to achieve. There is one "Overarching Outcomes" per topic, followed by several "Outcomes". These take the place of the 'vision' in the previous Climate Action Plan

**Play Streets:** Play Streets are where local authorities use their existing powers under road traffic legislation to allow temporary street closures at regular weekly or monthly intervals, so that children are able to play out in the streets where they live.

**Residual Emissions**: The carbon emissions from a development after all the reduction measures have been implemented.

**School Streets**: School-street schemes are where cars are prevented from going up to the school gates at drop off and pick up times. Enfield launched its first two schemes in early 2020.

**Service economy**: The sector of the economy, also known as the tertiary sector, that provides services rather than products. Moving toward the service economy implies switching from products to purchasing the service that the product provides, thereby producing less waste with more durable products.

**Stranded Assets:** Assets that turn out to be worth less than expected as a result of changes associated with the energy transition and the physical impacts of climate change.

**SuDS**: Sustainable Drainage System: a set of interventions to align our drainage systems with natural water processes incorporated into the local green infrastructure strategy. They are designed to manage excess rainwater on site and encourage infiltration, attenuation and passive treatment.

**Urban creep:** The process of converting gardens and other permeable areas, where green land that naturally soaks up the water is removed by impermeable surfaces such as concrete, causing rates and volumes of runoff to rise and contributing to flood risk.

**Urban greening**: An urban design tool to capture carbon, reduce urban heat and the risk of flooding by integrating green roofs and walls, pockets green spaces and urban trees within the urban fabric.

# Appendix: Global, national and regional context

## Global context

The United Nations Sustainable Development Goals (SDGs), recognising the limits of growth, set the overarching and comprehensive global objectives to serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future"1. The 17 goals and 167 targets and numerous indicators help countries, cities and corporations work to ensure that people everywhere and future generations have access to basic resources.

According to the 2022 SDG report2, current policies will almost certainly fail to achieve the reductions in greenhouse gas (GHG) emissions necessary to limit global warming, increasing the threats and endangering ecosystems and populations around the world.

In 2021, COP26 in Glasgow closed with two major achievements: the **Glasgow Climate Pact** is a pledge signed by almost 200 signatories, detailing decisions and commitments to limit global warming to 1.5°C recognising the role of climate justice among the impacts. The other is the **Article 6 rulebook** which is a set of new agreements and rules for the international carbon market.

Other documents published by the International Energy Agency (IEA) include the **Net Zero by 2050** report that plots out the key steps to achieve global net zero by 2050, by shifting from fossil fuels to clean energy sources, as well as the **World Energy Outlook 2021 guide** on the opportunities, benefits and risks of the energy transition.

In 2022 data from the **IRENA trends** (International Renewable Energy Agency) showed that while global electricity generation from renewables, especially wind and solar increased by 7.4%, public investment in renewable energy sources fell. For the UK, renewable energy's share of electricity capacity only increased by 1.11% between 2020 and 2022 to a total of 53,025 MW. The overall renewables share in total installed capacity globally was 40% in 2022[17].

The UN's Environment Programme published the **Emissions Gap Report** highlighting the lack of progress towards the Paris goals[18], predicting that with current policies global temperature will reach a 2.8°C rise by 2100 and urging for more robust system-wide transformation to cut GHG emissions.

In 2022 the final decision document from the COP27 conference was the **Sharm el-Sheikh Implementation Plan** that summarised the agreements achieved by the parties including commitments to loss and damage funding.

[17] IRENA: Tripling Renewable Power and Doubling Energy Efficiency

[18] Set out in the Paris Agreement at COP 21 (2015)

## National context

The Climate Change Committee's (CCC) **Sixth Carbon Budget** report (2033-2037) advises a 78% reduction in UK **territorial emissions** between 1990-2035, and at least a 68% reduction in overall emissions between 1990-2030. This aligns with the **Paris Agreement goals** but accelerates a fall in emissions relative to previous carbon budgets. These targets will enable the UK to remain a global leader in climate action and are feasible with effective policies in place.

The **National Risk Register 2020,** published by the UK government summarised the main environmental hazards expected in the UK, the level of risk, and actions taken to protect against these risks.

The 2021 **Net Zero Strategy,** published by Department for Business, Energy and Industrial Strategy (BEIS) also sets out how to reach net zero emissions by 2050, through reducing emissions from each sector of the economy. BEIS's **Heat and Buildings Strategy** provides a roadmap to reduce emissions from heating buildings through improving energy efficiency and switching from high to low carbon sources of heat.

The Department for Transport's (DfT) **Decarbonising Transport** is the plan to deliver the required emissions reductions from transport to meet net zero by 2050, which also highlights the benefits decarbonisation will bring.

The UK CCC's **Progress Reports** documents the progress made by the government in reducing emissions and adapting to climate risk, and also provides recommendations for future action. The reports identified a strong climate framework but a lack of overall coherent planning jeopardising the achievement of the 2050 net-zero targets.

In 2022, the Independent Assessment of Climate Risk (IACR) investigated the impacts of warming to the UK. This found that adaptation has failed to keep pace with the reality of climate risk. It identified 8 risk areas which require major attention in the next two years, and 10 principles which can inform good adaptation planning.

**Building to Net Zero**, is a 2022 parliamentary review considering the best pathways to net zero construction taking into account the UK's present and future building needs. The core recommendation of the review was for the government to introduce a mandatory requirement to undertake whole-life carbon assessments for major developments, as well as develop progressively stringent carbon targets for buildings, in line with its trajectory towards net zero.

**The UK's 2022 Nationally Determined Contribution (NDC)** is an updated version of the 2020 non-binding national plan to reduce greenhouse gas emissions, following the Glasgow Climate Pact. The four major updates demonstrate how the UK's target aligns with the Paris Agreement temperature goal; how the UK will deliver on its NDC by 2030; the progress made to expand the territorial reach of the NDC; and the enhanced information to achieve the UK's approach to levelling up, just transition and green skills.

The 2022 ONS **Energy prices and their effect on households** analysis points out how rising energy prices are influencing household behaviour to

make greater energy savings, while the **UK National Risk Assessment on Security of Gas Supply** (by BEIS) reports that gas supply in the UK is very secure, with supply able to meet demand across a variety of potential future scenarios.

## Regional context

London has been leading on climate-conscious decision-making and policies on the trajectory to achieve carbon neutrality by 2030.The 2020 **Green New Deal (GND) for London** aims to tackle the climate and ecological emergencies, alongside the issue of air quality, by doubling the size of London's green economy by 2030 through three core practical priorities: getting London's buildings to net zero; modernising public transport; and building the economic, industrial, and political foundations for London's green economy to grow.

In 2021, the Mayor released the **London Environment Strategy** to safeguard London's environment, aspiring to make the city greener and cleaner in the long-term. The strategy addresses air quality, green infrastructure, climate change mitigation and adaptation, waste, ambient noise, and a low carbon circular economy.

In 2022, the GLA published an **analysis of net zero targets for 2030,** to check against progress and offered four possible scenarios, with different levels of decarbonisation ambition, through which London could meet its target for net zero by 2030.

In 2022, the London Assembly introduced the **Grow Back Greener Fund** and the Green New Deal mission to reduce inequalities of access to green spaces in London.

London Councils conducted a survey on Londoners' perspectives on climate change, and the impact the cost-of-living crisis is having on their ability to act on it. The **What do Londoners think about climate change** found that Londoners are well informed about climate change and support ambitious action, though there are some barriers to changing behaviours.

## Local context

Enfield's 2023-2026 Council Plan sets out the overarching priorities and associated high level actions for the Council for the next three years. One of our five priorities is to deliver clean and green places. This includes the action to enhance biodiversity and protect our parks, open spaces, woodlands, watercourses, wetlands, urban trees and shrubs. It includes enabling active and low carbon travel; facilitating reuse of materials, reducing waste and increasing recycling rates, and reducing carbon emissions from our buildings, street lighting, fleet and the goods and services we procure. Our Climate Action Plan sets out the detail for how we will deliver on these actions.

More and better homes is another of our five priorities. We need to respond to the housing crisis and increase the supply of affordable homes in an extremely challenging financial climate. It is in this context that we need to

reduce the emissions produced from our existing and new homes, and in the building of new homes. One of our actions is to deliver low carbon and climate resilient new-build homes and retrofit existing homes – our sections on buildings in this Plan explains more about how we will do this.

To achieve our targets of net zero for the council as an organisation and for our borough and to adapt to the climate change already underway, we need to consider climate impact in everything we do – our cross-cutting principle of 'climate conscious' in our Council Plan commits us to consider energy consumption, carbon emissions, and environmental risks associated with our decisions, and how we will adapt to the effects of climate change.

Our Council Plan sets out priorities and actions to invest in Enfield in order to positively impact on six long term outcomes. Effective climate action contributes to all these outcomes – but most explicitly to the long-term goal for residents to live in a carbon neutral borough, which is one of the six outcomes set out in the Council Plan.

Alongside the Council Plan, other key related strategies for climate action include the **Enfield Blue and Green Infrastructure Plan** the **Local Flood Risk Management Strategy** which set out in detail how the Council will use nature-based solutions to make the borough more resilient; the **Journey's and Places** plan and principles to make the borough more liveable focusing on the urban public sphere; and the **Sustainable and Ethical Procurement Policy** which sets out how we will procure value for money goods, services and works, whilst maximising social value including by protecting the environment and reducing carbon emissions

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centre for sustainable energy

RICARDO

# Enfield Local Area Energy Plan

March 2023

European Union
European Regional Development Fund

GREATER LONDON AUTHORITY

ENFIELD Council

| Version | Prepared | Date | Reviewed | Date | Submitted | Date |
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# Contents

# Executive Summary

## Context

After declaring a climate emergency in summer 2019, Enfield has set the ambition to become a net zero borough by 2040. The core aim of this Local Area Energy Plan (LAEP) is to provide a framework for Enfield to achieve this target. This report and its accompanying documents provide the foundations for the decarbonisation of the energy system in Enfield.

An energy system is the system designed to supply energy to end users. In the context of this LAEP, that is the supply of electricity and heat to the people, businesses and industry within the London Borough of Enfield. The three key areas for decarbonisation covered by this work are heat in buildings, transport and power systems.

The LAEP places emphasis on the key first steps that will drive the decarbonisation process, whilst setting out those future actions and decisions that will ensure longer-term commitment to a net zero Enfield.

## The starting point

In 2019 Enfield's annual emissions amounted to almost 1,200 kt$CO_2$e. Approximately 45% of these emissions come from transport, 28% from heating buildings and 17% from use of grid electricity. Enfield has already made some progress in reducing these emissions, however the rate and scale of change required is huge. Enfield will need to transform its approach to how buildings are heated, how people and goods travel and how energy is used.

## How to achieve net zero by 2040

The technical analysis of the LAEP produced four decarbonisation "scenarios", i.e. ways to envisage the path to Net Zero. Demand reduction needs to be the starting point of the decarbonisation process, alongside the adoption of net zero technologies and techniques throughout the local energy system. As well as reduction in energy demand, each scenario looked at electrification as a way to reach Net Zero. This is because electrification ties Enfield's emissions to those of the national grid. Therefore, as there are already commitments to decarbonise national electricity generation, electrification is the most realistic way to achieve Net Zero. Whilst energy from waste incineration is not zero carbon, where waste incinerators already exist, such as in Enfield, it makes sense to capture the available heat for use in networks and use this as a transitional solution alongside electrification.

The decarbonisation scenario chosen as optimal for Enfield (mixed demand management) has the lowest overall costs for decarbonisation of the energy system. It combines a cost-optimising approach to insulation and heating with maximised generation of renewable energy across the borough. In this scenario there is a significant shift to active and sustainable modes of transport

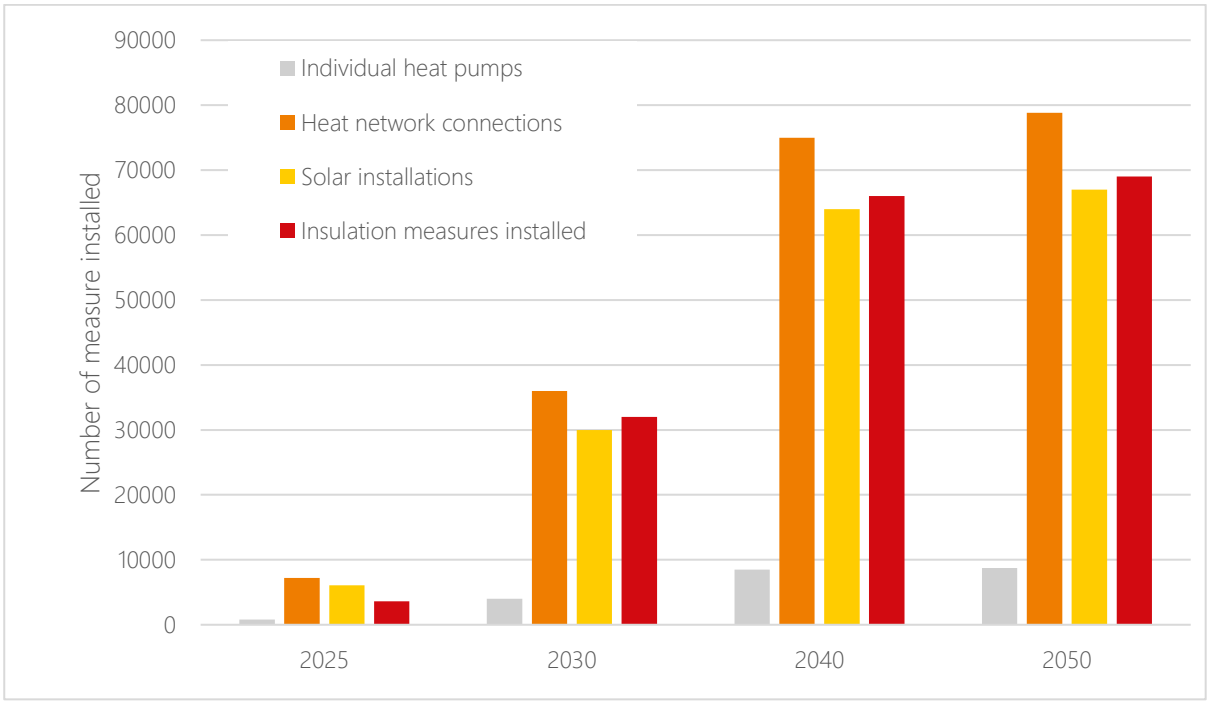
and the charging of electric vehicles (EVs) is flexible in order to ease the total demand on the electricity grid.

## Results

The LAEP analysis shows that a mixture of district heating and standalone air source heat pumps (ASHPs) is the best way to decarbonise heat in buildings in Enfield. This is in conjunction with a cost-effective campaign of insulation. In addition, the widespread rollout of rooftop solar photovoltaic (PV) across the borough would generate zero carbon electricity locally. By reducing the electricity demand on the grid, rooftop PV would also help lower customer bills and contribute to fuel poverty alleviation. Transport is decarbonised primarily through electrification of most vehicles, as well as significant "modal shift", i.e. switching to alternative transport such as walking, cycling or public transport.

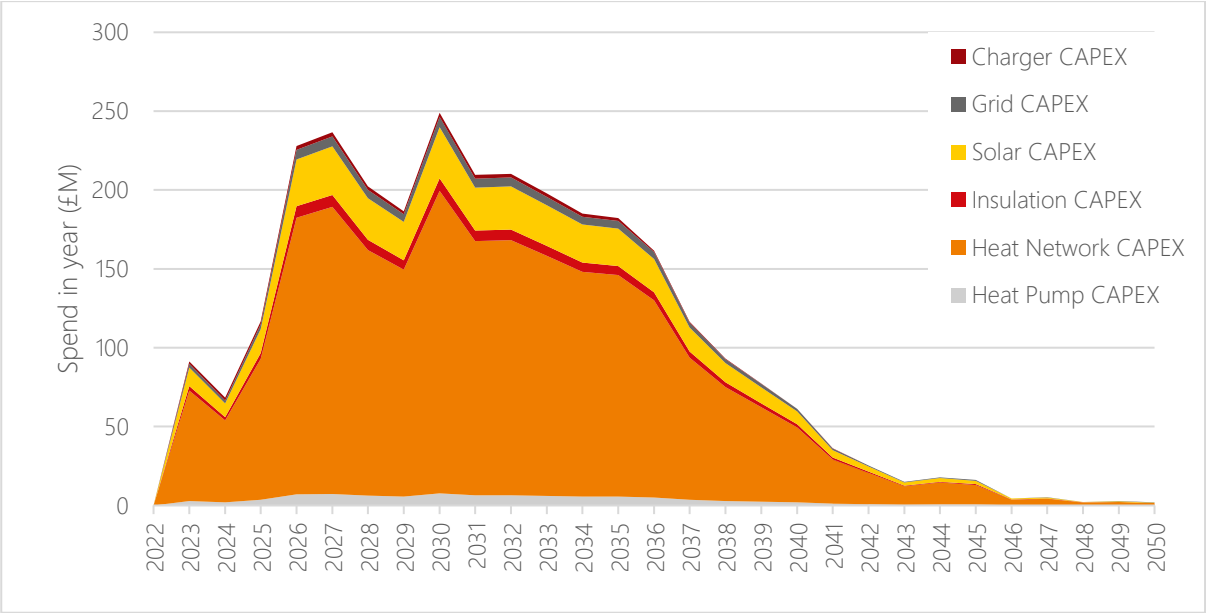
Figure  shows targets for the technology changes required in Enfield in the key years of 2025, 2030, 2040 and 2050.

Figure A: Targets for net zero technology adoption in key years




Meeting these targets would cost in total £5.03 billion distributed over the period to 2050. Figure  shows how the costs for each technology change would be distributed over time.

Figure B: CAPEX spend over time and per intervention

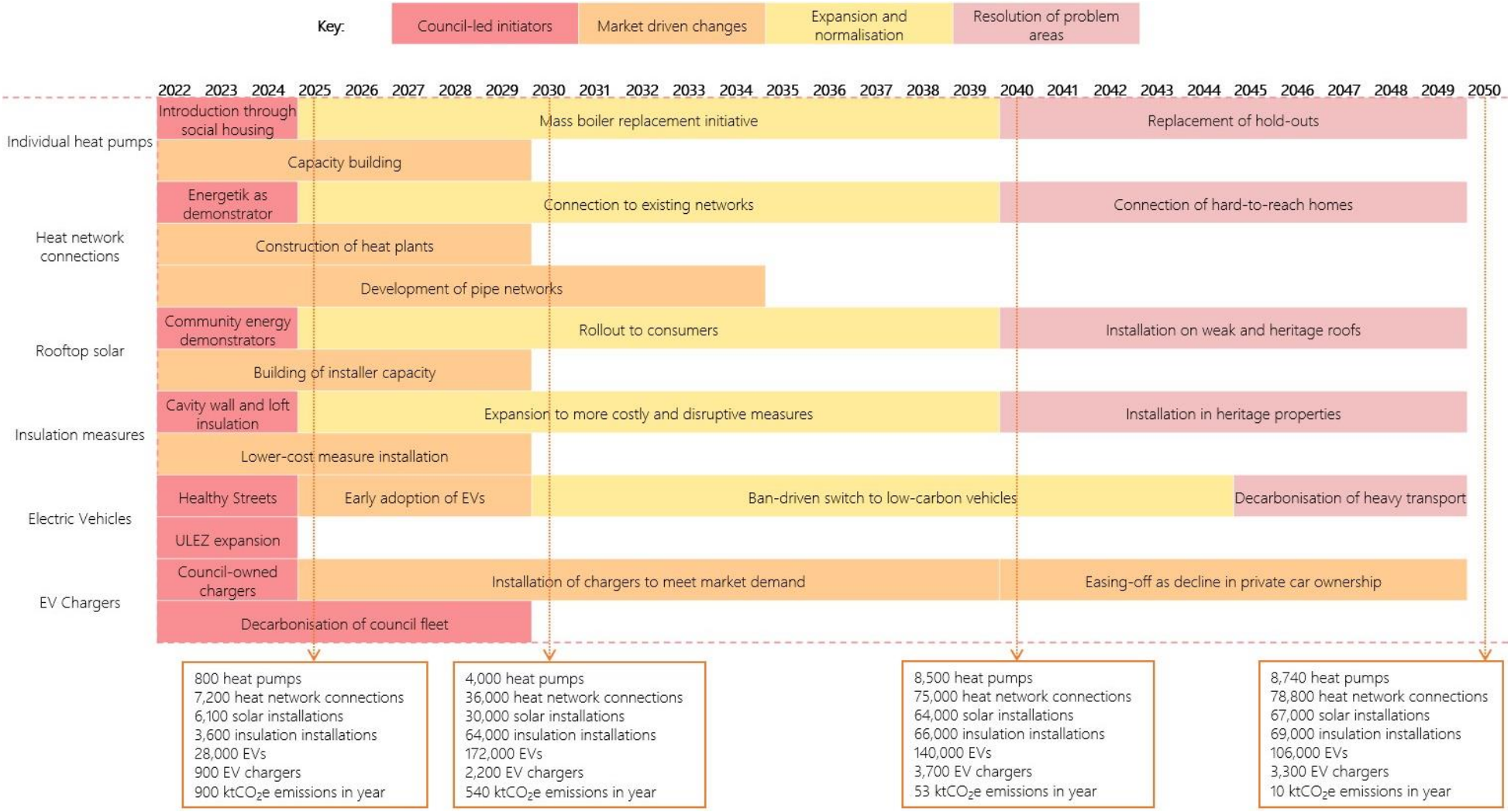



Whilst the mixed demand management scenario carries significant cost, it is cheaper than doing nothing. The total avoided carbon is estimated to be 19,085 $ktCO_2e$ by 2040, representing an avoided carbon impact cost of £6.26 billion.

## A route map to Net Zero

Figure  illustrates Enfield's route map to Net Zero. It was developed building on existing opportunities and addressing challenges to change. There is a focus on early interventions, introducing net zero technologies and initiating capacity building within the market to then spark wider adoption. The route map shows sequenced interventions that will enable the targets illustrated in Figure A to be met.

Figure C: Route map for a net zero Enfield



As the focus of the LAEP is on those first steps that will be key in driving decarbonisation efforts, the analysis finally zoomed in on three local areas and identified three projects as priority for further detailed investigation and implementation within a relatively short timescale:

1. A heat network opportunity area within Upper Edmonton
2. A combination of viable heat technologies at West Carterhatch
3. Large rooftop PV deployment at Highfield Primary School

Overall, the LAEP provides a framework for action that represents the first significant step towards decarbonising the whole energy system in Enfield. Following the recommendations presented in this plan will be crucial to keeping momentum and achieving Net Zero by 2040.

# 1. A Local Area Energy Plan for Enfield

The core aim of this Local Area Energy Plan (LAEP) is to provide a framework for Enfield to decarbonise the local energy system in line with the ambition to become a net zero borough by 2040. This report and its accompanying documents provide the foundations for effective and sustained local action for the decarbonisation of the energy system in Enfield, which comprises heat in buildings, transport and power systems.

This LAEP was developed in line with the guidance provided in the Local Area Energy Planning: The Method[1], as referenced in Ofgem's RIIO-ED2 Sector Specific Methodology Consultation[2] document and presents a vision for a net zero energy system in the London Borough of Enfield. Within this, the LAEP focuses specifically on the decarbonisation of heat in buildings, transport and power systems. An energy system is the system designed to supply energy to end users. In the context of an LAEP, that means the supply of electricity and heat to the people, businesses and industry of the London Borough of Enfield.

## 1.1. The LAEP process

Local area energy planning is a place-based process that informs, shapes and enables the transition to a net zero carbon energy system. The process focuses on the decarbonisation of the whole energy system at a local level (including the energy networks, buildings, transport, industry and local generation and flexibility opportunities). It recognises that places are different (the people, infrastructure, geography, ambition) and identifies what needs to happen, where and by when.

The Enfield LAEP was developed over several months and incorporates the outcomes of four key elements:

- A robust technical analysis based on available and viable zero carbon technologies and solutions, formulated in consultation with those stakeholders that have a key role in the local system changes required, and including more in-depth study of three projects identified as priority
- A comprehensive assessment of non-technical factors, including local and national conditions, developed collaboratively with key local actors and initiative takers to confirm and inform our understanding of the local area and identify the opportunities and barriers to the successful decarbonisation of Enfield

[1] https://www.cse.org.uk/downloads/file/LAEP-method-final-review-draft-30-July-2020.pdf
[2] https://www.ofgem.gov.uk/sites/default/files/2022-04/Call%20for%20Input%20Future%20of%20local%20energy%20institutions%20and%20governance%20.pdf

- A continued process of effective stakeholder engagement that sought to secure ownership and commitment from local actors to the proposed plans and required radical changes for a net zero Enfield by 2040

- Proposals and recommendations for ongoing governance and delivery to ensure that the LAEP becomes a 'live' and evolving plan that is supported and implemented by local planning, investment and initiatives

## 1.2. LAEP report structure

This report presents a summary of the work undertaken over several months and is structured as follows:

- The challenge: this section provides a characterisation of the state-of-play in Enfield and provides an understanding of the scale of the challenge of decarbonising the local energy system

- Technical pathways: this section presents the outputs of various research and modelling exercises that sought to identify the potential for a range of technical measures to enable Enfield to reach the net zero target by 2040

- Route Map to Net Zero: this section outlines the key building blocks that should form the foundations for a strategic approach to decarbonising Enfield, as well as three local energy projects that can be implemented as priority, and an overview of the costs and benefits of decarbonising Enfield

- Next steps: this section summarises what immediate actions need to be taken to finalise delivery plans and drive the LAEP forward

For completeness, five documents accompany this LAEP report and underpin the work presented in this document:

- Technical evidence base
- Walking Around the Issues
- Detailed recommendations to 2040
- Stakeholder Engagement Report
- Local Plan review and policy recommendations

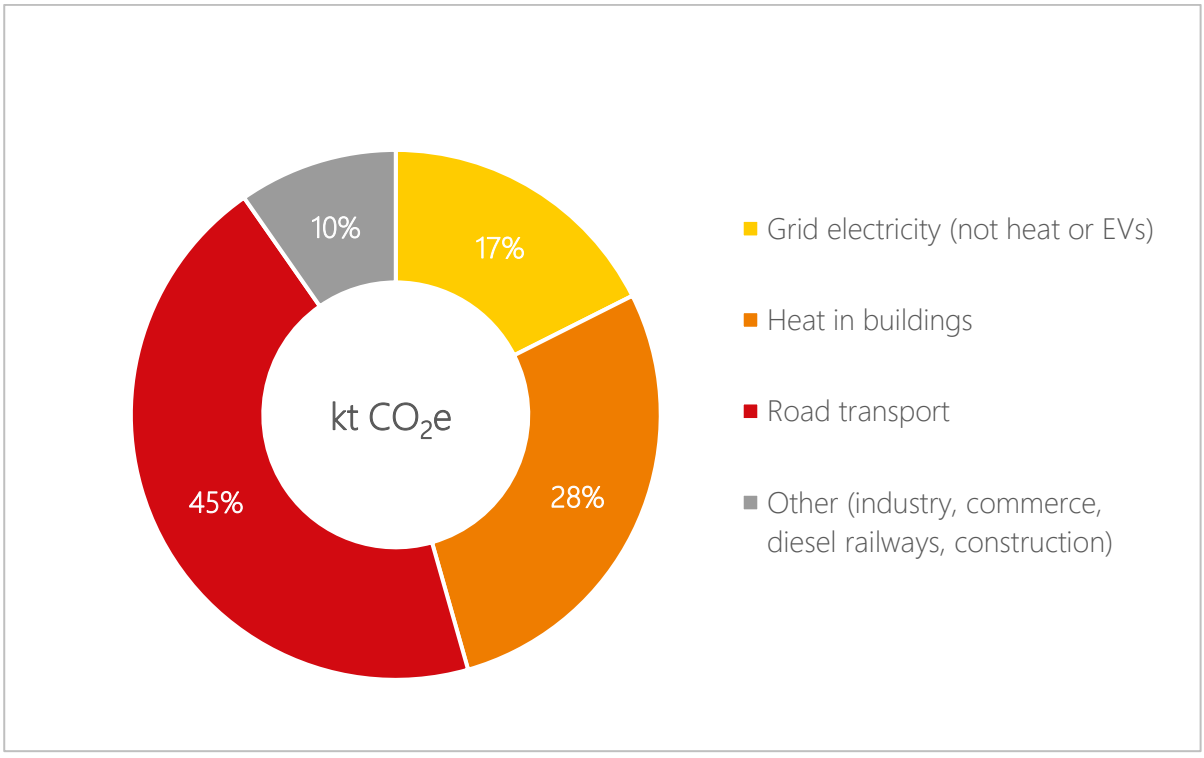
# 2. The challenge

Enfield Council declared a climate emergency in summer 2019 and published a detailed Climate Action Plan in the summer of 2020. The Climate Action Plan outlined steps the council would take to become a carbon neutral council by 2030 and carbon neutral borough by 2040.

As part of the Local Energy Accelerator programme[3], the Greater London Authority (GLA) provided funding for Enfield to prepare a Local Area Energy Plan to support the borough in becoming Net Zero by 2040. The purpose of this report is to inform the Climate Action Plan review process and act as an evidence base for the actions listed within it.

As set out in the Enfield Climate Action Plan (2020)[4], Enfield Council has already taken actions towards reducing its own carbon emissions as well as those of the borough as a whole. However, the path to a net zero Enfield remains challenging. In the baseline year of 2019 Enfield's total annual emissions amounted to almost 1,200 $ktCO_2e$. Figure 1 shows that the sector with the highest emissions is transport, followed by heat in buildings and then grid electricity[5].

Figure 1: Enfield carbon emissions by sector in 2019 (kt $CO_2e$)




The process of decarbonising Enfield will be challenging since the rate and scale of change required is huge. Enfield will need to transform its approach to how buildings are heated, how people and goods travel, and how energy is used. Demand reduction needs to be the starting

[3] https://www.london.gov.uk/what-we-do/environment/energy/low-carbon-accelerators/local-energy-accelerator
[4] https://www.enfield.gov.uk/__data/assets/pdf_file/0011/4610/enfield-climate-action-plan-2020-environment.pdf
[5] The remaining emissions shown the figure as 'other' are beyond the scope of the LAEP and only account for approximately 100 kt $CO_2e$.

point of the decarbonisation process, alongside the adoption of net zero technologies and techniques throughout the local energy system.

By establishing and maintaining high levels of engagement from key actors and the local community, Enfield will be able to fully unlock the potential for action that exists across all sectors. Implementing the changes required for a net zero Enfield will also yield critical wider benefits, such as fuel poverty reduction, improved public health, job creation and skills development.

## 2.1. Setting the scene: opportunities and challenges for a net zero Enfield

Planning for a net zero borough needs to respond to rapidly changing socio-economic and political systems at local, regional and national level. In order to understand the scale of the changes required for a net zero borough, the LAEP process analysed the current state of play in Enfield and the required conditions for successful decarbonisation of the local energy system. A full analysis of the wide range of non-technical factors that can influence the potential for and realisation of change is included in the accompanying Walking Around the Issues document. Based on that detailed analysis, the following sections provide an overview of the main opportunities and challenges that exist in the borough.

### 2.1.1. Heat in buildings

One of the main opportunities in Enfield for decarbonising heat in buildings comes from the well-established local energy company Energetik, which is owned by Enfield Council. Energetik has already invested in heat networks across the borough, including Meridian Water, Arnos Grove, Ponders End and Oakwood, and is looking to continue its expansion in the coming years. Although gas boilers still heat a majority of the buildings in the borough, district heating in Enfield is already leading the way in best practice across London.

In addition to district heating, there are opportunities to build on Enfield's co-leading role in developing the Retrofit London Housing Action Plan that seeks to develop a home retrofitting programme in London that can achieve an average EPC B rating by 2030. There are also wider factors that play a supporting role in the decarbonisation of heat in the borough. As energy prices rise, net zero measures such as heat networks powered by net zero heat sources and insulation become more economically viable. The availability of wider funding schemes enhances the economics of net zero measures. Some examples of these schemes are the Local Authority Delivery Scheme (LADS), the Green Heat Network Fund, the Boiler Upgrade Scheme, and the Public Sector Decarbonisation Scheme. However, there is no long-term plan to maintain these funding sources, which is a challenge for local authorities. The creation and delivery of long-term plans for net zero measure funds at national level is therefore crucial for the successful decarbonisation of heat in buildings.

Despite these opportunities for change in the borough, there are challenges that Enfield needs to overcome to make progress towards zero carbon heating in all buildings. These include a limited supply chain for zero carbon heating technologies, both in terms of skills and materials,

which at the moment is not able to support the scale of change needed. The currently limited funding for decarbonising heat is another critical challenge. The funding available is not extensive enough to cover the scale of change needed, especially as net zero options carry an upfront cost that is higher than conventional heating choices.

### 2.1.2. Transport

Transport is an area where it can be difficult to make significant change, due in part to it not being bound to a particular location or authority. However, there are many factors which present opportunities to decarbonise transport within Enfield. Within the borough, Enfield Council has already taken significant steps in promoting active travel, such as through the Cycle Enfield scheme. Through the LAEP process, Enfield Council has also laid the foundations for a strong partnership with the local electricity distribution network operator (DNO) UK Power Networks to ensure that electricity network can support plans for an expansion in electric vehicle numbers.

There are also opportunities for decarbonising transport in trends and factors that go beyond the borough boundaries. Electric vehicles are becoming cheaper to purchase and to run and can travel further. As people become more aware of environmental and climate issues, further growth of the electric vehicle industry is expected. Across London there have been many successful smart electric vehicle charging trials and pilots with promising results. As net zero transport becomes more common, road congestion may fall, leading to even more people feeling safer in taking up active travel such as walking and cycling.

However, there are existing challenges that could hamper Enfield's ability to decarbonise local transport. In terms of decision making, as most of funding for transport in the borough comes from Transport for London, Enfield Council have limited agency over transport decisions, even within the borough boundaries. The transition to electric vehicles also presents challenges such as the ability of the electricity grid to support the large-scale adoption of electric vehicles, limitations in the supply chain and the lack of skilled technicians and after sales service agents.

### 2.1.3. Power systems

The decarbonisation of Enfield's power systems will largely depend on the successful decarbonisation of the national grid, however there are opportunities for Enfield to make its own contributions. In terms of renewable energy generation, there are opportunities to build upon the success of deploying solar rooftop photovoltaic (PV) panels on school buildings and Enfield Council's own buildings. In a broader context, rising electricity prices and falling battery costs are improving the financial case for generation of net zero energy.

The capacity of the local electricity grid to take the extra load of decarbonised technologies is a significant challenge. However, Enfield already has large industrial clusters, with a high grid capacity, as well as a large rooftop area for solar panels. There is also a mix of electricity users in Enfield, presenting many options for flexibility, and funding is available for grid flexibility initiatives.

There are wider challenges that impact the ability of Enfield to decarbonise the electricity system. The complexity of the electricity market and slow regulatory developments cause difficulties in innovation, which slow down the development of flexibility technologies, where commercial demand services are in early stages. There is also limited public interest in flexibility services and installation of renewable technologies, due to a lack of funding, understanding of the technologies and awareness of their benefits.

## 2.2. Overcoming the challenges

Although the scale of the challenge of decarbonising the whole local energy system is significant, if Enfield capitalises on its opportunities and carefully plans for Net Zero, carbon emissions for the borough can reach Net Zero by 2040. This LAEP is a fundamental first step towards this target. It sets out achievable trajectories for the decarbonisation of the three main energy use sectors and sets out what changes are needed to ensure the prompt delivery of Enfield's net zero ambitions. To this end, the LAEP focuses particularly on those key first next steps that will need to be taken in the immediate future to build momentum and ensure timely progress in the implementation of the long-term plan.

# 3. Technical Pathways

The recommendations set out within this document are underpinned by a technical evidence base. This includes the outputs of several separate research and modelling exercises that identified, and where possible quantified, the potential for a range of technical measures to reduce emissions within the borough. It also sought to examine how a locally appropriate combination of measures could be applied that could enable the net zero target to be achieved by 2040. These combinations of measures are referred to here as 'scenarios', or 'pathways'. This section provides a high-level summary of the scenario analysis contained in the technical evidence base, along with a description of key technical outputs for the final selected scenario across the three domains of heat in buildings, transport and power systems. This section therefore provides a vision for a net zero Enfield.

## 3.1. Analysis of scenarios

The technical analysis produced four decarbonisation scenarios, which result from the combination of various choices that could be made in pursuing a net zero Enfield. Details of the combination of choices for each scenario, as well as the rationale behind their development, are in the "Technical Scenarios" section of the accompanying technical evidence base. The following sections provide an overview of the scenarios and what they mean for Enfield.

### 3.1.1. Visions of a net zero Enfield

To illustrate the way the four scenarios would affect Enfield, they are described below in terms of the changes that would be seen from today to 2040 (in coloured boxes). The four scenarios are: 'high demand management', 'medium demand management', 'low demand management', and 'mixed demand management'. These names refer to the amount of active control that can be taken over the energy demand from heating buildings, transport and power systems.

## High Demand Management

### Vision

This is a scenario which prioritises decarbonisation benefits over cost-efficiency. Heat demand reduction is prioritised by applying high levels of insulation, before then determining the cost-optimal low carbon heating. Renewable energy is maximised across the borough, and transport is decarbonised through high levels of modal shift and high usage of flexible EV charging.

### Results

Fabric insulation measures have very high uptake, with the majority of buildings in the borough being insulated to the maximum level of insulation which is appropriate. Less of the borough is connected to heat networks than in other scenarios, as high levels of insulation favour individual heat pumps. Despite this, a small majority of buildings are connected to heat networks rather than receiving an individual heat pump. Rooftop PV installations would become very common, installed on about three-quarters of the buildings. Private car ownership would fall by about a quarter by 2040 and by nearly half by 2050. EV charging is well managed, leading to smooth demand profiles. Total CAPEX would be £3.17B.

| Heat | Transport | Rooftop solar |
|---|---|---|
| 39,963 individual domestic heat pumps<br>1,086 individual non-domestic heat pumps<br>46,500 heat network connections<br>37.3 p/kWh cost of heat from individual heat pumps*<br>18.7 p/kWh cost of heat from heat network connections**<br>155,000 insulation measures installed<br>Heat changes CAPEX of £2.7B | 3,761 public chargers installed<br>25% reduction in private car fleet<br>454 GWh per year of demand from EVs | 311 MW of rooftop solar installed<br>5,218 social housing installations<br>40,842 owner occupied installations<br>11,440 privately rented installations<br>1,969 non-residential installations<br>7,121 other installations<br>Solar CAPEX of £391M<br>Grid reinforcement CAPEX of £75.4M |

| Total emissions | 2040 | 52 ktCO2e | 2050 | 10 ktCO2e |
|---|---|---|---|---|

* Here the cost of heat is the average levelised pence per kWh of heat delivered from the heat pumps. This includes CAPEX, OPEX, REPEX of the heat pump installation and operation, divided by the total heat output over its lifetime, with both value streams discounted in the same way.

** This value is the average levelised cost of heat delivered through networks. It includes costs (CAPEX, REPEX, OPEX) associated with both the generation and distribution of heat.

## Medium Demand Management

### Vision

This is a moderate scenario which takes an entire-system cost-optimising approach, balancing the costs of insulation against those of increased heat demand. It also places higher requirements on economic performance for renewable energy. There is less ambition in transport with lower levels of modal shift and less optimisation of EV charging.

### Results

Many buildings will have new insulation, but the total insulation installed would be about half of that installed in the high demand management scenario. However, the total-system optimisation leads to a lower overall cost. About 9 in 10 properties would be connected to a heat network, with the remainder receiving an individual heat pump. Rooftop solar would be more common than today, but only present on about 1 in 10 buildings. Private car ownership would fall by about 15% by 2040, and 35% in 2050. EV charging is managed giving smoother demand profiles than in the low demand management scenario, but not as smooth as high demand management. Total CAPEX would be £2.73B.

| Heat | Transport | Rooftop solar |
|---|---|---|
| 7,989 individual domestic heat pumps<br>751 individual non-domestic heat pumps<br>78,800 heat network connections<br>22.3 p/kWh cost of heat from individual heat pumps<br>17.4 p/kWh cost of heat from heat network connections<br>69,000 insulation measures installed<br>Heat changes CAPEX of £2.5B | 3,899 public chargers installed<br>15% reduction in private car fleet<br>467 GWh per year of demand from EVs | 149 MW of rooftop solar installed<br>774 social housing installations<br>4,514 owner occupied installations<br>1,507 privately rented installations<br>1,482 non-residential installations<br>1,097 other installations<br>Solar CAPEX of £155M<br>Grid reinforcement CAPEX of £75.4M |

| Total emissions | 2040 | 56 ktCO2e | 2050 | 11 ktCO2e |
|---|---|---|---|---|

## Low Demand Management

### Vision

This is a scenario of low intervention, whilst still reaching Net Zero. Heat in buildings is optimised by balancing insulation and heating. Very high economic requirements are placed on renewable energy. There is little modal shift within transport, and little optimisation of EV charging.

### Results

The heat system is the same as that in the medium demand management scenario, because the mix of insulation and heating is determined in the same way. There is very little uptake of renewable energy, with installations largely limited to large non-residential rooftops. There would be a switch to electric vehicles to move transport towards Net Zero, however there would not be any collective modal shift, and there would be a 22% growth in the private car fleet by 2040. EV charging demand is very ad-hoc and produces very rough demand profiles. Total CAPEX would be £2.64B.

| Heat | Transport | Rooftop solar |
|---|---|---|
| 7,989 individual domestic heat pumps<br>751 individual non-domestic heat pumps<br>78,800 heat network connections<br>22.3 p/kWh cost of heat from individual heat pumps<br>17.4 p/kWh cost of heat from heat network connections<br>69,000 insulation measures installed<br>Heat changes CAPEX of £2.5B | 4,783 public chargers installed<br>22% growth in private car fleet<br>542 GWh per year of demand from EVs | 63 MW of rooftop solar installed<br>2 social housing installations<br>23 owner occupied installations<br>6 privately rented installations<br>260 non-residential installations<br>91 other installations<br>Solar CAPEX of £53M<br>Grid upgrade CAPEX of £89.6M |

| Total emissions | 2040 | 66 ktCO2e | 2050 | 13 ktCO2e |
|---|---|---|---|---|

## Mixed Demand Management

### Vision

The mixed demand management scenario is driven by optimising cost whilst still retaining high levels of good practice. This means that less economic renewable schemes are considered, and that hard-to-achieve changes such as modal shift are heavily encouraged. This scenario combines a cost-optimising approach to insulation with maximised generation of renewable energy across the borough. Modal shift uptake and EV charging flexibility are high.

### Results

The heating system is the same as in the medium and low demand management scenarios, offering the most cost-effective mix of insulation and zero carbon heat sources. However, rooftop solar would be as in the high demand management scenario, with high capacity and many installations across differing property types. There would also be a shift to alternative transport as seen in the high demand management scenario, with reduction in the private car fleet. EV charging would also be very well managed, with smooth demand profiles. Total CAPEX would be £2.97B.

| Heat | Transport | Rooftop solar |
|---|---|---|
| 7,989 individual domestic heat pumps<br>751 individual non-domestic heat pumps<br>78,800 heat network connections<br>22.3 p/kWh cost of heat from individual heat pumps<br>17.4 p/kWh cost of heat from heat network connections<br>69,000 insulation measures installed<br>Heat changes CAPEX of £2.5B | 3,761 public chargers installed<br>25% reduction in private car fleet<br>454 GWh per year of demand from EVs | 311 MW of rooftop solar installed<br>5,218 social housing installations<br>40,842 owner occupied installations<br>11,440 privately rented installations<br>1,969 non-residential installations<br>7,121 other installations<br>Solar CAPEX of £391M<br>Grid reinforcement CAPEX of £79.9M |

| Total emissions | 2040 | 53 ktCO2e | 2050 | 10 ktCO2e |
|---|---|---|---|---|

### 3.1.2. Technical overview of scenarios

Further detail on the scenarios than is given here is available in technical evidence base. The scenarios have also been governed by a number of additional assumptions which are not directly controllable but will affect the analysis. These assumptions are:

1. The price of electricity and gas – Energy prices are currently rapidly rising, and it is impossible to constantly update the work alongside them. For the LAEP, a price based on April – September 2022 values was assumed. This is detailed in the technical evidence base section "Scope and methodology" for the power systems analysis. It should be noted that rising prices generally support the measures suggested in this LAEP.

2. Carbon intensity of grid electricity – As noted previously, decarbonisation is assumed to rely on the electrification of heat and transport. Therefore, the electricity grid that powers these measures must be decarbonised. The modelling uses carbon factors from the Committee on Climate Change's Balanced Pathway, which sees the grid achieve zero carbon in the 2030s (see power systems section for further details).

3. Availability of hydrogen – While light transport can be electrified, there is no currently viable solution for heavy, long-range transport other than hydrogen. The availability, cost and carbon intensity of hydrogen is uncertain, and at present it is not expected that heavy duty transport can be fully decarbonised by 2040. Hydrogen has not been considered for home heating because it is an emerging technology with little evidence for economic use in heating homes[6]

There are also underlying requirements such as funding, supply chains, public consent, and political will, that will be necessary to achieve the objectives of this LAEP. The analysis assumes these non-technical conditions are met, and the accompanying WATI and SWOT analyses set out how these can be developed in and around Enfield.

It should also be noted that there are several variables which are not explicitly considered – for example the value of electricity demand flexibility services. More detail on these is provided in the technical evidence base.

### 3.1.3. Optimal scenario

Based on the analysis, the mixed demand management scenario is recommended as optimal for Enfield. When examining the carbon trajectories under each scenario, there is little difference in total carbon emissions by 2040, as all scenarios are in line with the overarching net zero ambition for the borough. Instead, the scenarios were considered in relation to how cost effective they are for the end user. Certain interventions are likely to increase costs to the end user and others have the potential to decrease them. As higher end user costs would increase rates of fuel poverty in the borough, they are the least desirable, and therefore least optimal, option. For instance, heating changes and grid reinforcement investment increase costs to the

[6] For a review of independent studies looking at hydrogen heating, see Rosenow, J. (2022) Is heating homes with Hydrogen all but a pipe dream? An evidence review. Available at: https://doi.org/10.1016/j.joule.2022.08.015

end user in proportion to the money spent to implement them. On the other hand, profitable solar installations have the potential to decrease end user costs because they offset electricity charges and are therefore particularly important where the heating system is electrified.

In terms of heating and power system upgrades, the mixed demand management scenario is the second cheapest option (only £4M more than the medium demand management scenario, which is the cheapest). Like the high demand management scenario, the mixed management one presents the highest deployment of solar PV, with 162MW of additional solar capacity. Through high levels of modal shift, it sees the biggest reduction in car usage and through high rates of flexibility, it generates the lowest electricity demand from EV charging. By combining these factors, the mixed demand management scenario was therefore chosen as the optimal scenario in keeping the costs to the end user low.

## 3.2. Heat in buildings

This section addresses the significant challenge of decarbonising the energy used for space and water heating in Enfield's almost 90,000 buildings. Table 1 summarises the baseline position and gives the scale of the challenge: the elimination of just under 350,000 tonnes of $CO_2$ emissions annually.

Table 1: Existing heat demand and carbon emissions in Enfield in 2019

| Sector | Buildings | Annual Heat demand (GWh) | Energy Use Intensity (kWh space heat / $m^2$ floor area) | Emissions from fossil fuels (kt $CO_2e$) | Emissions from electric systems (kt $CO_2e$) | Total emissions (kt $CO_2e$) |
|---|---|---|---|---|---|---|
| Residential | 84,805 | 921 | 102 | 295 | 19 | 314 |
| Non-residential | 2,753 | 208 | 65 | 10 | 12 | 22 |
| Total | 87,558 | 1,129 | 90 | 305 | 31 | 336 |

The analysis presented here is taken from the mixed demand scenario. It follows the core principles of Least Regrets and Least Cost set out in the technical evidence base, and identifies the most cost-effective combination of the following option across all buildings in Enfield:

1. Saving energy used for space heating by improving building fabric efficiency.
2. Using high efficiency electrically powered air-source heat pumps (ASHPs)[7].

[7] Individual hydrogen boilers are not cost competitive with ASHP so have not been considered as per explanation in evidence base p. 14.

3. Deploying heat networks supplied from a combination of sources (such as large air/water/ground/waste source heat pumps, industrial/commercial waste heat, and hydrogen produced from excess renewable electricity generation).

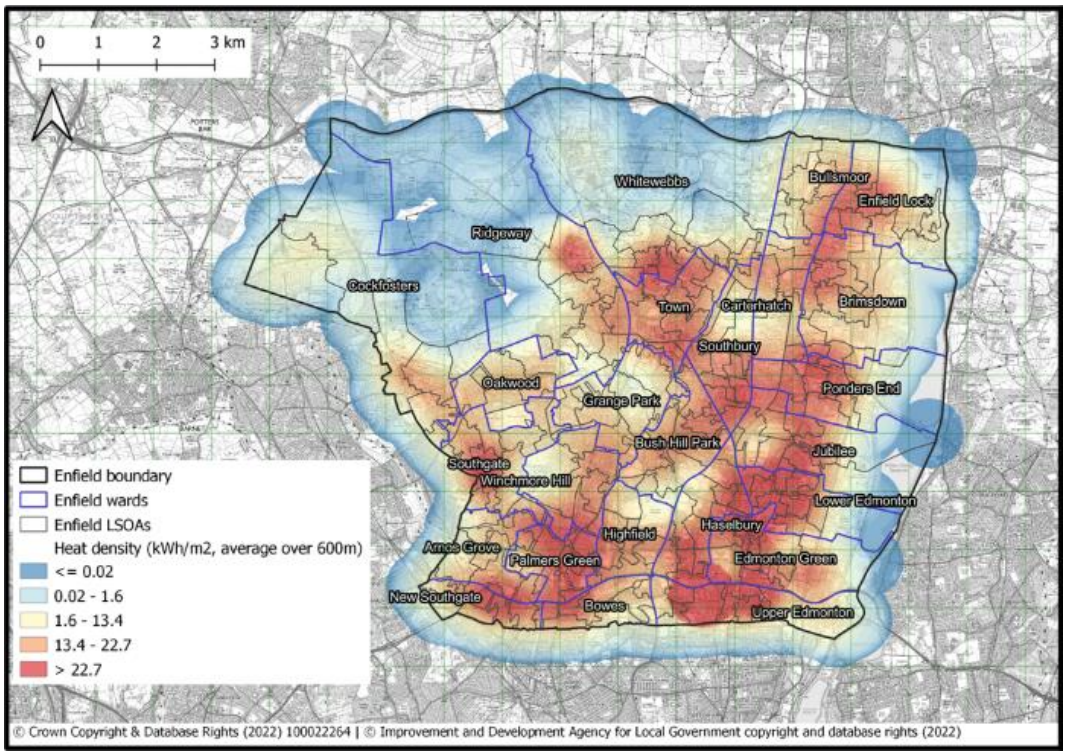
Map 1 shows the geographic spread of demand for space and water heating across Enfield. Map 2 shows the distribution of low efficiency residential buildings. Taken together, these present a visualisation of the challenge this section addresses – that is, the reduction and decarbonisation of heat demand using the least-cost combination of the measures discussed above.

Energy from waste incineration is not zero carbon[8], because a proportion of its energy value comes from plastics which are derived from oil. However, where waste incinerators already exist (and are contracted to continue operating for a long period), it makes sense to capture the available heat for use in networks – the alternative is simply to vent it to the atmosphere, which would be a missed opportunity to reduce gas use elsewhere. This is the basis on which the Energetik network in Enfield currently operates and plans to expand. However, in the long-term such heat networks will need to transition to zero carbon energy sources, which is the basis of the modelling undertaken for this LAEP.

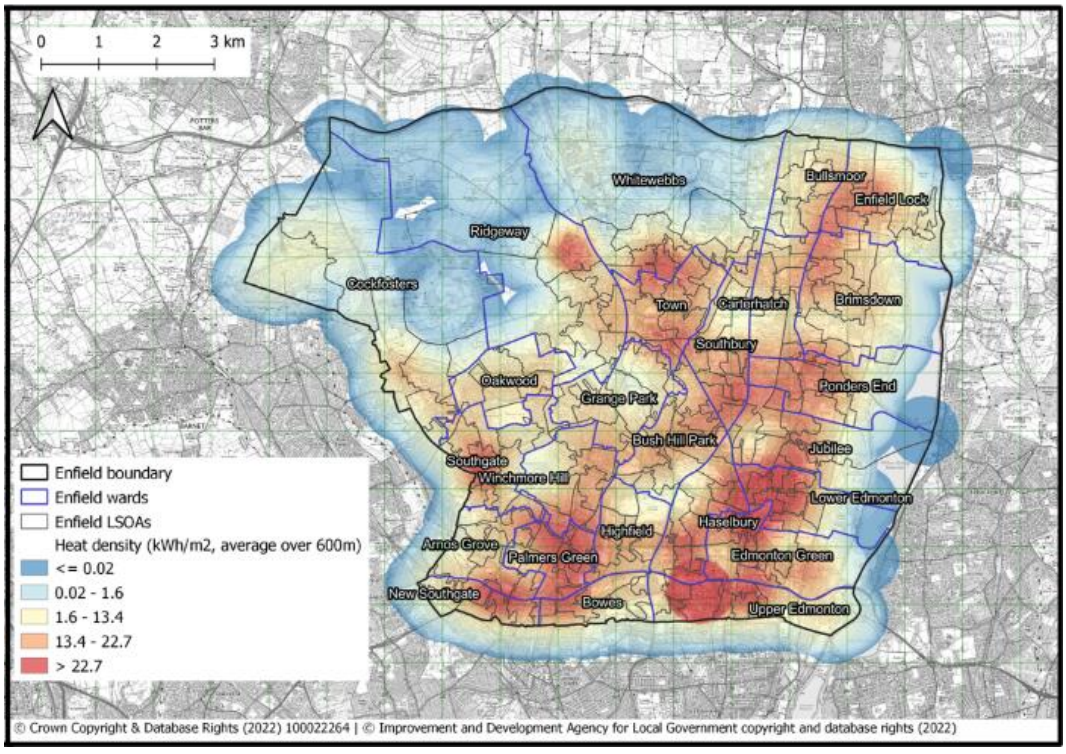
[8] Energy from waste is not considered a zero carbon heat source. Carbon factors from BEIS (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022) place the carbon emissions at 21.28 kg$CO_2$e/tonne of household waste incinerated.

Map 1: Heat demand density in Enfield: baseline vs at Net Zero

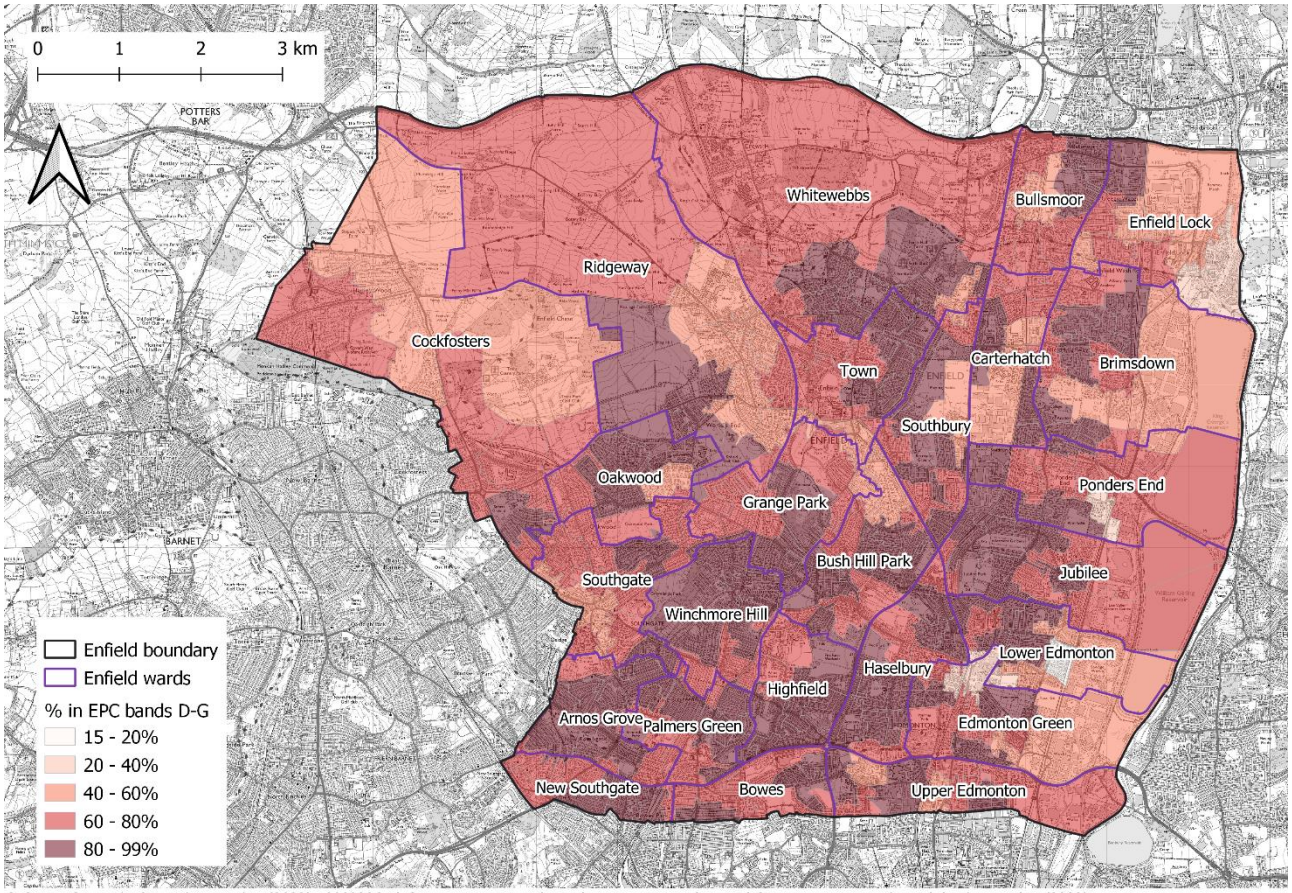
Baseline




At Net Zero:



Map 2: Proportion of buildings in EPC bands D-G by ward






## 3.2.1. Method

To identify the most cost-effective mix of these options, a cost-minimising optimisation approach was used. The model automatically finds the best combination of insulation and heat supply for each and every building in the borough, while taking into account localised heat network routing options and costs. This uses the model underpinning CSE's widely used THERMOS heat network optimisation software. The detailed methodology is described in the approach in the technical evidence base.

The results presented here are taken from the mixed demand management scenario, which is the selected scenario. In this scenario only cost-optimal insulation is installed and heat networks are assumed to be able to obtain heat at a maximum levelised cost of heat[9] (LCOH) of 6p/kWh[10], with no limit placed on the amount of such heat available. This LCOH is a conservative estimate and allows flexibility in future policy decisions.

[9] Levelising is an approach to summarising costs which enables a comparison between items with different cost structures. In this case it involves summing (with optional discounting) the CAPEX, OPEX and REPEX cashflow for a heat supply option, and dividing this by the (also optionally discounted) sum of delivered heat

[10] 6p/kWh is the assumed levelised cost at which heat can purchased by the network operator from the heat generator, for the purposes of optimising the mix of heat networks and heat pumps across the borough. It represents the LCOH at the gate of the heat plant, and is calculated only from the costs (CAPEX, OPEX, REPEX) of building and operating the heat plant – it does not consider the heat distribution network. This is why it is lower

## 3.2.2. High level findings

### Demand reduction

Insulation needs to be installed on around 50,000 of the 87,600 buildings in Enfield, reducing annual space heat demand by 108 GWh – this is 10% overall, with a typical reduction of 20% for the buildings that receive insulation. The capital cost of the insulation is just under £100M, with an average of around £2,000 per insulated building. This is summarised in Table 2 with a breakdown by insulation measures. The reduction in heat demand by the selected insulation measures comes at a cost of just over 6p/kWh of heating avoided. The cost per kWh of supplying heating from a heat network or individual heat pump is significantly greater than 6p/kWh, therefore there is a clear advantage to installing these insulation measures. The average change in energy use intensity is from a figure of 90 kWh/m$^2$ to 81 kWh/m$^2$ per year, across both residential and non-residential properties.

Table 2: Cost-optimal insulation measures by 2040 under the recommended scenario

| Measure[11] | Installations | Cost £M | Cost average £ | Total yearly GWh reduction | Average yearly kWh reduction |
|---|---|---|---|---|---|
| CWI | 11,501 | 23 | 2,004 | 38 | 10,358 |
| EWI | 518 | 5 | 9,547 | 4 | 12,120 |
| Floor | 37,096 | 50 | 1,352 | 41 | 8,985 |
| Glazing | 53 | 1 | 25,927 | 2 | 85,298 |
| Loft | 16,759 | 18 | 1,050 | 23 | 10,186 |
| Total | 65927 | 97 | - | 108 | - |

Installing insulation reduces running costs. As a simple illustration, at current gas prices[12] a 20% reduction in consumption for a typical gas-heated home would be worth around £200/year[13]. For a home heated via an ASHP, the calculation is complicated by the fact that the insulation improves the operating efficiency of the heat pump as well as reducing demand. Taking this into account, the estimated annual saving would be around £400[14]. Long-term projections from BEIS[15] currently imply that prices return to trend – in this case estimated savings would be around two thirds of the above figures.

than the overall LCOH of networked heat given in the results (see below), which accounts for both heat costs and pipe costs.

[11] CWI stands for cavity wall insulation and EWI stands for external wall insulation. Further details are available in the technical evidence base document.

[12] October 2022: 10p/kWh for gas, 30p/kWh for electricity

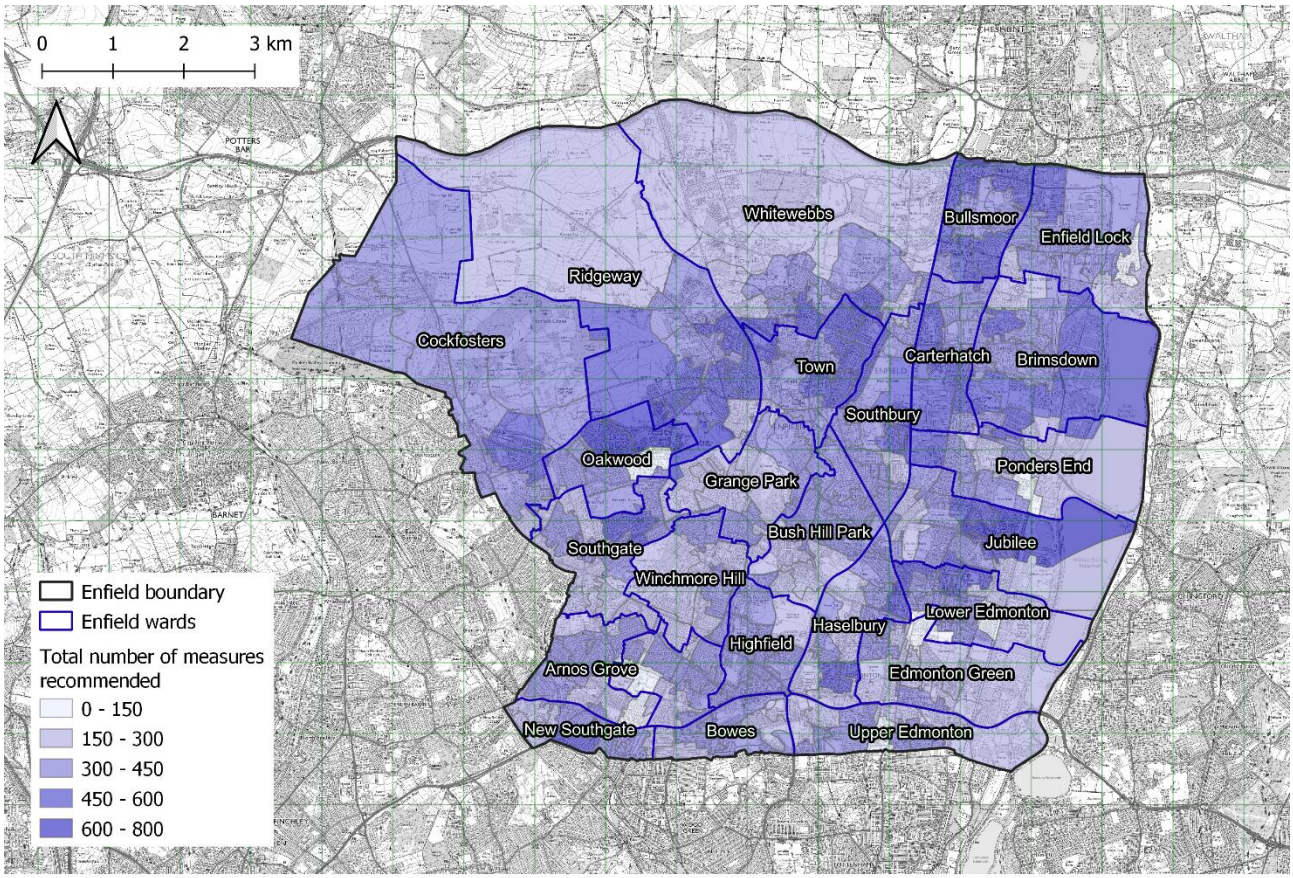
[13] 30p/kWh * 10,000 kWh/year * 20% = £300

[14] 10p/kWh * 10,000 kWh/year @COP 2.5 = £1,200. Cf 10p * 8,000 kWh * @COP 3 = £800

[15] BEIS Green Book Tables 4-8. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793632/data-tables-1-19.xlsx

There is a balancing act in the choice of insulation, as some insulation measures, such as external wall insulation and double glazing, are very expensive to install. This means that the money saved on heating by insulating is less than the cost of insulation and therefore the installation of these measures is rarely recommended. The distribution of the insulation measures in the recommended scenario is shown in Map 3.

Map 3: Distribution of insulation measures recommended under the mixed demand management scenario by Net Zero

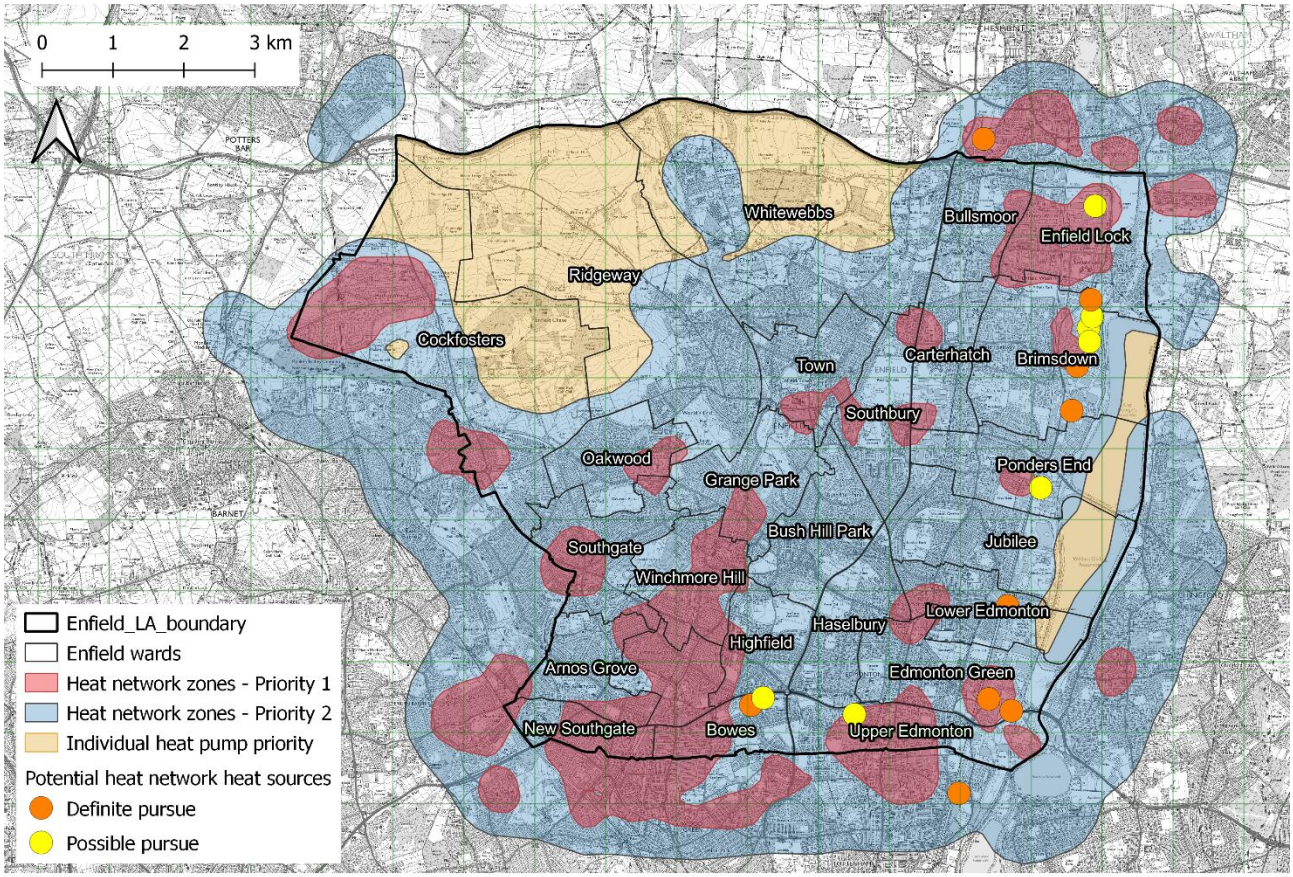




## Heat supply

The mixed demand scenario results show that heat pumps are needed to supply around 10% of buildings, and 12% of demand, with heat networks supply 90% of buildings, and 88% of demand. These latter figures may appear high compared with earlier studies – this is partly because previous work has tended to focus on a competition between gas boilers (which are cheaper than ASHPs) and heat networks. It is also because the approach we have used for modelling the costs of heat networks are much more detailed than has previously been possible. The distribution of the differing heat supply solutions is shown in Map 4. Also shown are the locations of potential waste heat sources, which could provide low cost heat to heat networks. Heat networks are split into two priority levels in the map. Priority one areas are those where the economic performance of the heat network is very good and therefore should be developed first. The analysis aligns well with Energetik's plans for heat network expansion, which, if implemented, would serve several of the heat network priority areas identified.

Map 4: The distribution of heat supply technologies across Enfield under Net Zero






Total capital cost of heat pump installations is £94M, excluding power network reinforcement, with an average levelised unit cost of around 21p/kWh. Heat networks supply just over 900 GWh, at a capital cost of £2.3Bn (excluding power network reinforcement), and an average levelised unit cost of 17.5p[16]. There are likely to be additional benefits to upgrading the heat system within Enfield that are notable even though difficult to quantify. These are some examples of co-benefits:

- Adding additional insulation to homes can help residents feel warmer (even beyond the benefit of increased heating efficiency).
- Centralisation of heating management through heat networks can also reduce stress and worry over boiler issues – as it is no longer the responsibility of individuals to negotiate maintenance and repairs.
- Further, the removal of gas heating reduces secondary issues related to failure.
- By using heat pumps powered by electricity, and heat networks where there is no internal boiler, issues related to carbon monoxide poisoning from boiler failure are eliminated.

[16] This levelised unit cost refers to the cost at the end point of the distribution system. It accounts for the original levelised cost of heat at the gate of the heat plant, as well as the distribution networks, pumping systems, etc.

- Increased carbon dioxide levels within homes where gas is burned for heating and cooking are common and these will be eliminated with the elimination of in-home gas boilers.

### 3.2.3. Summary

To decarbonise space and water heating in Enfield by 2040, 50,000 buildings will need fabric insulation measures installed, at a cost of £100M. This will decrease the heating demand across the borough by 10%. 8,740 premises in the borough should be supplied by individual air source heat pumps, installed at a cost of £94M. Heating to the remaining 78,800 premises should be supplied from heat networks at a cost of £2.3bn.

## 3.3. Transport

The transport sector is the largest single sector source of greenhouse gas (GHG) emissions in Enfield, contributing 45% of total $CO_2$ emissions in the borough[17]. Enfield also has areas that exceed government objectives for air pollutants at busy roadside locations. Progress towards decarbonising the road transport sector in Enfield is therefore vital to the borough's overall net zero objectives. However, the transition to electric vehicles and resulting electricity demand will also contribute to the challenge faced by the energy system that must seek to facilitate rather than hinder decarbonisation activities.

### 3.3.1. Current situation

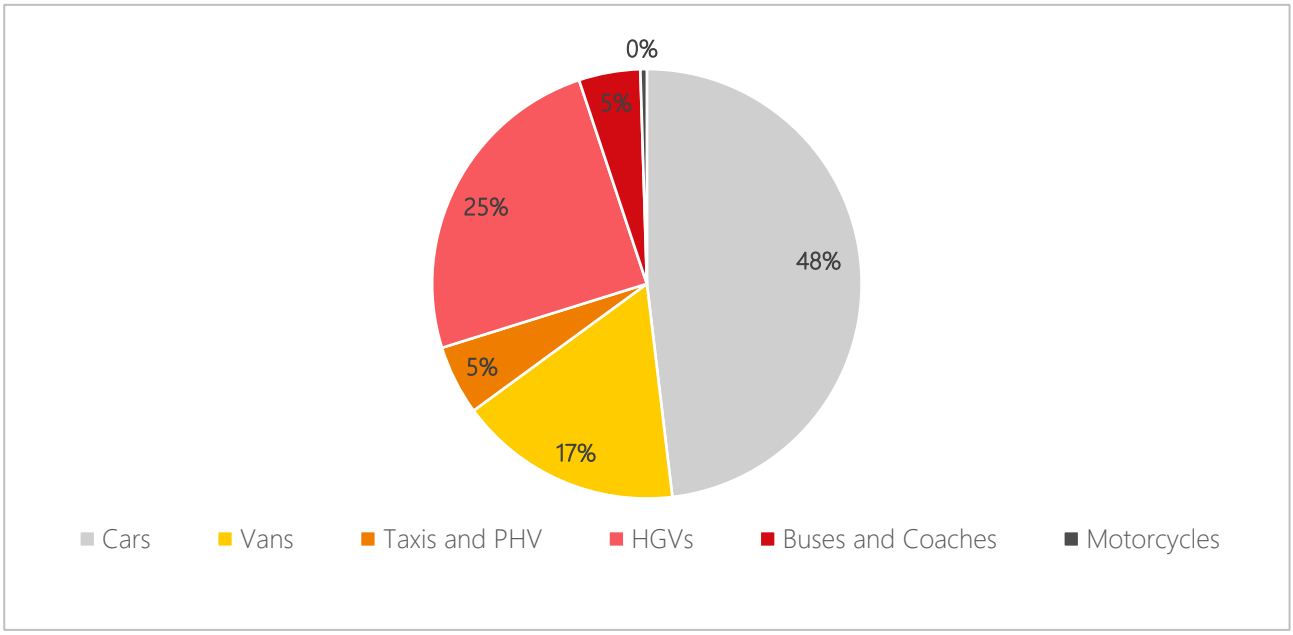
As shown in Figure 2, the bulk of Enfield's energy emissions associated with transport comes from cars (48%), which make up over 80% of the total fleet. Heavy goods vehicles (HGVs) are the next largest source of emissions (25%), despite only representing 2% of all road vehicles. Transport emissions in Enfield have been estimated based on the stock of vehicles primarily operating in the Borough. The 2019 London Energy and Greenhouse Gas Inventory (LEGGI) is another estimate of emissions that is based on based on overall traffic flows, average speeds and fleet composition. While the two approaches produce similar estimates, a comparison indicates that Enfield could be a net exporter of vehicle activity for cars, vans and taxis. However, the differences could also be explained by the other differences in the methodology of each calculation.

[17] BEIS (2019) UK local authority and regional carbon dioxide emissions national statistics: 2005-2019

Table 3: Total transport fleet size in the Borough of Enfield[18]

| | Total vehicles | Electric vehicles |
|---|---|---|
| Cars | 139,228 | 1,882 |
| Vans | 17,870 | 47 |
| Taxis and private hire vehicles (PHVs) | 5,433 | 590 |
| HGVs | 2,712 | - |
| Buses & Coaches | 641 | - |
| Motorcycles | 3,091 | 123 |
| Total | 168,976 | 2,642 |

Figure 2: Enfield Borough vehicle fleet contribution to emissions in Enfield (2020)




Enfield Council and external partners have already been promoting a shift away from car travel and towards public transport and other sustainable travel options (modal shift). To do this, the Councils support the extension of the Ultra Low Emission Zone (ULEZ) across the whole borough and have set up the Healthy Streets initiative to promote walking and cycling. Although it appears vehicle activity is increasing on Enfield's roads, the stock of vehicles licensed to addresses in Enfield (i.e. that are owned or leased by local residents) has actually been stable and slightly decreasing over the last 5 years[19]. This trend may be the result of key spine roads that carry large vehicle numbers through Enfield.

[18] Ricardo estimations from UK Power Networks DFES scenarios (UK Power Networks, 2020) and DfT vehicle licensing statistics (DfT, 2021)
[19] DfT (2021) Vehicle licensing statistics (Table VEH0105)

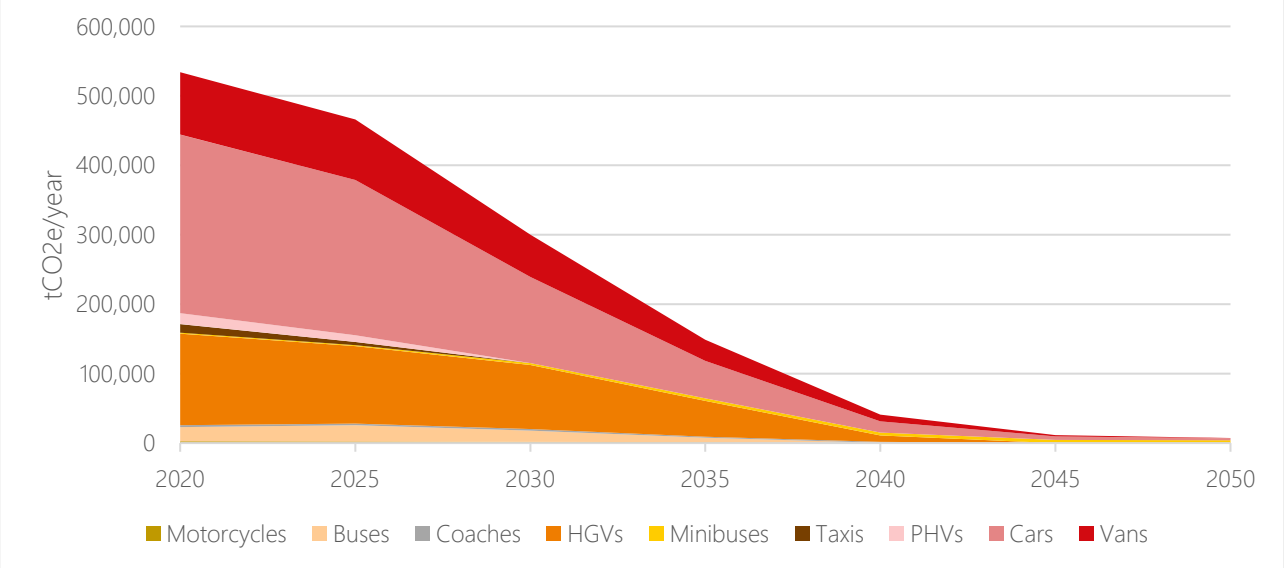
If Enfield is to achieve its net zero ambitions, as well as effective modal shift, any vehicles in the borough must be switched to zero emissions alternatives. For most road vehicles this will be electric vehicles, although for some larger vehicles hydrogen is likely to be a viable option. This transition to electric has already begun and is expected to accelerate as we move towards the end of new petrol and diesel car and van sales in 2030. However, with electric vehicles representing only a fraction of total vehicles in Enfield today, the scale of the challenge is clear.

To establish what the future of transport in Enfield needs to look like in line with the mixed demand management scenario, we have considered several key variables:

- The level of modal shift away from private vehicles
- The pace of transition to zero emission vehicles
- The uptake of smart charging for electric vehicles to manage peak electricity demand events[20]

To achieve its 2040 net zero ambition, Enfield will need a 92% reduction in GHG emissions from vehicles between 2020 (534,000 tonnes $CO_2e$) and 2040 (41,000 tonnes $CO_2e$). Figure 3 shows that emission reductions from the HGV fleet only begins to accelerate after 2030, while emissions from light duty vehicles drop consistently from 2020.

Figure 3: Total tailpipe GHG emissions from vehicles in Enfield – high scenario (based on UK Power Networks Leading the way DFES scenario[21])




## 3.3.2. Method

A statistical model was used to assess a range of potential futures (scenarios) for the transport system in Enfield. Four scenarios were developed that are described in more detail in the

[20] Vehicle-to-grid impacts have not been modelled due to a lack of data on expected uptake (from a technology and driver user perspective) or network impacts of such services. Further investigation is required. In the latest UK Power Networks DFES, the export capacity available from vehicle-to-grid at system peak is equivalent to 36% of the total in the Leading the Way scenario.

[21] UK Power Networks (2020) Distribution Future Energy Scenarios

Analysis of scenarios section. The model considers how the number and type of road vehicles in Enfield may develop over time, what charging infrastructure will be needed to support electric vehicles, and how the electric vehicles will place an additional burden on the electricity network. The detailed methodology is described in the technical evidence base.

### 3.3.3. Transitioning to a net zero transport sector

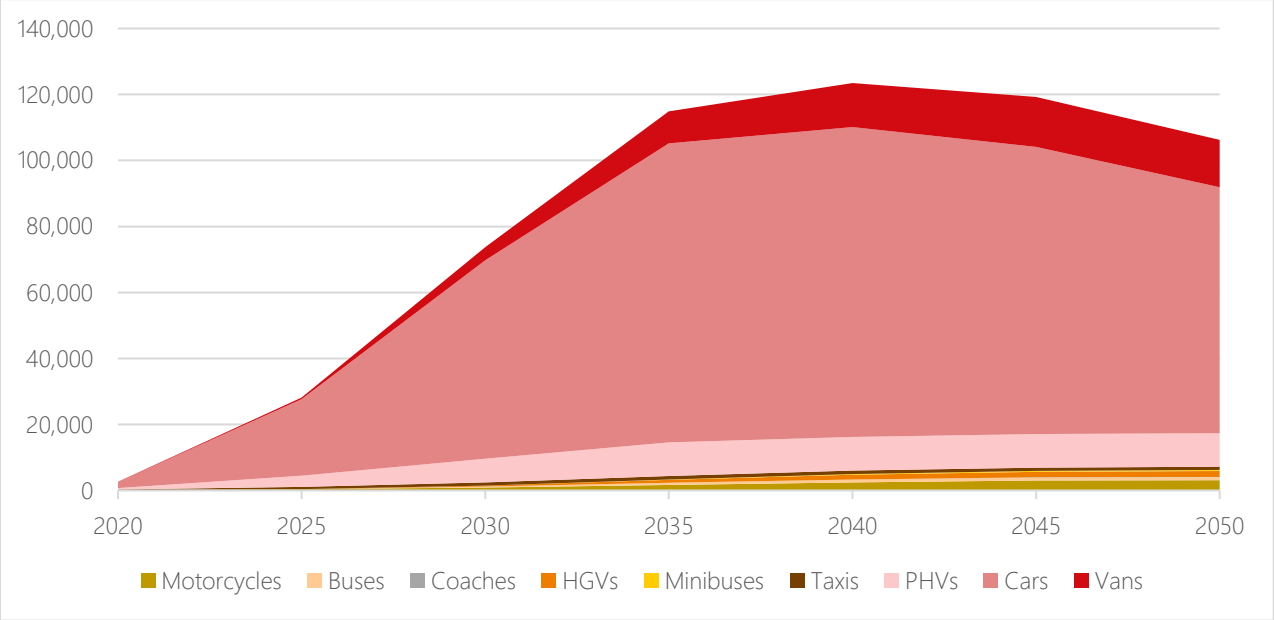
As described above, it is vital that there is a shift away from the reliance on private cars towards more sustainable modes, such as public transport, walking and cycling. This should also be a focus for the Council as they have more direct influence over how the way people travel, rather than the type of vehicle people purchase. As well as supporting the extension of the ULEZ, the Council should make sure there are convenient electric vehicle charging options across the Borough. The Council will also need to work with stakeholders to ensure that the electric vehicles use the limited electricity network capacity effectively and do not result in expensive network upgrades.

### 3.3.4. Modal shift and EV uptake

Strong measures that encourage the use of public transport, walking and cycling can reduce the total fleet size from almost 170,000 in 2020 to 110,000 in 2050. There is a short-term increase in vehicle numbers before a steady decline from 2025. A reduction in private car use is supported by an increase in buses and private hire vehicles, responding to higher demand for these services. The key metric to monitor modal shift will be 45% percentage reduction in private car mileage between 2020 and 2050, which in practice may be reflected by fewer vehicles on the road, lower average mileage or a combination of both. In contrast to the 2020 report, the most recent UK Power Network DFES report assumes no decrease in total vehicle numbers, although kilometres travelled are assumed to reduce. Figure 4 shows the rapid increase in electric vehicles, which make up almost 90% of the total fleet by 2040 and 95% by 2050. This is driven by national policy (such as the ban on new petrol and diesel sales), a maturing electric vehicle market, and local policies that ensure EVs are convenient to use.

While electric vehicles still produce non-exhaust emissions of particulate matter, they have the potential to significantly reduce emissions of air pollutants (particularly nitrogen oxides, NOx) as they replace conventional internal combustion engines. In addition to environmental benefits, the resulting health benefits are one of the key drivers behind policies such ass (ultra)low emission zones. There is also likely to be the opportunity to make better use of space within Enfield. Active travel and public transport usage uses less space than personal vehicles. Therefore, portions of existing infrastructure such as car parks can be converted to other uses such as green space, further improving wellbeing. A change in transport modes is likely to have significant secondary benefits beyond reaching Net Zero that are difficult to quantify at this stage. Increased use of alternative travel such as walking and cycling can improve public wellbeing and health, in particular reducing levels of obesity. Changing to active travel for commuting can also reduce commuting costs, increasing the level of disposable income within the area. Finally, modal shift presents an opportunity to make better use of space within Enfield, as infrastructure allocated for private car use (i.e. roads and parking) can be converted to other uses such as green space, which can further improve local wellbeing.

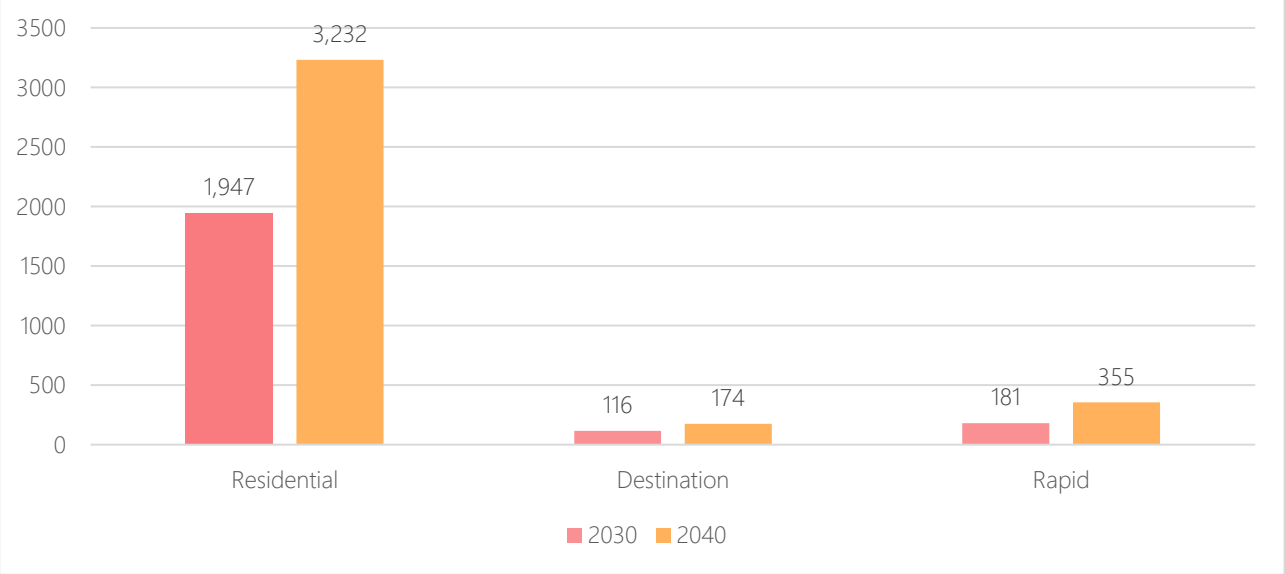
Figure 4: Electric vehicles in the fleet




## 3.3.5. Charger deployment

Based on the future estimated number of electric vehicles in Enfield shown in Figure 4, Enfield will require around 2,244 public charge points in 2030, rising to 3,761 in 2040. Enfield currently has just over 100 public charge points[22], of which over 80% are slow chargers. Figure 5 shows that the majority of these will be residential slow charge points, with far fewer destination and rapid chargers strategically deployed across the borough.

Figure 5: Number of public charge points required by type, in 2030 and 2040

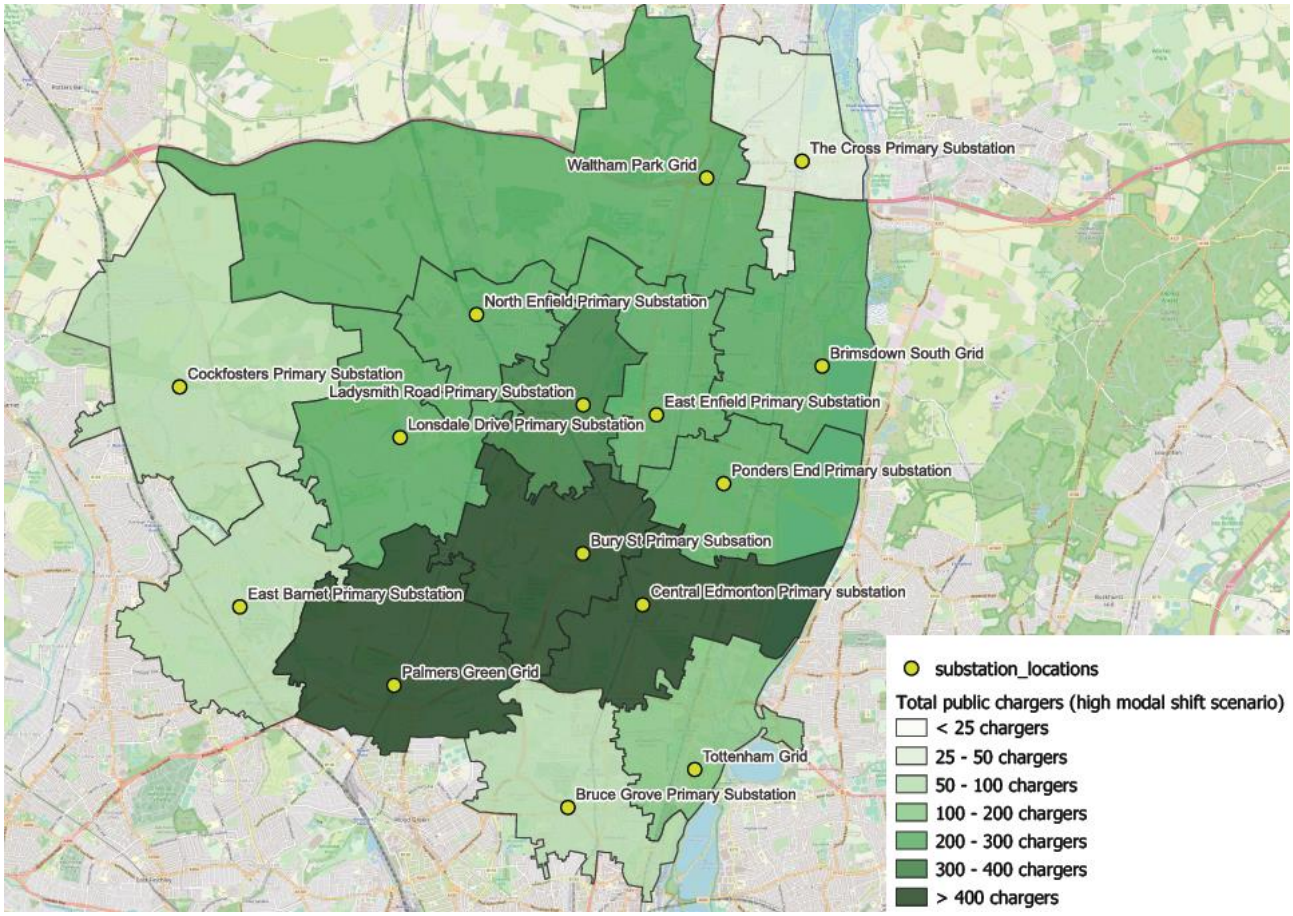



Map 5 shows the concentration of these charge points across Enfield in 2040, divided into the catchment areas of primary electricity substations that each charger would be connected to.

[22] London Borough of Enfield (2022) Enfield EV Chargers Asset Register

Most chargers will be required in the south of the Borough across Palmers Green, Bury St and Edmonton.

Map 5: Public charge points required in 2040




By 2040, the total investment required to deploy these charge points would be £30 million. If Enfield is only responsible for the deployment of residential on-street chargers, then a total investment of £16 million would be required by 2040, with the private sector funding the remaining £14 million for destination and rapid charge points. Currently there is funding for on-street residential chargers through ORCS (on-street residential charging scheme) of up to 60% of CAPEX. This scheme is due to be replaced by the LEVI fund (local electric vehicle infrastructure fund), which may have different funding capabilities.

Table 4 shows the estimated numbers of public charge points required across each substation catchment area in 2040 for residential, destination and rapid chargers. Naturally, areas with high demand for chargers will require a greater overall power capacity to accommodate these charge points. This is particularly the case for higher-powered chargers that are usually required for larger vehicles such as HGVs. For this reason, substation catchment areas with a large number of HGVs registered (such as Brimsdown South Supply Area) could have a very high power capacity requirement in future in the HGVs transitioned to electric vehicles by 2040, particularly when the private depot chargers are considered.

Table 4: Number of charge points required per substation catchment area in 2040

| Substation | Residential | Destination | Rapid |
|---|---|---|---|
| Cockfosters supply area | 79 | 5 | 8 |
| Waltham Park grid supply area | 203 | 12 | 22 |
| The Cross | 41 | 2 | 4 |
| Waltham Abbey Supply Area | 0 | 0 | 0 |
| Lonsdale Drive Supply Area | 254 | 16 | 26 |
| North Enfield Supply Area | 196 | 12 | 20 |
| Ladysmith Road Supply Area | 280 | 18 | 29 |
| East Enfield Supply Area | 252 | 15 | 27 |
| Brimsdown South Grid supply area | 219 | 10 | 33 |
| Ponders End Supply area | 209 | 9 | 24 |
| Chingford Supply Area | 0 | 0 | 0 |
| East Barnet Supply Area | 73 | 4 | 8 |
| Palmers Green Grid Supply Area | 503 | 29 | 52 |
| Bury St Supply Area | 377 | 21 | 39 |
| Central Edmonton Supply Area | 389 | 15 | 41 |
| South Chingford Primary Supply Area | 0 | 0 | 0 |
| Watsons Road Supply Area | 0 | 0 | 0 |
| Cranley Gardens Primary Supply area | 0 | 0 | 0 |
| Bruce Grove Supply Area | 72 | 3 | 8 |
| Tottenham Grid Supply area | 83 | 4 | 12 |

Note: this table only covers public charge points required. There will be considerably more private home chargers and depot chargers required in the area to serve the future electric vehicle fleet.

By 2040, the total investment required to deploy the public charge points would be £30 million. If Enfield is only responsible for the deployment of residential on-street chargers, then a total investment of £16 million would be required by 2040, with the private sector funding the remaining £14 million for destination and rapid charge points. Currently there is funding for on-street residential chargers through ORCS (on-street residential charging scheme) of up to 60% of CAPEX. This scheme is due to be replaced by the LEVI fund (local electric vehicle infrastructure fund), which may have different funding capabilities.

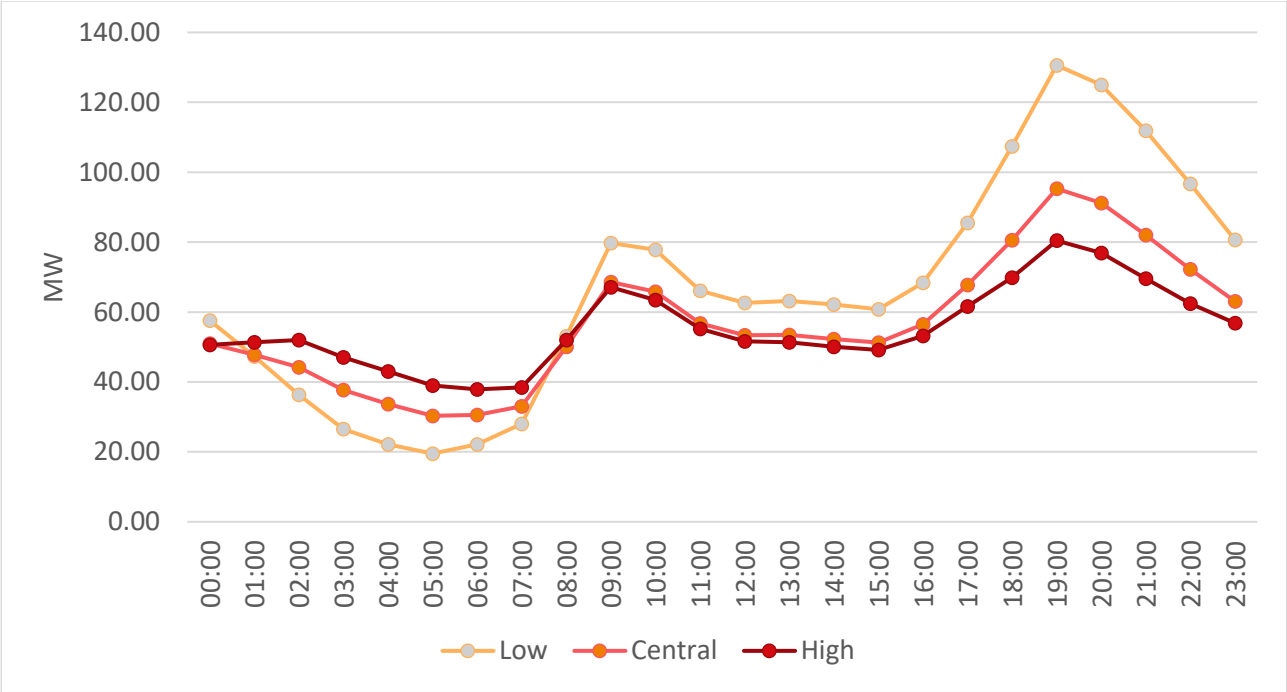
There are several different business models and approaches to deploying public charge points[23]. For example, the recent EV Charging Infrastructure Strategy announced by the UK Government has indicated that the public sector is stepping away from supporting destination charging, as the market for these types of chargers are developing naturally[24]. There is also a better financial case for rapid chargers, given the higher throughput of electricity enabling a greater return on investment for the private sector. Residential charge points are more likely to require public funding and support to implement. These are usually deployed as lamp post chargers or standard bollard-style chargers. Each type of charge point has different investment strategies and costs to end-users.

### 3.3.6. Supporting flexibility

Flexibility or smart charging involves shifting charge events to a different time, when there is lower overall demand on the electricity system, or higher levels of renewable energy generation. This can help to ease the total power demand on the electricity network, potentially avoiding the need for costly upgrades to network assets. EV drivers may be rewarded with cheaper electricity. Figure 6 shows the daily charging demand profile (in MW per hour) across all substations in 2040 and demonstrates the impact of a great uptake of smart charging practices. The chosen (high) scenario has a significantly smoother daily charging profile with reduced peaks in the morning and evening. This results from a greater uptake of smart charging during private charging events (i.e. residential, work and depot). This could include vehicles charging during off-peak hours to benefit from cheaper electricity rates, or managed charging of vehicles that can disable charging during peak events. In June 2022, new laws introduced a requirement for new private chargers (excluding rapid) to have smart functionality. This is expected to increase the uptake of smart charging. There is a role for Enfield Council to support awareness raising of the benefits of smart charging to EV owners.

[23] https://www.theccc.org.uk/publication/costs-and-impacts-of-on-street-charging-ricardo-energy-environment/
[24] https://www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy

Figure 6: Total peak power required per day on typical weekday (MW, all substations, 2040)




### 3.3.7. Summary

The chosen mixed demand management scenario presented is characterised by:

- Effective modal shift away from private cars resulting in 60,000 fewer cars on the road, or 45% reduction in distance travelled by cars by 2050 compared to 2020[25].
- Fast uptake of electric vehicles to comprise 90% of the total fleet by 2040 and 95% by 2050.
- Broad uptake of smart private charging, delivering a reduction in evening peak power demand of almost 40% relative to a limited smart charging uptake scenario.

In this scenario, a 92% reduction in GHG emissions from road vehicles can be achieved by 2040, broadly aligned with Enfield's net zero target. The total investment for public charge point deployment would be around £30m over 20 years, while smart charging would help to keep down network upgrade costs. Grants for capital costs of charge points are available through the LEVI fund (formerly ORCS), and often charge point operators (CPOs) will agree to pay the operational and maintenance of the chargers. Therefore, Enfield could expect that a large share of the £30m investment required would be attributed to grant funding or the CPOs themselves.

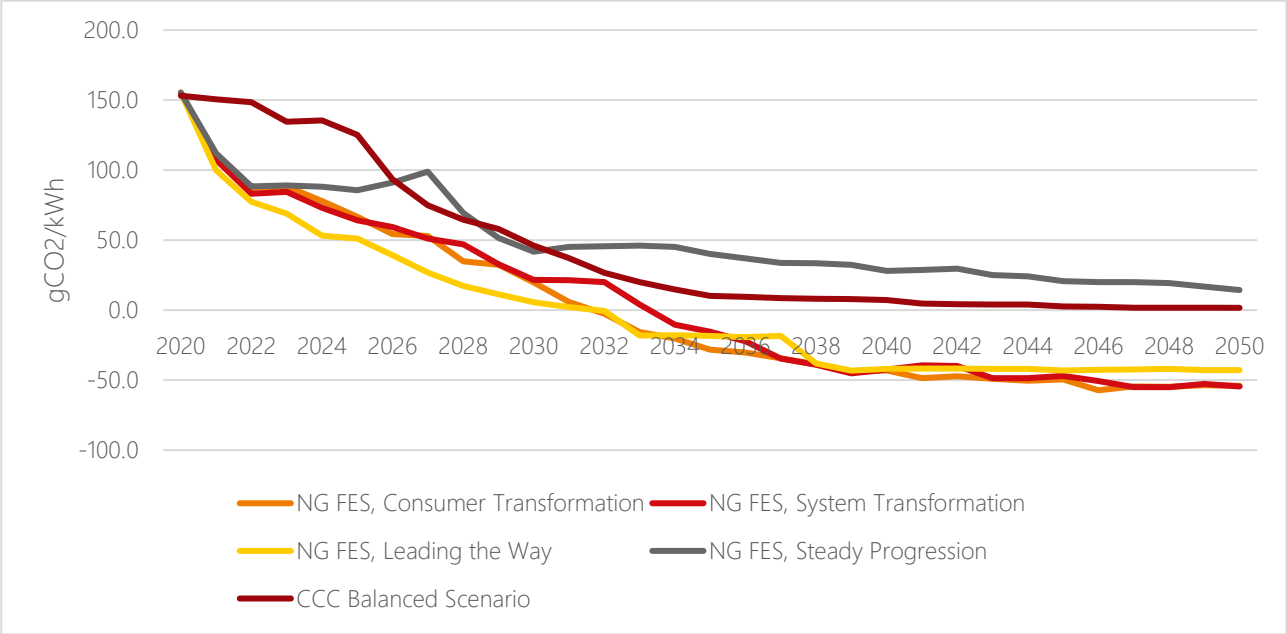
[25] The high modal shift scenario was based on DFES leading the way scenario, but with a higher ambition (10% higher modal shift by 2050 = 45% shift). This aligns more closely with the Mayor's Transport strategy as well as Enfield's greater ambition for modal shift relative to other London Boroughs.

## 3.4. Power systems

Enfield's ability to achieve Net Zero will ultimately depend on the decarbonisation of electricity consumed within the borough as it displaces the direct use of fossil fuels for transport and heat. For the latter, as the results presented in the Heat in buildings section show, this will happen both through the replacement of individual gas boilers with air source heat pumps, and via electrified zero carbon heat networks – including replacement of the heat that is currently supplied from waste incineration (see Heat in buildings section). Over time, as both heat and transport progress on the path to electrification (and accounting for population growth projections), the scale of demand for electricity is expected to increase significantly. Enfield's chosen route to decarbonisation will have a direct effect on the shape and size of this increase.

The decarbonisation of Enfield's electricity use will be largely dependent on the rate of decarbonisation of the whole electricity system in Great Britain. The pace of this change relies on a large number of variables and so there is some uncertainty as to when and how grid electricity will become zero carbon. Figure 7 shows how the carbon intensity of grid electricity (in $gCO_2/kWh$) could fall under scenarios produced by the National Grid and the Committee on Climate Change.

Figure 7: Grid carbon intensity trajectories



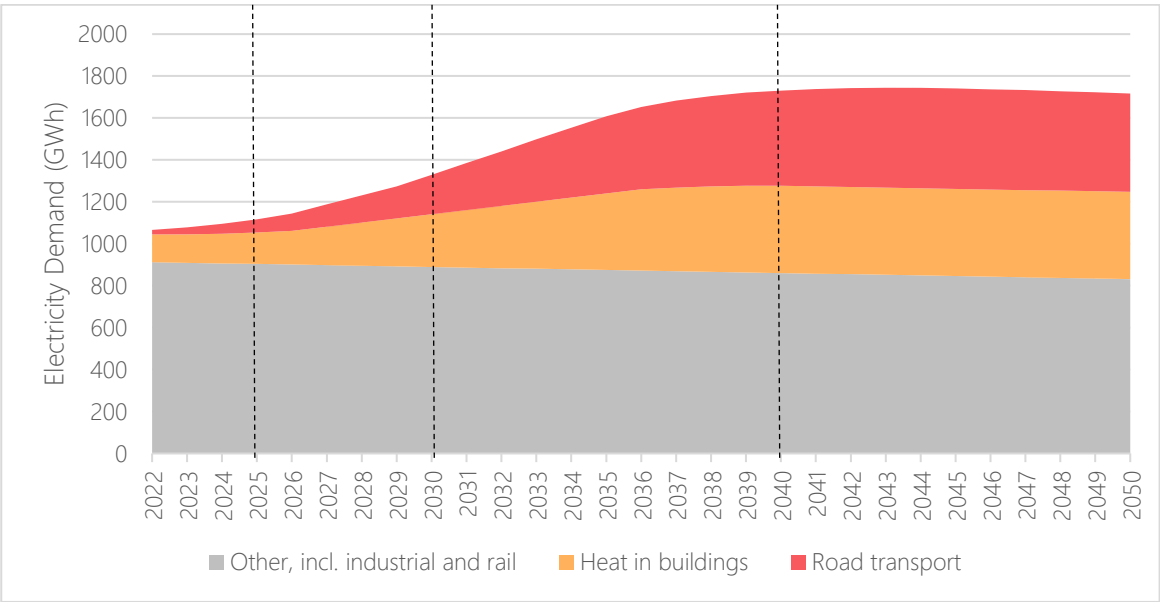

These scenarios consider different types of strategy for cutting carbon in the power sector, with the National Grid's 'Consumer Transformation' scenario considered to be most in line with the suggested strategy for Enfield. This scenario assumes widespread electrified heating, changes in consumer behaviour, high energy efficiency and increased uptake of demand flexibility services. These changes direct the decarbonisation of the national electricity supply, leading to decreasing carbon emissions from any electrical power consumed. Zero carbon grid electricity is achieved in the early 2030s, slightly ahead of the UK Government's 2035 target. Whilst these predictions are a valuable tool for energy planning, at present there is little clarity in policy as to

the expectation of the supporting role of individual local authorities like Enfield and its citizens and businesses.

### 3.4.1. Current situation

Figure 8 sets out how the demand for power might change in Enfield over time under the Mixed DM scenario, where the measures described in the previous two sections are implemented. The key target years of 2025, 2030 and 2040 are marked by the dotted lines.

Figure 8: Demand for grid electricity in Enfield under the chosen scenario




By 2040, demand for power is expected to increase to approximately 1600 GWh per year. In order to achieve Net Zero by 2040 as cost effectively as possible, Enfield will need to better manage both its demand for power, and its local supplies.

Based on the most recent available data, around 0.003% of Enfield's electricity demand was matched by renewable generation within its own boundary in 2020 (i.e. 31.3MWh out of 1,054GWh). Given the largely urban nature of the borough, scope for developing large-scale renewable energy projects is relatively limited. However, if Enfield is to achieve its net zero target, then opportunities for increasing locally-generated power need to be exploited to a much greater extent than they currently are. Table 5 provides a breakdown of existing renewable capacity by technology type. At the time of writing, a small number of additional projects are listed within the Renewable Energy Planning Database (REPD), which may provide additional capacity in the near future (a list of these is contained in the evidence base).

Table 5: Existing renewable capacity within Enfield, 2020 data from regional renewable statistics[26]

| | Renewable Electricity: Installed Capacity (MW) |
|---|---|
| Photovoltaics | 6.0 |
| Sewage gas | 3.0 |
| Plant biomass | 0.3 |
| Total installed capacity (MW) | 9.3 |

### 3.4.2. Method

A full resource assessment covering all types of renewable electricity generation is outside of the scope of this LAEP. However, the potential for the deployment of roof-mounted solar PV within the borough was modelled at building level. The PV model combines building data with shading information and estimates for each roof what is the most suitable size of PV array. The model also calculated annual generation potential for each building, subject to financial assumptions and constraints. The figures presented in this LAEP include only those installation opportunities which would be financially attractive[27]. The full dataset is available to Enfield Council.

The scenario analysis did not seek to quantify the potential for non-thermal non-transport electricity demand or supply-side flexibility measures in Enfield. However, these are considered to be an essential component of the decarbonisation strategy and are to some extent implicit in our use of carbon factors from the National Grid's 'Consumer Transformation' scenario. Flexibility consists of mechanisms to reduce peak demand and hence lessen both distribution network capacity and electricity generation requirements. For example, this can be in the form of stored energy that is deployed during times of peak demand, or mechanisms to add diversity to the timing of electricity demand to reduce the size of the peaks. Implementation of demand-side flexibility within Enfield's own boundaries is considered to hold the most potential, and there is scope for Enfield Council to influence its uptake. This could, for example, consist of time-of-use (TOU) tariffs, smart appliances or domestic/small-scale battery systems. Additionally, peak loads can be shifted through smart EV charging and vehicle-to-grid systems, as set out in the Transport section of the technical evidence base.

The costs associated with upgrading Enfield's power network infrastructure to accommodate the LAEP proposals have also been estimated and are presented below.

[26] https://www.gov.uk/government/statistics/regional-renewable-statistics

[27] These have an estimated internal rate of return (IRR) of at least 4%, based on the assumption that those with a lower IRR would be unlikely to receive investment. 4% IRR is considered an acceptable level of investment risk and is commonly used for Government investments.

### 3.4.3. Increasing renewable generation at a local level

As noted above, opportunities for large-scale renewable generation within Enfield are limited, with rooftop solar PV considered to have the greatest potential within the borough. Table 6 provides summary figures from the modelling for the Mixed DM scenario (assuming IRR of 4% or above).

Table 6: Total technical potential for rooftop solar PV in 2040, assuming an IRR of 4% or above

| | Total installed capacity (MW) | Total estimated generation (GWh/yr) | Number of installations | Total CAPEX (£M) |
|---|---|---|---|---|
| Total | 311MW | 272GWh | 66,590 | £391M |

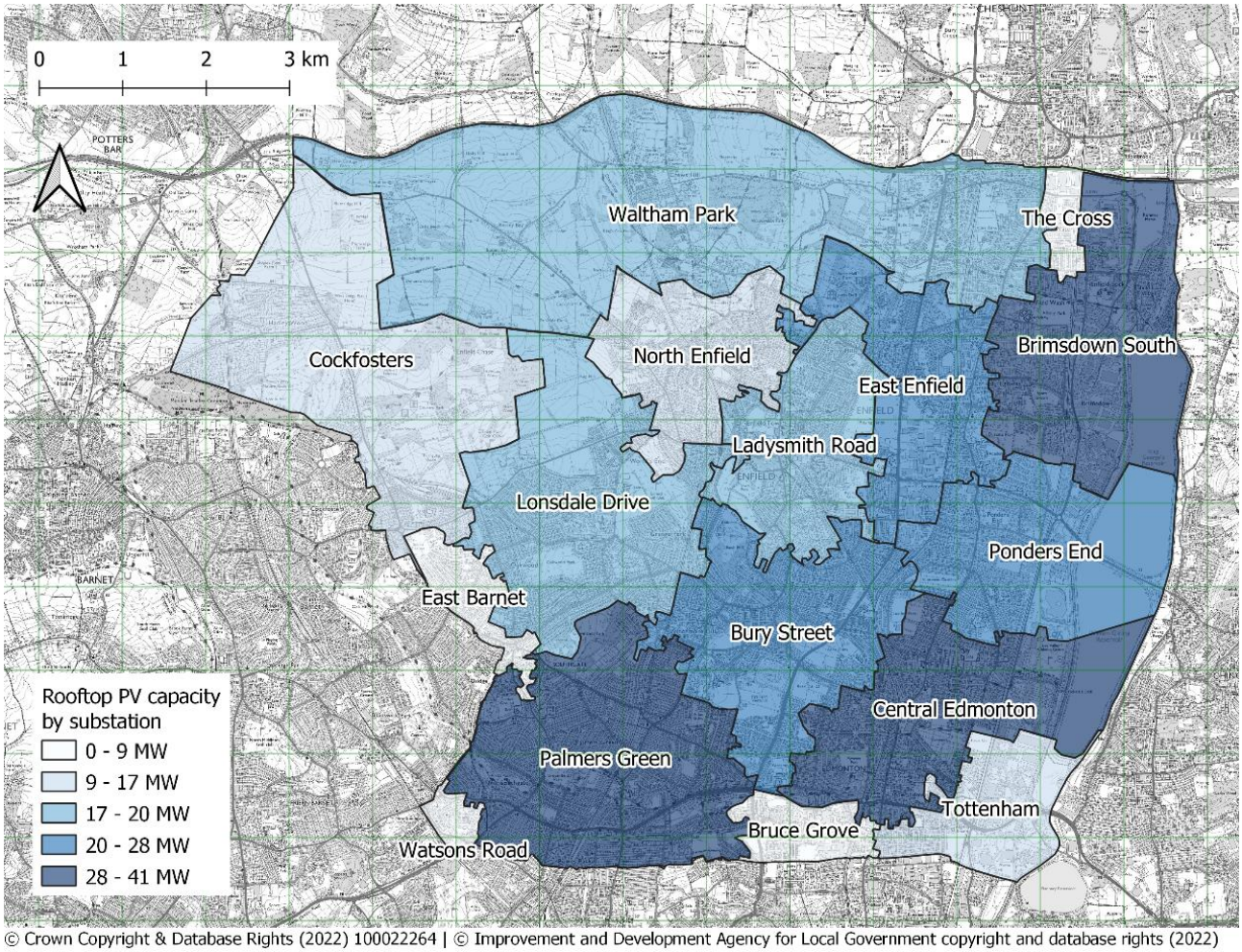
It's important to note that the figures above represent the technical and financial potential, and that the figure for total deployable capacity is likely to be somewhat lower due to building-specific factors such as planning restrictions for listed buildings or those within Conservation Areas, or individual roof conditions.

Table 7 shows how these figures can be broken down between tenure types, and Map 6 shows the distribution of this capacity across Enfield's substation areas.

Table 7: PV summary data by tenure/building use in 2040

| Tenure | Number of installations | Total installed capacity (MW) | Average capacity per building (kWp) | Total estimated generation (GWh/year) |
|---|---|---|---|---|
| Council / housing association | 5,218 | 21.3 | 4.1 | 18.7 |
| Owner occupied | 40,842 | 126.1 | 3.1 | 111.3 |
| Privately rented | 11,440 | 41.3 | 3.6 | 36.3 |
| Non-residential | 1,969 | 69.3 | 35.2 | 60.1 |
| Buildings with unknown use | 7,121 | 52.7 | 7.4 | 45.7 |

Map 6: Rooftop solar PV capacity recommended within each electricity substation area in 2040






There are a number of potential means by which Enfield Council could enable large-scale deployment of roof-mounted solar PV. For example, this might include an expansion of the proposals already contained within Enfield's Climate Action Plan to target funding collected to offset the Council's own carbon emissions (including Scope 3 emissions) towards solar PV installations, or actively working with other stakeholders to encourage the establishment of community energy projects locally.

Community energy projects can entail significant co-benefits in terms of skills development and employability, increased community resilience, reduced bills for community buildings such as schools (allowing more money to be spent on other support services), and alleviation of fuel poverty and consequent improved health and wellbeing of residents.

In terms of the potential for the deployment of other renewable generation technologies, a study carried out by AECOM in 2010[28] highlighted some limited opportunities for biomass production and large-scale wind in particular, although the technical potential (in MW) associated with these opportunities has not been quantified. It notes the presence of Grade 3 agricultural land in the north of the borough, which may be suitable for the growing of energy

[28] AECOM (March 2010), Renewable and Low Carbon Development Study for London Borough of Enfield

crops such as Miscanthus or willow short rotation coppice (SRC), and the potential for the use of chipped arboricultural waste from council contracts to be used for the generation of heat and power. Enfield Council are also currently investigating the potential to install floating solar PV arrays, in conjunction with Thames Water, at the William Girling and King George V reservoirs.

Support to encourage greater deployment of renewable technologies at scale – not necessarily all within Enfield's boundary – could take the form of encouraging wider uptake of renewable tariffs by households and businesses in Enfield, consideration of the use of private-wire arrangements and storage for locally-generated power or involvement with other types of power purchase agreements (e.g. sleeved PPAs), and lobbying central government for policies to support a faster rate of decarbonisation at GB grid-level.

the main co-benefit to the installation of renewable generation at a local level is the reduction in emissions beyond greenhouse gases. An example is the reduction in sulphates released into the atmosphere, which cause acid rain, among other issues (this is however not confined locally and is dependent on the reduction in fossil fuel use at a wider scale). Another example is the reduction in the emissions of carbon particulates, which cause lung issues. Whilst local renewable energy contributes to this co-benefit, it still relies on wider scale adoption.

### 3.4.4. Upgrading Enfield's power networks

To avoid the risk of Enfield's electricity distribution infrastructure becoming a constraint on deployment, significant investment in network upgrades will be required (note that these upgrades and costs are beyond the influence of Enfield Council and that network costs are covered by all consumers). Table 8 provides a summary of the estimated costs of electricity network reinforcement as a result of the additional peak demands added by decarbonising heat in buildings and transport under the Mixed DM scenario.

Table 8: Estimated network upgrade costs

| | Total cost |
|---|---|
| Secondary connection costs | £20,090,000 |
| High voltage (HV) connection costs | £23,620,000 |
| Primary reinforcement costs | £20,150,000 |
| Extra high voltage (EHV) reinforcement costs | £16,000,000 |
| Total | **£79,860,000** |

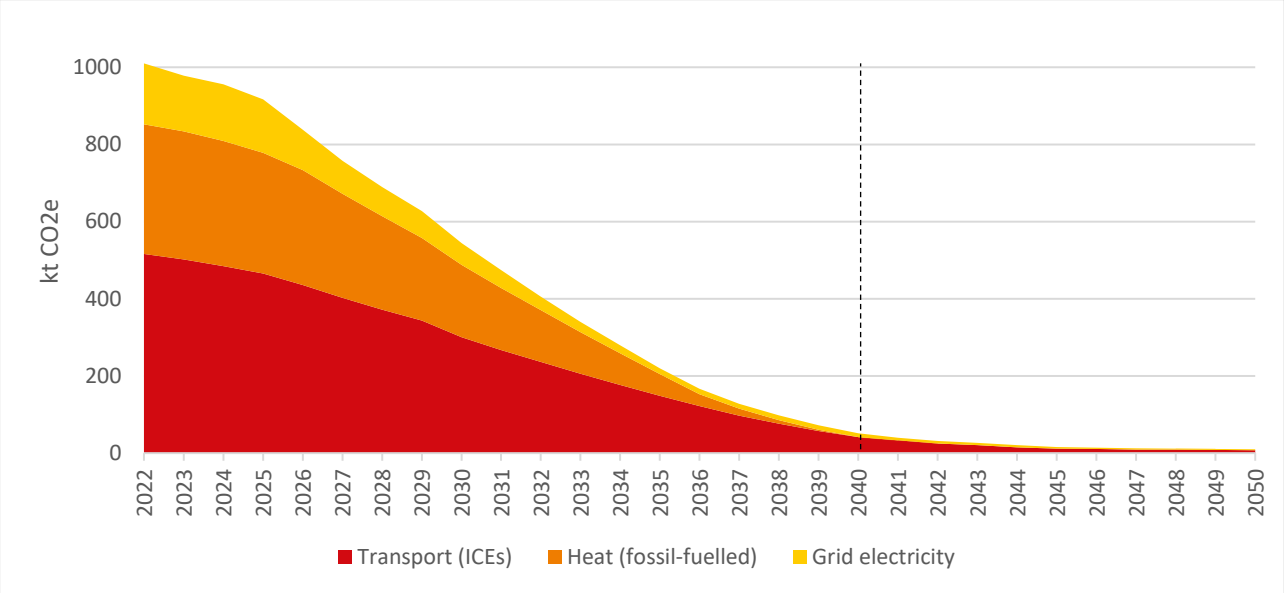
## 3.5. Carbon pathways

### 3.5.1. Emissions trajectories in Enfield

The emissions trajectory that results from the implementation of the measures set out in the optimal mixed demand scenario is shown in Figure 9, with the emissions split by sector. This

trajectory is based upon the decarbonisation projections in the CCC's Balanced Pathway projections.

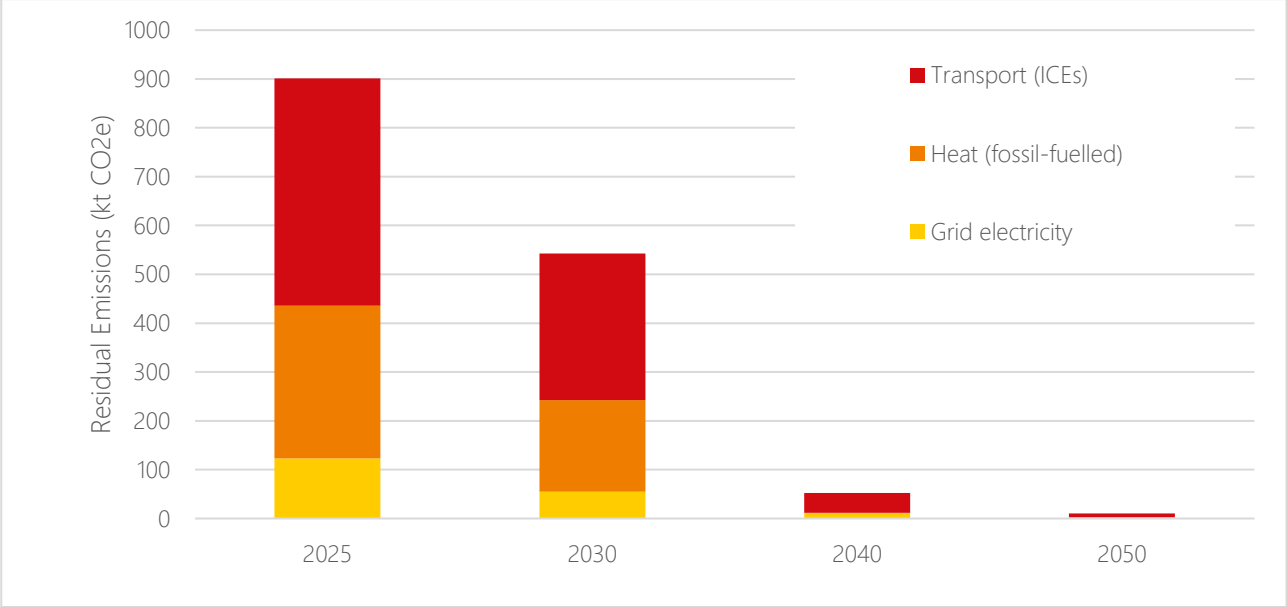
Figure 9: Carbon emissions projections in the mixed demand management scenario




In 2040 there remain approximately 50 kt $CO_2e$ of residual emissions, which are largely accounted for by difficulties in decarbonising transport and a small amount of emissions remaining within grid electricity. By 2050, this falls to approximately 10 kt $CO_2e$, due to a lack of hydrogen to decarbonise heavy transport. It is possible to decarbonise heating completely by 2040, so that direct emissions from this sector are zero.

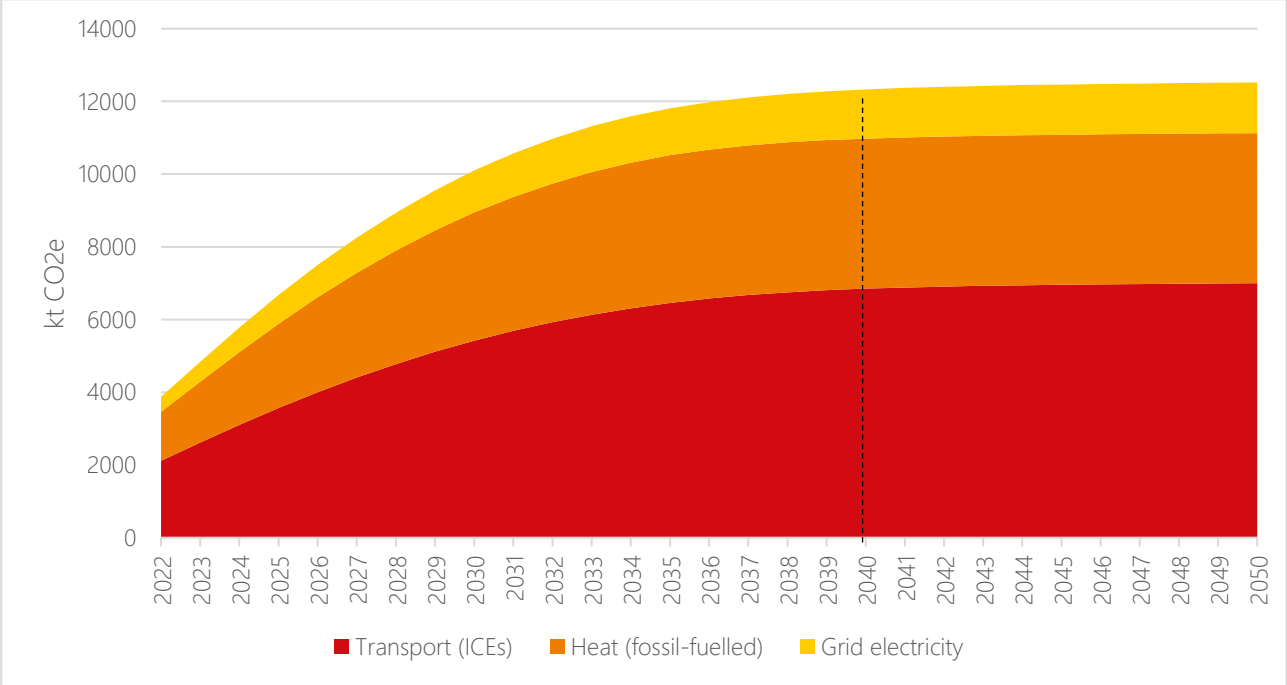
To help with setting targets and tracking progress towards Net Zero, the residual emissions in key target years, split by sector, are shown in Figure 10.

Figure 10: Residual emissions in key target years in the mixed demand management scenario




To view the total impact of carbon emissions until 2050, the cumulative emissions, split by sector are shown in Figure 11. This shows that the decarbonisation approach leads to emissions that decrease at a faster rate throughout the 2020s and 2030s. Cumulative emissions mostly level off prior to 2040, at around 12,000 kt $CO_2e$ emitted over the period 2022-2050.

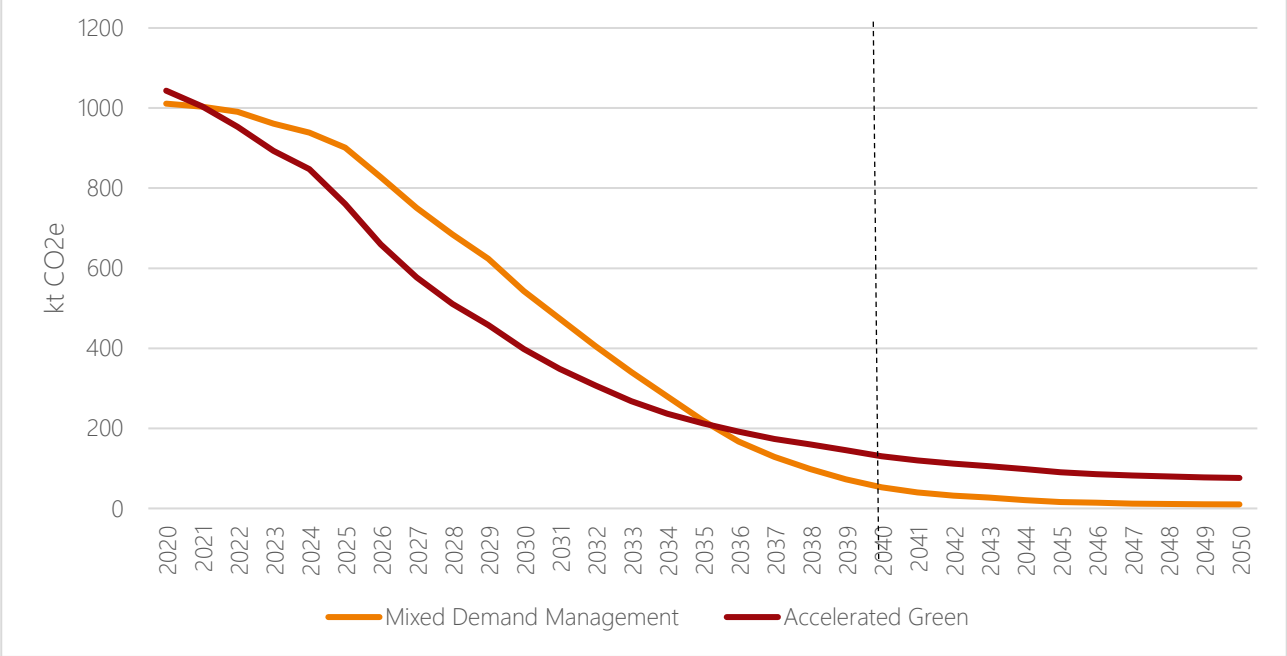
Figure 11: Cumulative carbon emissions in the mixed demand management scenario




There are numerous methodologies for calculating emissions, each of which uses different data sources, assumptions, scenarios and scopes. For the purpose of this report, we have established a baseline using London Energy and Greenhouse Gas Inventory (LEGGI) data and based changes in net zero technology and grid decarbonisation on Climate Change Committee forecasts. It should be noted that the GLA set a 2030 target for Net Zero and since this LAEP

was commissioned selected the Accelerated Green pathway as their preferred pathway. The mixed demand management scenario is compared to this pathway in Figure 12, however a direct comparison is not advisable, because they consider slightly different emissions sources, giving different results. the accompanying technical evidence base provides further details on this in the section 'Comparison to other emissions trajectories and pathways'.

Figure 12: Carbon emissions pathways under the mixed demand management scenario and the Accelerated Green pathway



# 4. Route Map to Net Zero

## 4.1. Ten building blocks for Net Zero

The ten key building blocks identified in Figure 13 represent the foundations for a net zero Enfield by 2040, building on existing opportunities and addressing challenges to change. In combination, these will ensure delivery of the radical and transformative approach required to address the gap between the current state of play in the borough and what needs to happen in Enfield to achieve Net Zero by 2040.

The building blocks underpin a list of recommended interventions that are required to ensure timely delivery of Enfield's net zero ambitions. This full set of recommended interventions for Net Zero is included in the accompanying Detailed recommendations to 2040 document. The focus of the LAEP recommendations is on those next steps that create the conditions in which Enfield can successfully achieve its long-term decarbonisation ambitions. For each decarbonisation sector, the recommendations are grouped into three categories:

- Do: actions that can be taken now with relatively immediate impact
- Prepare: steps needed now to ensure Enfield is ready for more immediate actions in the next few years
- Explore: activities that create the conditions now to pave the way for future impact

The accompanying Detailed recommendations to 2040 document also assigns a lead for each item as the organisation that should take early responsibility for initiating action (often working with others) to implement the interventions.

Figure 13: Ten building blocks for Net Zero

| | | | |
|---|---|---|---|
| 1 | Secure timely implementation of the LAEP by convening a LAEP progress board to maintain momentum and build ownership of the outcomes. This will ensure that across Enfield all key players take on responsibility for action towards Net Zero. | 6 | Accelerate low carbon housing retrofit. Building on the Retrofit Accelerator programme and in consultation with existing local retrofitting expertise, establish and develop a well-trained local supply chain. |
| 2 | Develop a long-term engagement strategy for climate communications, including clear and consistent messaging on Net Zero and the changes needed in the borough. This will create a borough wide sense of purpose in the transition to Net Zero. | 7 | Tackle fuel poverty at its roots by ensuring fuel poor households receive all the support and funding available. Targeted retrofit programmes will be key to mitigating fuel poverty whilst transitioning to Net Zero. |
| 3 | Ensure that Net Zero and the findings of the LAEP are embedded in all of the Council's existing and future plans and funding. Planning policy, procurement planning and Council team plans need to be built around net zero ambitions. | 8 | Coordinate the growth of electric vehicles, starting with the development of an EV charging infrastructure delivery plan, alongside encouraging and supporting a shift to active and sustainable modes of transport. |
| 4 | Build on the three Priority Projects presented in the LAEP as a starting point for funding proposals. Pursuing these projects will enable Enfield Council to lead by example in transforming the local energy system. | 9 | Realise Enfield's potential for renewable energy generation, starting with large scale programmes of rooftop solar PV deployment across all sectors and tenures, as identified in the LAEP analysis. |
| 5 | Enable the decarbonisation of heat in buildings by continuing to support Energetik in developing planned routes for heat network expansion, based on the areas of the borough identified in the LAEP as priority for heat network. | 10 | Ensure the electricity network is ready for the required electrification of heat and transport. Demand-side flexibility services, smart demand management and local electricity storage will support Enfield in becoming more self-sufficient in energy. |

# 4.2. Route map for a net zero Enfield

Figure 14 shows the decarbonisation route map to 2050 for the local energy system in Enfield, based on the theory of the development of technology adoption within society. The figure illustrates the likely key stages of the rollout of net zero technologies in Enfield over the coming years.

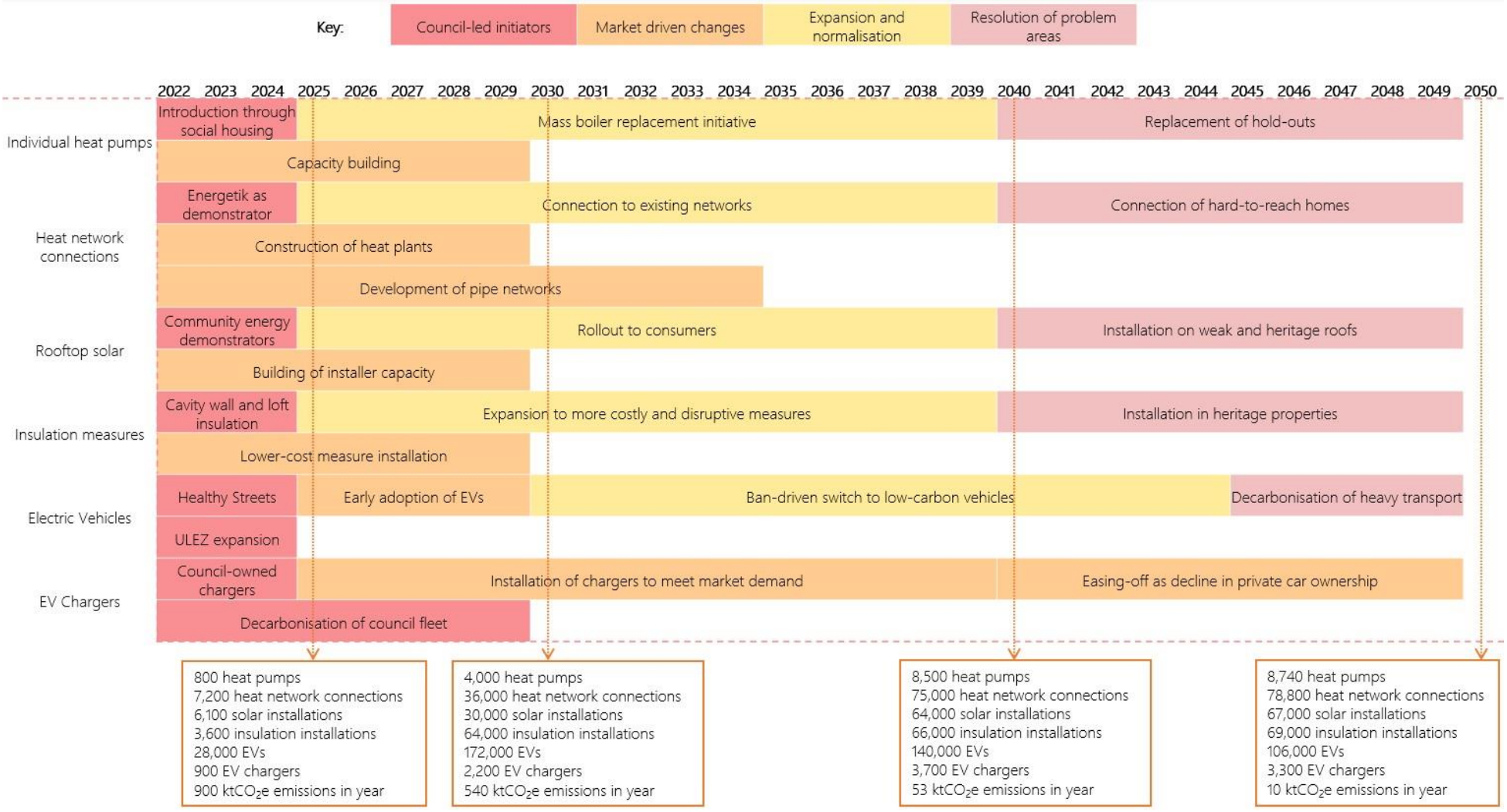
The route map illustrates how, in line with the results and recommendations of the LAEP, a series of early interventions can introduce net zero technologies and initiate capacity building within the market. This can then spark wider adoption, with more rapid changes developing across society. Finally, "laggard" adopters (those with some barrier to adoption) will need extra attention to ensure they are not left behind. This profile supports the targets shown in  for technology adoption in key years.

Table 9: Targets for net zero technology adoption in key years

| | Individual heat pumps | Heat network connections | Rooftop PV installations | Insulation measures installed |
|---|---|---|---|---|
| 2025 | 800 | 7,200 | 6,100 | 3,600 |
| 2030 | 4,000 | 36,000 | 30,000 | 32,000 |
| 2040 | 8,500 | 75,000 | 64,000 | 66,000 |
| 2050 | 8,740 | 78,800 | 67,000 | 69,000 |

It should be noted that these targets should be regarded as ambitions rather than "hard" targets and should not be considered fixed. The pace of societal adoption of technologies is difficult to predict and should be based on observation. Policies and actions can speed or slow the trend and therefore targets should be updated as part of the LAEP review process.

Figure 14: Route map for a net zero Enfield



# 4.3. Priority projects

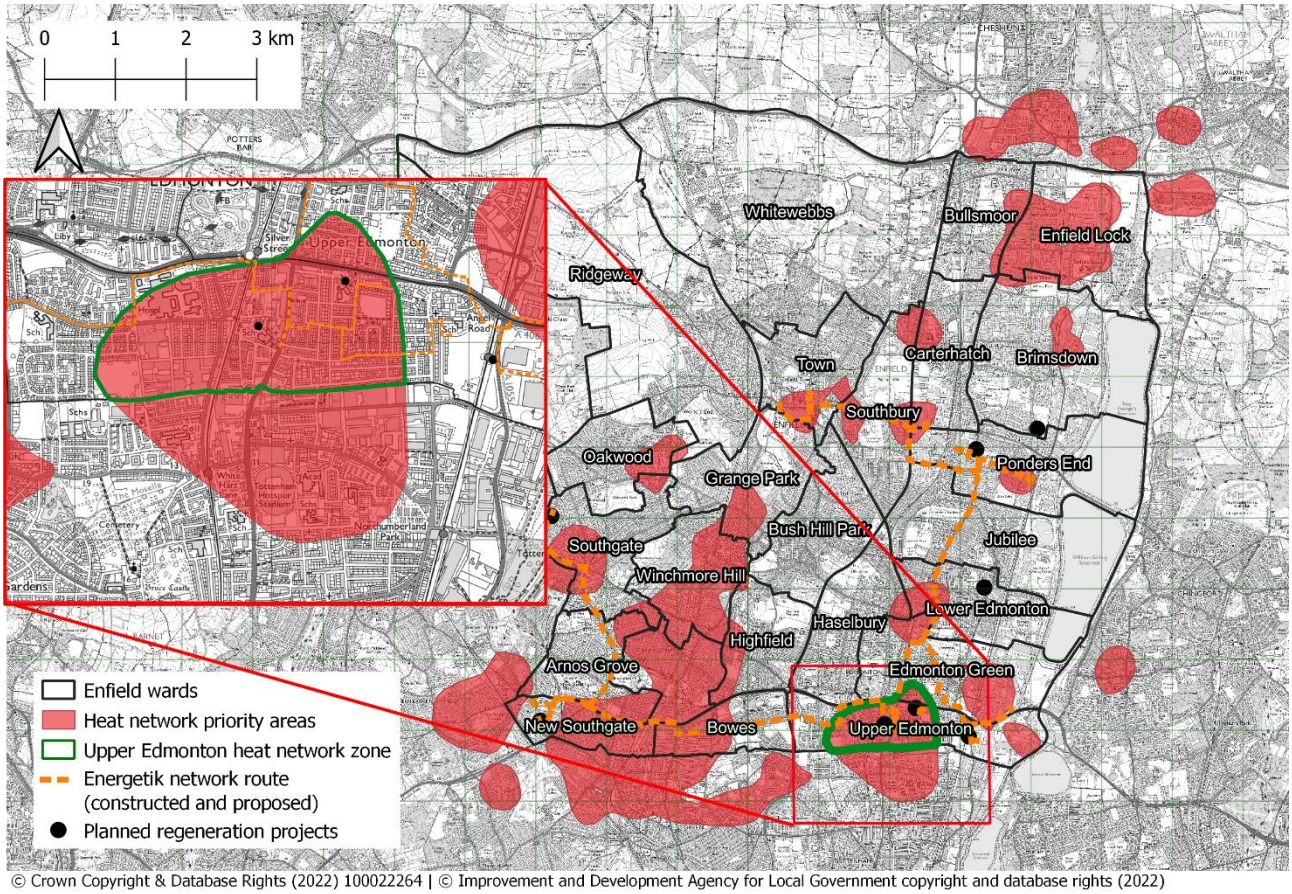
Driving implementation of the LAEP is a key outcome of this report. The first few steps in the implementation of the LAEP will be crucial to the successful decarbonisation of the local energy system. In order to ensure that initial momentum is gained, three projects were identified and are proposed as priority for detailed investigation and implementation within a relatively short timescale.

## 4.3.1. Priority Project One: Upper Edmonton Heat Network Opportunity Area

### Project analysis

The heat network opportunity area within Upper Edmonton is shown in Map 7. This priority project has been selected to show the benefits that a heat network can offer an area. This area has been selected as a Priority Project because it represents a significant opportunity to demonstrate the use of heat networks as a tool for decarbonising heat, in an area where there is a relatively high level of fuel poverty. In addition, the area is already targeted for regeneration by Enfield Borough Council and lies on the route of Energetik's heat network. Although the identified network opportunity area spans the Enfield-Haringey boundary, reporting here covers buildings falling on the Enfield side of the boundary. In contrast, network costs are analysed as a whole. More detailed pre-feasibility work will be required to determine the actual scope of the network to be constructed.

Map 7: Location of priority heat network areas, with Upper Edmonton area highlighted



There are 2,565 addresses on the Enfield side of the area, of which 2,402 are residential. Very few of these addresses are recommended an individual heat pump, leaving 2,323 addresses connecting to the heat network.

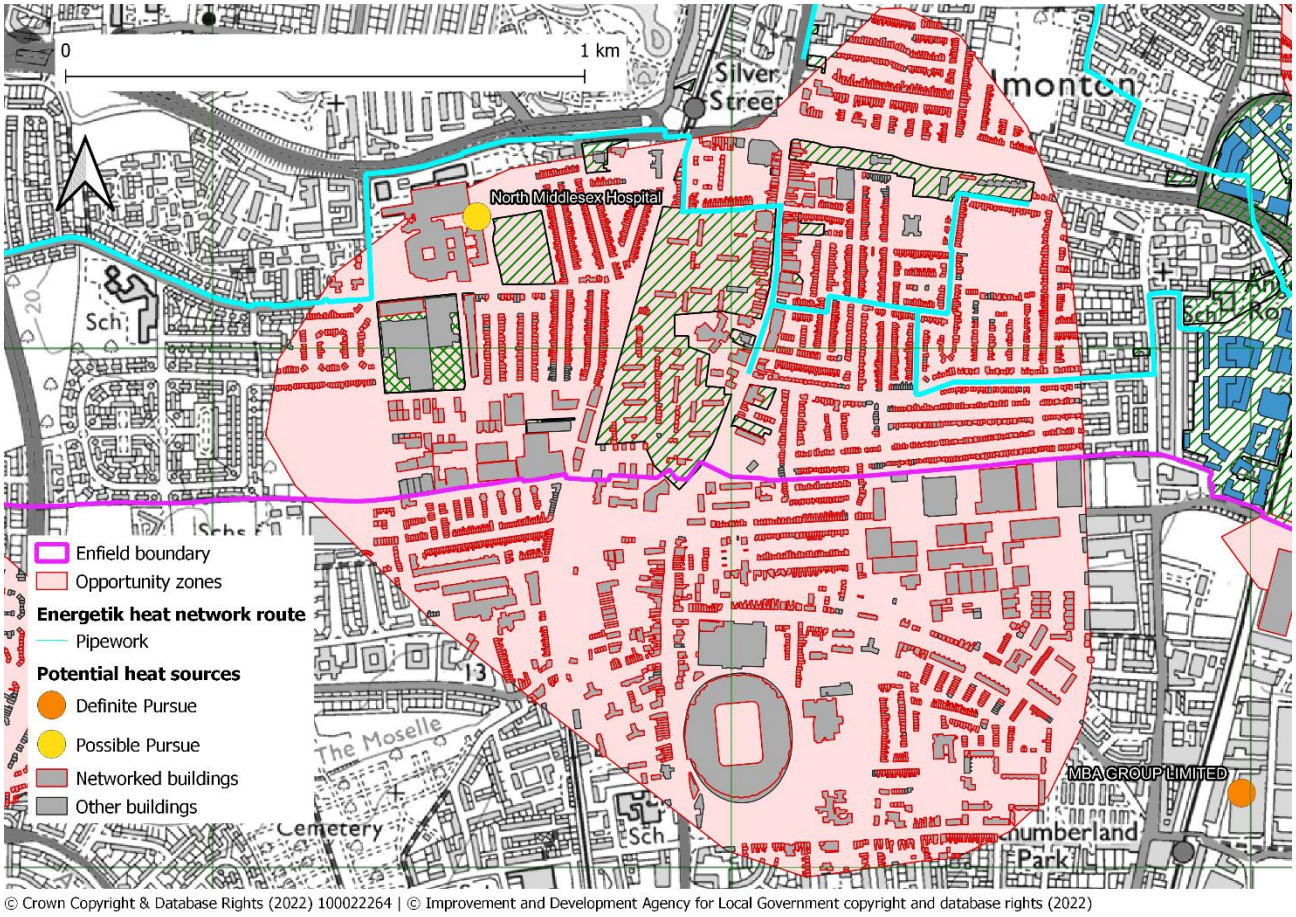
Table 10 summarises the least-cost heat decarbonisation options for these residential users.

Table 10: Recommended decarbonised heat source by tenure type

| Tenure Type | Heat Network Connections (Fuel Poor) | Individual Heat Pumps (Fuel Poor) |
|---|---|---|
| Owner occupied | 1,485 (372) | 61 (9) |
| Privately rented | 536 (153) | 12 (2) |
| Social housing | 223 (72) | 6 (1) |
| Unknown tenure | 79 (0) | 0 (0) |
| Total | 2,323 (597) | 79 (12) |

The modelled capital cost of the heat network within the area is £65.4 million. This capital cost is based upon a supply plant using technologies at the more expensive end of the scale, so it should be regarded as a conservative estimate. Annual operational expenditure is modelled to be £2.6 million. The heat area is shown in more detail in Map 8.

Map 8: The heat network opportunity area shown in more detail






The number of addresses recommended each type of insulation, and the capital expenditure of the insulation, by tenure type and decarbonised heat source are shown in Table 11.

Table 11: Number of each insulation measure of total tenure type connected to that heat source by decarbonised heat source and tenure type (numbers for fuel poor households in brackets)

| Decarbonised heat source | Tenure type | Cavity wall insulation (fuel poor) | Loft insulation (fuel poor) | Solid wall insulation (fuel poor) | Double glazing (fuel poor) | Floor insulation (fuel poor) | Roof insulation (fuel poor) | Insulation CAPEX (fuel poor) (£1000) | Total tenures of type (fuel poor) |
|---|---|---|---|---|---|---|---|---|---|
| Heat Network | Owner occupied | 74 (13) | 227 (60) | 1,403 (362) | 109 (29) | 850 (215) | 75 (14) | 1,103 (239) | 1485 (372) |
| | Social | 34 (6) | 37 (11) | 157 (61) | 31 (6) | 110 (36) | 8 (3) | 412 (38) | 223 (72) |
| | Privately rented | 31 (10) | 87 (22) | 510 (146) | 66 (13) | 298 (85) | 50 (16) | 546 (122) | 536 (153) |
| | Unknown | 0 (0) | 0 (0) | 0 (0) | 3 (0) | 0 (0) | 0 (0) | 49 (0) | 79 (0) |
| | Subtotal | 139 (29) | 351 (93) | 2,070 (569) | 209 (48) | 1,258 (336) | 133 (33) | 2,110 (399) | 2323 (597) |
| Individual Heat Pump | Owner occupied | 0 (0) | 0 (0) | 8 (8) | 0 (0) | 4 (4) | 0 (0) | 8 (8) | 9 (9) |
| | Social | 0 (0) | 1 (1) | 1 (1) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (1) |
| | Privately rented | 1 (1) | 1 (1) | 2 (2) | 0 (0) | 1 (1) | 1 (1) | 3 (3) | 2 (2) |
| | Unknown | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| | Subtotal | 1 (1) | 2 (2) | 11 (11) | 0 (0) | 5 (5) | 1 (1) | 11 (11) | 12 (12) |

### Next steps

1. Discuss this opportunity with Energetik to align with their strategy. Currently, the Upper Edmonton area is well located to be supplied from waste heat from the Edmonton Eco Park. Decarbonisation of the heat source should be explored, as noted below.

2. Further investigate the potential heat sources of North Middlesex Hospital and MBA Group Limited to see if they are suitable waste heat sources.

    a. Establish temperature of supply.

    b. Establish quantity of supply.

    c. Establish cost of heat.

3. Commission a pre-feasibility study to examine the on-the-ground viability of this heat network.

4. Commission an on-the-ground study of the actual insulation measures installed in buildings in the area and the effect of upgrading installation measures.

    a. A study of stakeholder attitudes should form part of this assessment.

    b. It would also be advisable to seek advice on how best to target different tenure types.

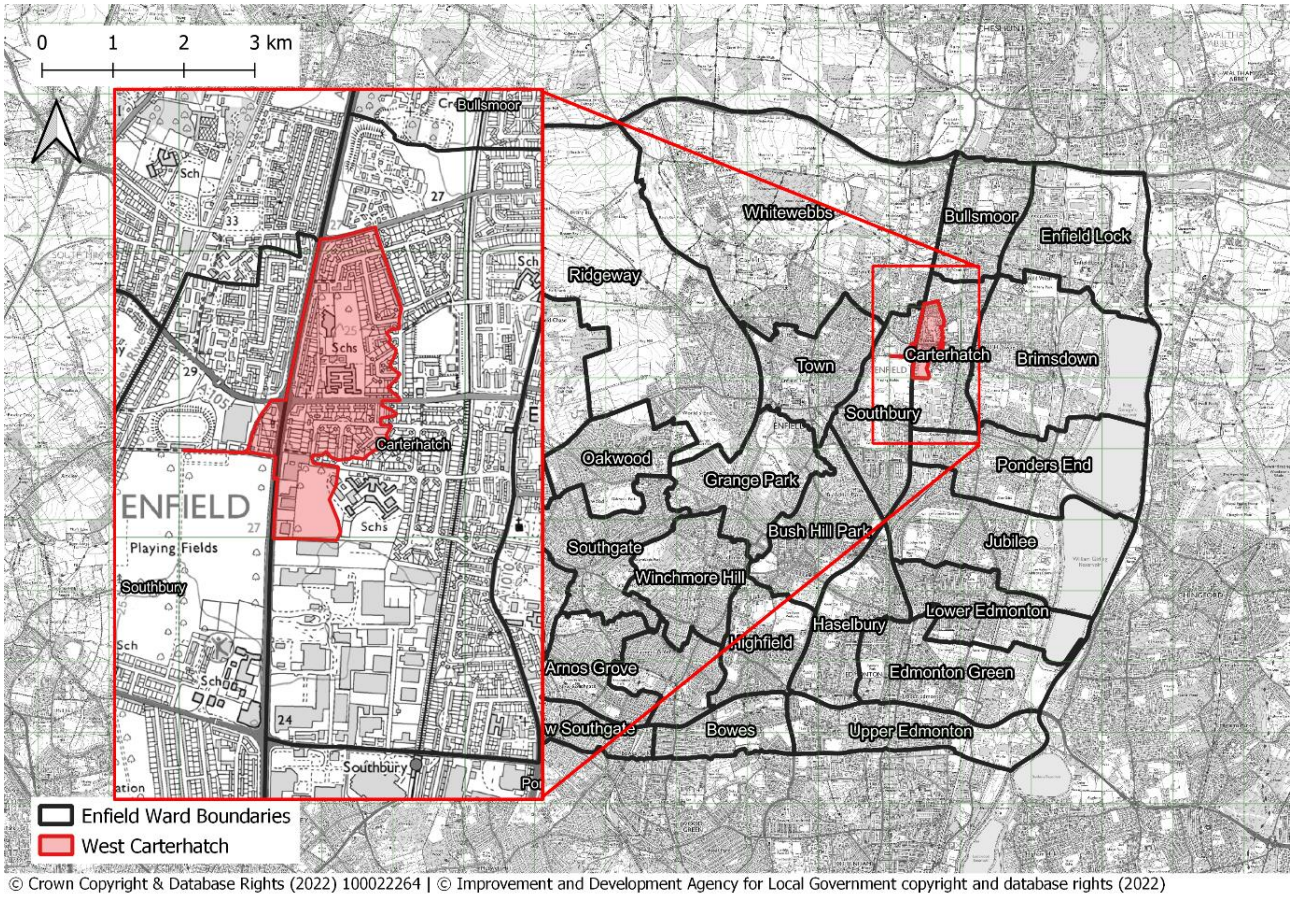
    c. As part of this, establish if funding through schemes such as HUGS/LADS would be able to be used in insulation schemes.

## 4.3.2. Priority Project Two: West Carterhatch Combined Measures

### Project analysis

West Carterhatch has been selected as a priority project where there are a combination of viable heat technologies, including properties which are unlikely to be cost-effective for connection to a heat network. The installation of an air-source heat pump (ASHP), alongside solar photovoltaic panels (to reduce electricity costs), and the installation of insulation measures both to minimise demand and maximise the efficiency of the ASHP. Of particular interest are the potential benefits for social housing occupants, where Enfield Council will be able to lead the way in supporting lower-income households. The specific area of analysis is the Lower Super Output Area (LSOA) called Enfield 005D, the extents of which are shown in Map 9.

Map 9: Location of West Carterhatch area within Enfield





This area has 648 households in 559 buildings, of which 188 households (about 30%) are likely experiencing fuel poverty by the low income, high-cost methodology (though note that with recent price rises, this number is likely to have grown). Most households within the area are heated using mains gas (625). The current total heat consumption in the area is about 825MWh per year. The number of addresses which are recommended each action are broken down by tenure type in Table 12.

Table 12: Recommended action by tenure type (numbers for fuel poor households in brackets)

| Tenure Type | Social housing (fuel poor) | Owner occupied (fuel poor) | Private rental (fuel poor) | Total (fuel poor) |
|---|---|---|---|---|
| Heat pump installations | 27 (12) | 78 (11) | 43 (8) | 148 (31) |
| Heat network connections | 104 (41) | 317 (17) | 79 (24) | 500 (82) |
| Cavity wall insulation | 76 (27) | 112 (30) | 38 (10) | 226 (67) |
| Loft insulation | 11 (5) | 48 (13) | 21 (5) | 80 (23) |
| Solid wall insulation | 17 (7) | 224 (53) | 69 (23) | 310 (83) |
| Double glazing | 13 (5) | 16 (4) | 11 (3) | 40 (12) |
| Floor insulation | 45 (16) | 58 (62) | 238 (24) | 341 (102) |
| Roof insulation | 5 (1) | 12 (5) | 9 (4) | 26 (10) |

It is useful to know how the choice of heating system affects the recommendation to install insulation. Table 13 shows the number of addresses where each insulation type is recommended by heating system.

Table 13: Recommended insulation by heating system

| Recommended insulation | Heat pump | Network connection | Total |
|---|---|---|---|
| Cavity wall insulation | 66 | 160 | 226 |
| Loft insulation | 23 | 57 | 80 |
| Solid wall insulation | 56 | 254 | 310 |
| Double glazing | 15 | 25 | 40 |
| Floor insulation | 73 | 268 | 341 |
| Roof insulation | 2 | 24 | 26 |

As there is only one rooftop but potentially many addresses per building, it does not make sense to break down the rooftop solar statistics by count of addresses. However, to give an indication of where the benefits of rooftop solar will lie, Table 14 shows the capacities, areas, and costs and benefits of solar installations, with subtotals showing the distribution against the presence of socially rented addresses, and households at risk of fuel poverty. The layout of panels (including panels on commercial buildings not considered in this analysis) is shown in Figure 15.

Table 14: Rooftop solar statistics showing the distribution among social housing and fuel poor

| | PV Installed Capacity (kW) | PV CAPEX (£1000) | PV yearly revenue (£1000) | PV Area ($m^2$) |
|---|---|---|---|---|
| All Buildings | 1,020 | 1473.9 | 117.8 | 5,100 |
| Buildings including social housing | 202 | 276.6 | 23.4 | 1,010 |
| Buildings including fuel poor | 289.6 | 421.6 | 33.2 | 1,448 |
| Buildings both SH and FP | 76.9 | 113.0 | 8.9 | 385 |

Figure 15: Layout of rooftop solar in West Carterhatch (red line = West Carterhatch boundary; blue shading = rooftop PV installations)




As with rooftop solar PV, insulation measures generally pertain to the building, rather than to individual addresses. The costs are broken down as with rooftop solar in Table 15.

Table 15: Economic factors for the installation of insulation and heat pump systems

| | Insulation CAPEX (£1000) | Heat Pump CAPEX (£1000) |
|---|---|---|
| All Buildings | 691 | 874 |
| Buildings including social housing | 125 | 171 |
| Buildings including fuel poor | 201 | 246 |
| Buildings both SH and FP | 47 | 84 |

There is potentially significant support available to cover the upgrades necessary to decarbonise the area. The Boiler Upgrade Scheme (BUS) could provide funding to many owner occupied properties which would need to upgrade to a heat pump – with the £5,000 of funding available covering most of the average cost for a heat pump (approximately £5,900). Under the most recent round of Local Authority Decarbonisation funding, support was available for low income households, likely to be in fuel poverty, with low EPC ratings. This analysis shows that across all sectors there is a significant need to install insulation (which indicates low EPCs) in homes likely to be in fuel poverty. Hence significant numbers of homes would qualify for support under this funding scheme, and the area could be recommended for future phases of funding.

### Next steps

1. Convene a project team with representatives from the relevant council departments and determine a scope for housing upgrades in the area.

2. Within this scope, review the funding opportunities.

3. Plan refinements to the technical plan for insulation, air-source heat pumps and rooftop solar.

4. Engage with the local community and businesses working with the required net zero technologies involved to understand the barriers within the local context.

5. Advance knowledge of the feasibility through site surveys.

6. Perform feasibility studies on the specific buildings involved in the project.

A review of funding is likely to centre on schemes such as BUS, HUGS, and LADS. For schemes such as BUS, the council could establish support for owner occupied homes (particularly those at risk of fuel poverty) to ease applying to funding. For schemes such as HUGS and LADS, the team would be responsible for identifying suitable properties for retrofitting and to coordinate funding applications and distribution. Site surveys would help to refine the technical plans for the upgrades and would go on to contribute to funding applications.

## 4.3.3. Priority Project Three: Highfield Primary School Rooftop Solar

### Project analysis

Highfield Primary School has been selected as an example of where larger PV deployment is viable. This is suggested as a priority project because it is an example of where a community energy project could be fostered on a council-owned property. It is a school which is maintained by the local authority, which therefore provides funding and has influence over operations. Highfield has been selected from the borough-wide PV modelling results as it shows a promising rate of return on investment. The location of the school, and the layout of the proposed panels is shown in Figure 16.

Figure 16: Map showing the location and layout of rooftop PV on Highfield Primary School




The total area of the proposed panels is approximately 525m$^2$ with an installed capacity of 105kW. The installation has been modelled as producing 95.8MWh per year. The capital expenditure to install the panels would be approximately £88,500. Under the assumed solar PV electricity value of 13.5p/kWh used in this report, the annual benefit would be £13,000, giving a simple payback period of under seven years. Because there is likely to be variation in electricity prices, the economic performance of the panels for different assumed values of electricity is shown in Table 16.

Table 16: Variation in economic performance with price of electricity

| Assumed value of generated electricity (p/ kWh) | Annual value (£) | Payback Period (Years) | NPV (£) | IRR (%) |
|---|---|---|---|---|
| 5.5 | 5,300 | 16.8 | 4,600 | 3.9 |
| 13.5 | 13,000 | 6.8 | 140,000 | 14.3 |
| 17.6 | 17,000 | 5.2 | 210,000 | 18.9 |
| 21.4 | 21,000 | 4.3 | 270,000 | 23.1 |
| 29.7 | 28,000 | 3.1 | 410,000 | 32.1 |

At lower electricity prices, the economic viability of the project is reduced. However, it should be noted that the estimated lifetime of solar panels is more than 20 years. This means that even under the lowest electricity value modelled, the installation would still more than pay for itself. This minimum price is based on the standard Smart Export Guarantee (SEG) rate of 5.5p/kWh.[29]. BEIS predicts a future electricity price of 21.4p/kWh to 2050[30]. Octopus Energy currently offers 15 p/kWh to its own customers. The estimate of 13.5p/kWh used here is therefore considered conservative.

### Next steps

1. Establish the annual hourly demand profile of Highfields Primary School to understand how demand coincides with solar production hours.

2. Refine the returns estimates given here based on the above data by correcting the exported vs imported assumption on an hourly basis.

3. Arrange a site survey by several PV installers to verify the conditions for panel verification and to get a more accurate estimate of solar potential of the specific site.

    a. Based on the demand-production profile, investigate if a battery could prove cost-effective for the site and, if so, factor this into installer estimates.

Enfield could also consider using this priority project to build a community energy initiative within the borough. School projects are well established within the community energy sector and often provide the focus for new initiatives. The Council could reach out to existing groups in London that have a track record in setting up new local projects or groups (Power Up North London, Stokey Energy, Repowering London, Solar for Schools, for example) or approach Community Energy London to discuss the opportunity. The GLA runs the London Community

[29] Solarguide (2022) Compare Smart Export Guarantee Tariffs. Available at: https://www.solarguide.co.uk/smart-export-guarantee-comparison#/

[30] BEIS (2021) Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal, Data tables 1 to 19. Available at: https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

Energy Fund which an Enfield based group could apply to for feasibility funding or capital funding for the school PV array & battery. They might also want to explore Energy Local clubs where residents could purchase any exports above the SEG, but below market cost. This could be a useful mechanism to cover the summer holidays when school PV arrays have maximum output but minimum onsite demand.

## 4.4. Costs and benefits

This section presents a brief assessment of the relative costs and benefits of the actions proposed in the Enfield LAEP. In doing this, we assumed for simplicity that expenditure would follow the same trajectory as emissions reductions (see Carbon pathways section). We used BEIS's social cost of carbon[31] to approximate the value of the damage caused by carbon emissions in a given year. Note that we consider these values to be optimistically low. We also ignored the fact that inaction (i.e. the continued use of natural gas) itself has significant operational costs (i.e. the purchase of the gas and the replacement of the boilers over time). We therefore see the results presented here as a conservative estimate of the value of action on emissions.

Capital expenditure in the mixed demand management scenario is £2.97 billion, with operational expenditure of £2.06 billion to 2040. Taken together this puts the total cost of decarbonisation at £5.03 billion. This includes insulation, heat networks, heat pumps, power network upgrades and solar PV. It excludes transport costs. Table 17 sets out the relevant quantities, with a discount rate of 0% (see below for discussion). Figure 17 shows how these costs are broken down over time, and by intervention.

Table 17: Comparison of costs versus avoided costs

| Quantity | Value[32] |
|---|---|
| Total expenditure from mixed demand management scenario | £5.03 billion |
| Avoided carbon emissions to 2040 | 19,085 $ktCO_2e$ |
| Total value of avoided carbon emissions to 2040 | £6.26 billion |
| Cost per tonne of $CO_2$ avoided | £264 |
| Average avoided cost per tonne of carbon | £328 |
| Cost per avoided cost | £0.8 of cost per £1 of avoided cost |
| Return on investment | 24% |

[31] https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation
[32] In £ 2020

While the total cost of the decarbonising Enfield is clearly significant, it is significantly cheaper than the costs of the damage which would result from inaction. When considering these values, the cost may be seen as an investment yielding a 24% return. If the costs are discounted at a rate of 3% per annum, the total sums to £3.49 billion, and the returns to £3.66 billion. This gives a simple return of 4.8%.

There is significant debate about applying discounting to investments that impact society. As time exceeds a certain horizon for an investment, the discount becomes so large that it reduces future values to essentially zero. This would imply that society should never take action in the present to protect against consequences beyond some arbitrary time horizon – a position that would be absurd, as well as at odds with the idea of a climate emergency.

Figure 17: CAPEX spend over time and per intervention

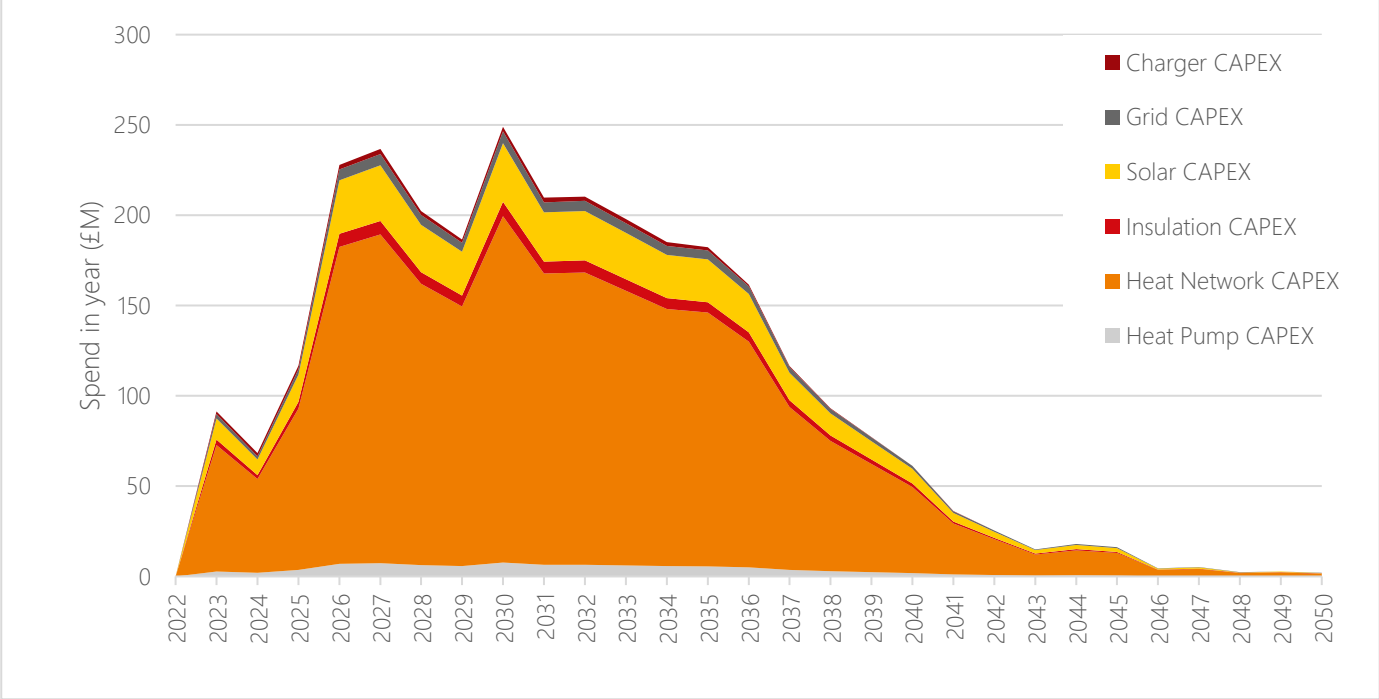
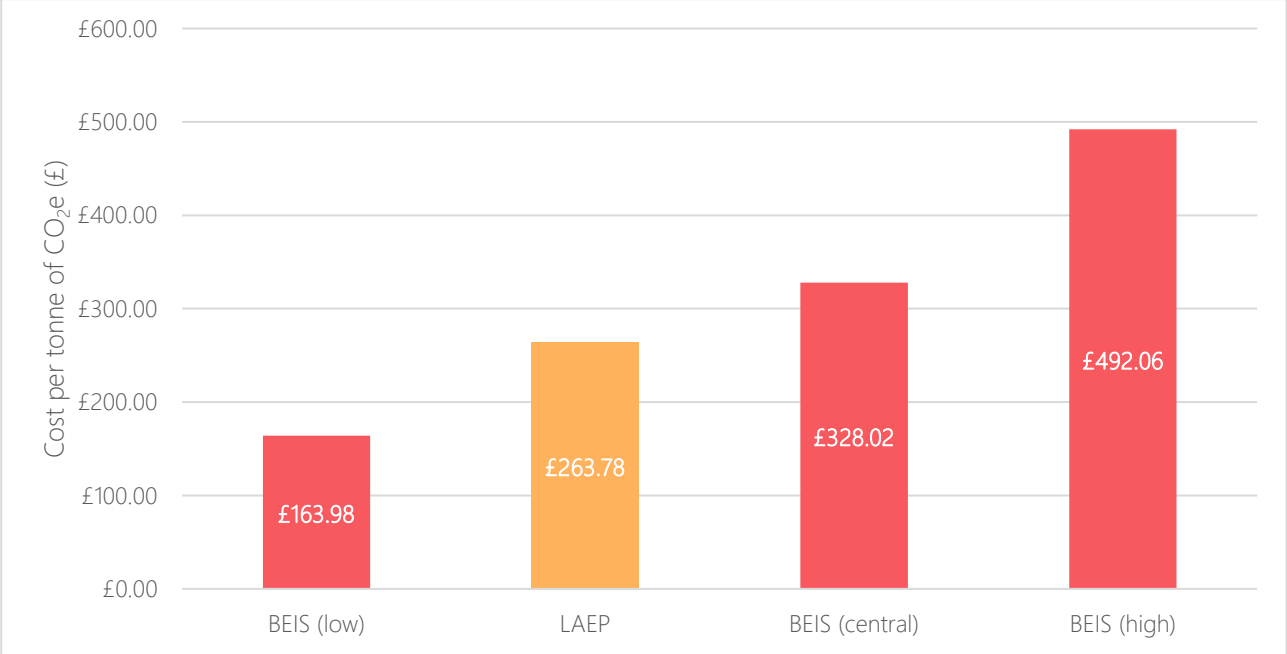



Figure 18 compares the £264/$tCO_2$ carbon abatement cost of the LAEP against different modelled future average costs from BEIS, placing it at the lower end of the range of values anticipated. This suggests that under a wide range of future conditions, the LAEP will prove better value than not taking action to abate carbon.

Figure 18: Costs per tonne of $CO_2e$ in the future




A direct socio-economic benefit of implementing the LAEP will be in job creation. Some jobs will be permanent, and some temporary. A detailed socio-economic analysis was not within the scope of the LAEP, however in order to give an indication, employment multipliers may be used. These give an estimate for the number of jobs created per million pounds of spend[33]. The factors are applied in the highest year of spending, to represent the "peak" job creation. This method of estimating jobs will give a figure for jobs "created" in each year of spending. However, the jobs created in each year are more likely to be the same jobs carried over year-to-year rather than new jobs. For example, if in one year there are 200 jobs created related to insulation and the next there are 250, it is more likely that 200 jobs were carried over from the first year to the next with 50 new jobs.

In the peak spending year, a total of 1,850 jobs would be created. 310 of these jobs would be created in solar installation, 40 in upgrading the existing electricity grids, 50 in heat pump construction and installation, 1,360 in heat network construction, operation and maintenance and 90 in insulation installation. These figures include direct and indirect jobs. Direct jobs are those involved in the installation and operation of these new measures. Indirect jobs are those created in the supply chain – such as in heat pump manufacturing.

[33] Employment multipliers are taken from International Energy Agency (2020) Sustainable Recovery: World Energy Outlook Special Report. Converted to GBP from USD by applying a conversion factor of 1.28 USD per GBP. As no figure is given for heat networks, it is assumed that this will be the same as for heat pumps – because it is assumed that the heat networks will be supplied by large scale heat pumps.

# 5. Next Steps

The LAEP provides a framework for action that represents the first significant step towards decarbonising the whole energy system in Enfield and achieving Net Zero by 2040.

Following on from the ten key building blocks and detailed recommendations set out in the plan, the following next steps will be crucial to keep momentum and ensure implementation of the LAEP:

- Identify and assign appropriate resources to ensure the timely delivery of the LAEP. These can come from allocating a dedicate resource within Enfield Council, outsourcing to an external organisation, or working in partnership with one.
- Produce a timetable with assigned responsibilities for monitoring, reviewing and chasing progress of implementation of the LAEP.
- Identify and engage with all local stakeholders that need to play a key role in decarbonising Enfield by 2040. Understanding power structures, level of influence and scale of local agency of different stakeholders should be a first step towards ensuring that responsibilities and actions are realistically assigned.
- Secure endorsement of the LAEP from the local stakeholders that will need to implement the plan. They need to make meaningful commitments to successfully take forward those actions in the plan which are within their reach.
- Set out clearly what further work is required in the immediate term. This will include additional tailored studies, feasibility analysis and detailed design work that is required to develop the plan and its recommendations into delivery outputs.
- Lobby central Government for continued consistent long-term funding and support programmes for the decarbonisation of heat, such as the Social Housing Decarbonisation Fund (SHDF) and the Public Sector Decarbonisation Fund (PSDS).
- Lobby central Government to devolve powers need to enable local authorities to enforce heat network connections for existing buildings, ensure robust consumer protection for heat network users and relate Council Tax bands to energy efficiency and carbon emissions in buildings.
- Lobby the GLA to ensure continued funding of relevant organisations and initiatives working towards the decarbonisation of transport, such as TfL and Healthy Streets.
- Update the plan at regular intervals (recommended every three years) to reflect the inevitable changes in local and wider circumstances, such as technology availability and costs, funding opportunities, and local and national policy.

Agenda Item 5

**London Borough of Enfield**

| | |
|---|---|
| **Report Title** | Pilots Retrofitting Council Housing for Energy Efficiency |
| **Report to** | Environment and Climate Action Scrutiny Panel |
| **Date of Meeting** | 18th April 2024 |
| **Cabinet Member** | Cllr George Savva |
| **Executive Director / Director** | Joanne Drew, Hannah Ashley Fraser, Andrew Cotton |
| **Report Author** | Rafe Bertram |
| **Ward(s) affected** | All |
| **Classification** | Part 1 Public |
| **Reason for exemption** | N/A |

## Purpose of Report

To update the Environment and Climate Action Scrutiny Panel on the pilot projects that we have been doing to retrofit our Council Housing to increase its energy efficiency, reduce residents' bills and reduce carbon emissions.

## Main Considerations for the Panel

1. To note the work that on these pilots that have been done.
2. To note the key issues and challenges that we have learnt from these pilot projects
    - Cost primarily the key issue in the time of high interest rates and inflation within the construction industry. The funding for the construction of the works to the 10 homes was £456k from central government, £821k from Enfield Council
    - Managing expectations with residents as numbers of homes in scheme reduced
    - The whole house approached work well regarding quality, time, disruption and resident satisfaction.

3. To input into the further ideas for the direction for the next projects. Current ideas are:
    - Reduce cost by:
        i. Focussing on properties that are externally rendered
        ii. Value engineering of installation – e.g. ventilation system
        iii. Increase Scale, but maintain similar typology of homes
        iv. Divide works into insulation measures, heating measures and Solar Panel measures so they can happen at different times and integrate with decent homes works.
        v. Coordinate with works done to meet Decent Homes targets
        vi. Apply for external funding – eg SHDF
    - Manage expectations:
        i. Only engage with residents when sure of process to avoid disappointment
4. To note that this pilot project from a central part to our recent and successful £3.5m application to the Department of Energy Security and Net Zero's Social Housing Decarbonisation Fund (SHDF)

**Background and Options**

5. The project is part of the Retrofit Accelerator Housing Innovation Partnership. We received funded consultancy support from Turner & Townsend and EnergieSprong UK.

6. This was stage 2 of a 4 stage process. Its aim is to reach ways to deliver an affordable, scalable, low disruption, resident friendly, high impact way of increasing the warmth of our homes, reducing resident's bill, reducing carbon emissions by retrofitting all council homes in the borough.

**Relevance to Council Plans and Strategies**

7. The Council Plan 2023-2026 'Investing in Enfield' has this project feeds into these three priorities:
    - Clean and Green places
    - More and Better homes
    - An economy that works for everyone

8. It also relates very closely to 'Climate Conscious' - one of its key Principles. In the Priorities and Actions of the More and Better homes, the need to Deliver low carbon, and climate-resilient new-build homes and facilitate retrofitting of existing homes is directed.

**Report Author:** Rafe Bertram
Asset and Sustainability Manager, Council Housing
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**Appendices**

Presentation - Pilots Retrofitting Council Housing for Energy Efficiency
Latest case study of the project from the Mayor of London

**Background Papers**

None

**Departmental reference number, if relevant:**

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# Pilots Retrofitting Council Housing for Energy Efficiency

**Rafe Bertram**
**Asset and Sustainability Manager**

# Background

Working alongside

- Retrofit London (London Councils)
- Mayor London / GLA as part of their Retrofit Accelerator Housing Innovation Partnership


# Retrofit London Programme

Be the solution to climate change

ENFIELD Council

Waltham Forest

LONDON COUNCILS

# London's Housing Context

- 3.8m homes with tenure (eg private rented) and type (solid brick, flatted) challenges.
- Local authorities manage around 10%.
- Increasing levels of fuel poverty and residents struggling to meet basic needs.
- Homes need to be more energy efficient:

**Table 1 Average SAP Score by Tenure**

| Socially Rented (8%) | Privately Rented (13%) | Owner Occupied (20%) |
|---|---|---|
| 66.52 (Band D) | 63.28 (D) | 60.63 (D) |

# Ambitious Regional Programme

- Aim is to support organisations and individuals to make homes greener and warmer so they are an average of EPC B (or equivalent) by 2030
- Minimum £49bn estimated cost to deliver
- Cross party political and Housing Directors support
- Strategic Action Plan published late 2021 with governance and resources in place in 2022
- Strength of collaborative approach and leadership recognised with two national awards

# Recognises Similar Challenges

- Costs.
- Supply side capacity.
- Skills and training.
- Finance and funding.
- Housing tenures and types.
- Plethora of approaches and prioritisation.
- Measuring progress.
- Roles of different stakeholders.

MAYOR OF LONDON

# Retrofit Accelerator Programme

## Innovation Partnership

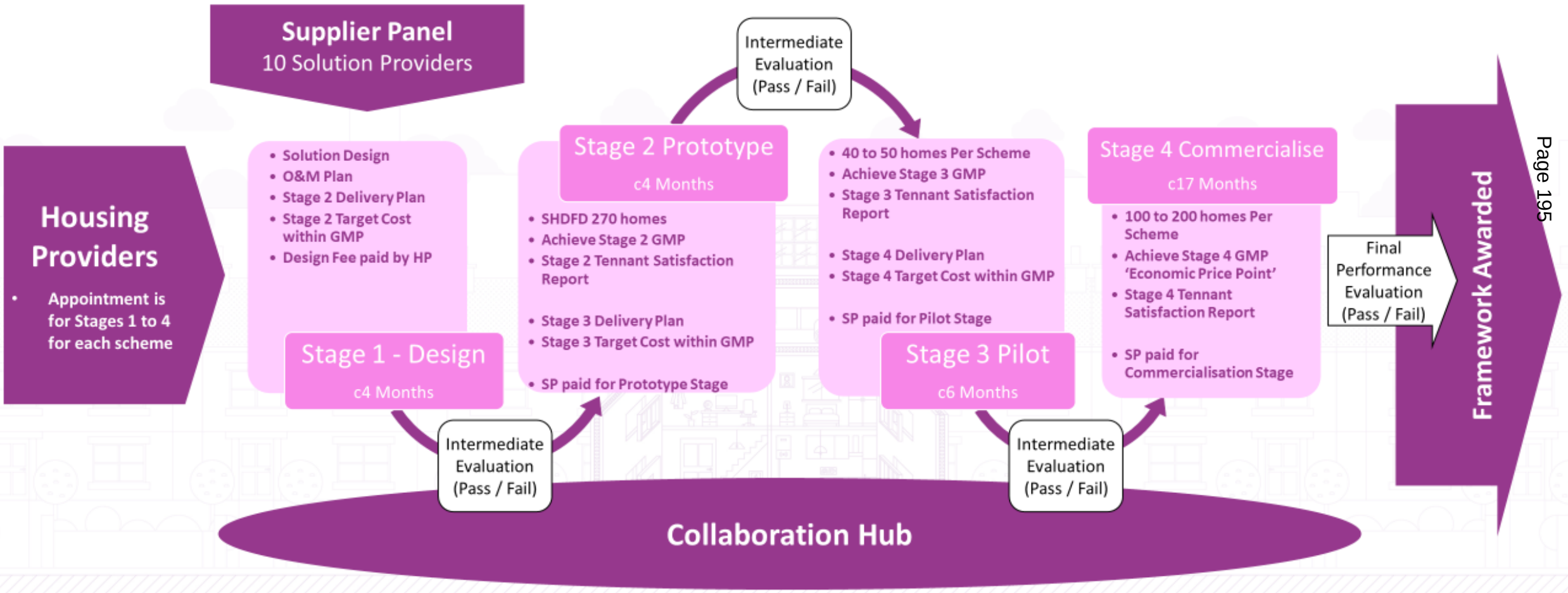


PART-FUNDED BY
European Union
European Regional Development Fund

**To date UK Energiesprong projects used traditional low volume scheme by scheme procurement. This has not created the necessary volume to stimulate a supply market or drive the economies of scale necessary to achieve an economic price point**

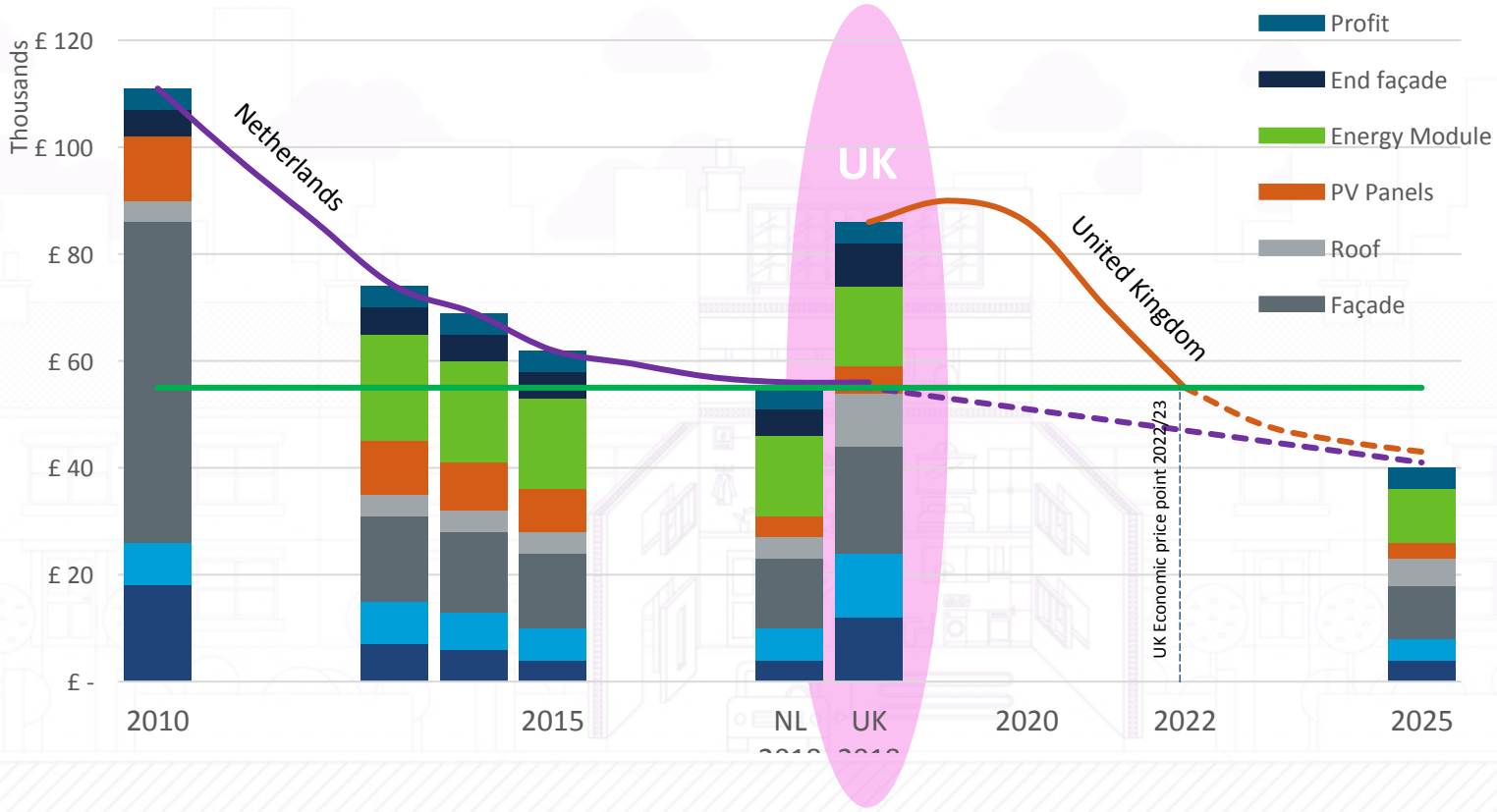
energie sprong uk

# RAHIP Stage 1 to 4 – Developmental Process



# Netherlands Case Study

**By creating scale and longevity through a structured development procurement process, the Netherlands was able to attract multiple landlords, stimulate competition in the market and generate investment in further solution innovation, industrialisation and digitisation**



# Retrofit Accelerator – Housing

EPC B by 2030
Deep Whole Home Retrofit
Stage 2 (prototype of 10 homes and planning
Stage 3 (pilot of 120 homes)

Retrofit Accelerator team

- Enfield Council
- Energie-Sprong and Turner & Townsend
- Osbournes and Pellings
- Subcontractors and Suppliers

3.2 tonnes CO2 saved per year per home
Good feedback from residents
Reduced energy bills for residents
16,300kWh energy saving per year per home

# Retrofit Accelerator Phase 2

# Retrofit Accelerator - Phase 2

- Haselbury area – 10 properties
- Deep retrofit to EnergieSprong principles
- High levels of insulation and using Air Source Heat Pumps (ASHPs) and Mechanical Ventilation (MHVR)

# Retrofit Accelerator - Phase 2

- Initial low levels of insulation
- Energy cost per unit rising
- Cost of living crisis

# Retrofit Accelerator - Phase 2 – Loft Insulation

- regulates the temperature to provide warmth in the winter and cool in the summer months
- Access provided
- Boards for storage provided

# Retrofit Accelerator - Phase 2 – Solar Panels

- Generating electricity
- Use immediately
- Sell back to grid

# Retrofit Accelerator - Phase 2 – External insulation

- External wall insulation
- Triple glazed windows
- High performance doors
- Reducing heat loss
- Matching previous finish

# Retrofit Accelerator - Phase 2

## Air source heat pump

- Removal of old gas boiler
- Runs on electricity
- More efficient than a boiler

# Retrofit Accelerator - Phase 2 – Ventillation

- Whole house ventilation
- Heat exchanger

# Retrofit Accelerator - Phase 2

- Large savings gained
- Comfort charge contributes to the capital funding

# Retrofit Accelerator - Phase 2

Funding for construction: £456k from central government, £821k from Enfield Council

MAYOR OF LONDON

RETROFIT ACCELERATOR HOMES

## Transforming homes in Enfield

| 10 | 2.9 | 16,300 | 176 |
|---|---|---|---|
| homes retrofitted | total carbon saved (tonnes per year per home) | annual energy savings (KWh per year per home) | homes in pipeline |

The **Mayor's Retrofit Accelerator - Homes Innovation Partnership** moves the work of the Retrofit Accelerator - Homes one step further, taking a major stride towards delivering warm, comfortable and affordable net zero housing retrofit at scale, not just in London but across the UK.

Seven London-based social housing providers, including Enfield, and four UK building firms, along with a network of suppliers, are working together to stimulate a new market for whole house retrofit and reduce costs.

With technical support from the Greater London Authority, Enfield joined the Retrofit Accelerator Homes Innovation Partnership, which consists of one design and three delivery stages, with a recognition that earlier stages will have higher capital costs because of the innovation involved and the lower number of properties.

### Challenges and lessons learned

There were a number of challenges faced in delivering the project, particularly in a very pressured financial situation with **rapidly increasing inflation** having impacts throughout the supply chain.

However, as Enfield have led the way in delivering an innovative approach, there was a determination to see this through to completion, ensuring learning was embedded in the local authority, and also shared with partner housing providers through the Collaboration Hub.

The investment into the retrofit construction works to these homes was £456k from the Social Housing Decarbonisation Fund (SHDF) and £821k from Enfield Council.

The breakdown of these costs was approximately as follows:

| | |
|---|---|
| Design | 2% |
| Monitoring | 2% |
| Preliminaries, safety, scaffolding | 15% |
| Fabric preparation | 7% |
| External Walls | 16% |
| Windows and Doors | 10% |
| Loft and roof work | 6% |
| Mechanical and Electrical | 30% |
| Risk, overheads and profit | 13% |

The next stages will be at a lower cost per property because of the greater number of properties and the learning from earlier stages. Currently Enfield Council, the team and funders are analysing the business case and value for money for how we move forward.



ENFIELD Council

# Energetik retrofit pilots

- South street flats (GLA funded)
- Victorian Properties (GLA funded)
- Naylor Grove (Enfield NDCCF funded)
- Heating measures only, not including insulation

# Issues and Challenges

- High cost per property in these early stages
- Managing expectations with residents as numbers of homes in scheme reduced
- The whole house approached work well regarding quality, time, disruption and resident satisfaction.

**For next projects**

Reduce cost by:

- Focussing on properties that are externally rendered
- Value engineering of installation – e.g. ventilation system
- Increase Scale, but maintain similar typology of homes
- Divide works into insulation measures, heating measures and Solar Panel measures so they can happen at different times
- Coordinate with works done to meet Decent Homes targets
- Apply for external funding – eg Successful Social Housing Decarbonisation bid for £3.5m

Manage expectations:

- Only engage with residents when sure of process to avoid disappointment



ENFIELD Council

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MAYOR OF LONDON

RETROFIT ACCELERATOR HOMES

# Transforming homes in Enfield

**10**

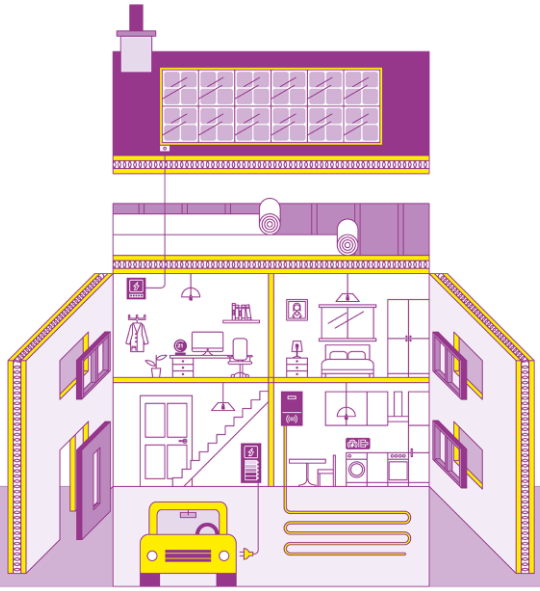
**homes retrofitted**

**3.2**

**total carbon saved**
(tonnes per year per property)

**16.3k**

**annual energy savings**
(KWh per year per property)



GREATER LONDON AUTHORITY

European Union
European Regional Development Fund

The **Mayor's Retrofit Accelerator - Homes Innovation Partnership** moves the work of the Retrofit Accelerator - Homes one step further, taking a major stride towards delivering warm, comfortable and affordable net zero housing retrofit at scale, not just in London but across the UK.

Seven London-based social housing providers, including Enfield Council, and four UK building firms, along with a network of suppliers, are working together to stimulate a new market for whole house retrofit and reduce costs.

## Whole-house retrofit in the London Borough of Enfield

In Summer 2019, Enfield declared a Climate Emergency. The council's Climate Action Plan set out their aspirations to tackle carbon emission from homes in the borough and a commitment to undertaking an Energiesprong pilot project.

With backing from the Social Housing Decarbonisation Fund and working alongside the Mayor of London's Retrofit Accelerator for Homes, the council delivered comprehensive energy efficiency improvements to ten homes, with a build period of 30 working days for each property. Once completed, these properties will have a space heating requirement of <40kWh/m2 (against a UK average of 133kWh/m2).

## The home upgrades being made

Improvements to the ten homes include external wall insulation, mechanical ventilation and heat recovery system, triple glazing and new doors, solar panels, air source heat pumps, and taking properties off-gas.

These solutions focused on a common housing archetype within Enfield, on the basis that there was opportunity to scale up delivery, see the cost benefits of economies of scale, and make significant progress in Enfield's housing targets and wider net-zero ambitions.

Enfield Council and their procured contractor, Osborne, are installing the **new Bowtie VentBox ventilation system** that contains **innovative 3D printed ductwork**. Their collaboration with manufacturer, Innovare, has led to a new design for an **'IKEA style' panelised system** that responds to logistical issues from installing larger format panels.

As part of the package of innovative measures, all participating residents have signed up to a **Comfort Plan**, at a cost of £35 per month, payable to the council. And even after factoring in this cost, all **residents' costs relating to energy will significantly reduce** while the energy performance of their property is guaranteed.

## Challenges and lessons learned

There were a number of challenges faced in delivering the project, particularly in a very pressured financial situation with **spiralling inflation** having impacts throughout the supply chain.

However, as Enfield have led the way in delivering an innovative approach, there was a determination to see this through to completion, ensuring learning was embedded in the local authority, and also shared with partner housing providers through the Collaboration Hub.

## Feedback from boroughs and residents

As well as reducing energy bills and creating warmer, more comfortable homes, these deep retrofits have transformed residents' sense of well being and pride in their improved homes.

"The works have definitely had a positive impact on myself and the family. The main impact is the quality of the air. My eldest son has allergies and due to the ventilation system not a lot of dust settles hence he's had less flare ups.

"Another great impact is the heating. The house is so warm I've barely had the heating on since the system went in."

- **Naznin, resident**

"The Innovation Partnership has a good understanding of the other commitments, pressures and constraints we have as a local authority which is good to not be completely blinkered by project delivery.

"Where we've come up against new challenges the team has continuously helped us come up with solutions and consider alternative scenarios."

- **Kevin Hartshorne – Head of Asset Management, LB Enfield**

## Get in touch

Get in touch with the Retrofit Accelerator team to find out more about the work we do or opportunities to get involved.

**Email:** retrofitaccelerator@london.gov.uk

## Project photos

- Completed retrofitted home

- Completed retrofitted home including solar

- Home before works began

- Bowtie Ventbox

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ENVIRONMENT & CLIMATE ACTION SCRUTINY PANEL WORK PROGRAMME

| Date of meeting | Topic | Report Author | Lead Members | Executive Director/ Director | Reason for proposal | Other committee/ Cabinet/Council approvals? |
|---|---|---|---|---|---|---|
| **3 July 2023** | Work Programme Planning | | | | | |
| | | | | | | |
| **24 Oct 2023** | Recycling – to include: how information about what can be recycled is communicated to residents - the use of images/ stickers/ videos, the harmonisation/ standardisation of recycling, trial on recycling in council flats/ estates – the next step, recycling processes relative/ comparison to other local authorities – particularly those hitting the 50% London target, a second recycling centre being built/ opened at the North London Waste Authority | Jon Sharkey | Cllr Jewell | Doug Wilkinson/ Simon Pollock | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | Mandatory food waste segregation for businesses, to include: how the council can make changes to boost our recycling levels through business waste, how many food businesses there are in Enfield and all businesses recycling | Jon Sharkey | Cllr Jewell | Doug Wilkinson/ Simon Pollock | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | rates of businesses, how their waste is collected and who is our biggest waste collection competition in Enfield? | | | | | |
| | Fly tipping – to include: enforcement and cameras, data and information on the numbers of offences, numbers of convictions, and areas of development, progress with the fly tipping cameras on fly tipping rates, how many fines have been issued since, areas located in, a history of year-on-year fly tipping report data, where are you getting the most reports (phone/online) and location | Jon Sharkey | Cllr Jewell | Doug Wilkinson/ Simon Pollock | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | | | | | | |
| **8 Feb 2024** | Rewilding – to include Chase Landscape: Tree Planting, Wetlands, Beavers, and funding | Marcus Harvey/ Ian Russell | Cllr Anyanwu / Cllr Jewell | Cheryl Headon / Simon Pollock/ Doug Wilkinson | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | Cattle Grazing at Forty Hall | Marcus Harvey/ Ian Russell | Cllr Anyanwu | Cheryl Headon / Simon Pollock | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | Parks Management & Biodiversity – to include toilets (cleanliness & signage) and cafes in parks, grass cutting, the | Marcus Harvey (Mathew Watts) | Cllr Anyanwu | Cheryl Headon / Simon Pollock | Suggested by the Executive Director, and something the Panel decided to discuss/ | |

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| | move to tennis courts using a booking system, illegal tenting, and fishing at Grovelands Park, and parks and grass verges management more generally | | | | review/ scrutinise further. | |
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| **12 Mar 2024** | Biodiversity Net Gain | Gideon Whittington/ Karen Page | Cllr S Erbil | Brett Leahy/ Sarah Cary | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | Quieter Neighbourhoods – Walking & Cycling Infrastructure – to include consultations that have taken place | Richard Eason | Cllr Jewell | Brett Leahy / Sarah Cary | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | Air Quality/Pollution & ULEZ - cycling routes impact on air quality | Ned Johnson/ Richard Eason | Cllr Jewell | Brett Leahy / Sarah Cary | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |
| | | | | | | |
| **18 April 2024** | Climate Action Plan | Vera Vajda | Cllr Ergin Erbil | Perry Scott/ Brett Leahy (Sustainability post) | To present the updated document for Scrutiny | Cabinet sign off in February 2024 |
| | Pilots Retrofitting Council Housing for Energy Efficiency | Rafe Bertram | Cllr Rick Jewell/ Cllr George Savva | Sarah Cary/ Joanne Drew | Suggested by the Executive Director, and something the Panel decided to discuss/ review/ scrutinise further. | |

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