London Borough of Haringey

Climate Action Haringey: Towards a zero-carbon future

Final report

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ARUP

Contents

Executive summary

In October 2017 Haringey Council launched the 'Haringey Zero by 2050' initiative in recognition of the urgent need to reduce carbon emissions to limit the increase in average global temperatures and avoid catastrophic climate change.

This Climate Action Haringey report sets out a route map for council action to enable the borough to achieve its zero-carbon ambition. The route map is organised around twenty actions across homes, workplaces, transport and energy. These four sectors represent over 90% of the borough's existing emissions and offer the greatest scope for Haringey to take effective action.

The carbon emission trajectory that was developed in Stage 1 of this project has been analysed to identify the scale of action required and the potential impact of each action. This forms the route map. Development of the actions was supported by a series of interviews with council staff and informed by wider research and evidence from other projects and programmes, within London and elsewhere.

The actions vary between direct delivery, facilitation, incentivisation and enabling, in response to the roles that the council can play in each different sector.

If done effectively, reducing carbon emissions in the borough will be brought about through adoption of sustainable actions which address many of the aims of the council's borough plan and improve life for all who live and work in the borough of Haringey. This will both demonstrate moral leadership and build stronger communities. Preparation now will avoid creating future stranded assets and will reduce future costs when opportunities to introduce change have passed or can only be implemented at greater cost and disruption.

Benefits to the borough as a result of taking the actions outlined in this report will include improved air quality, increased resilience, better mental and physical health and benefits for the local economy.

Haringey Borough baseline emissions and trajectory to 2050

Of all the sectors included in the data, domestic heating is responsible for the largest share of Haringey Borough's emissions, at almost 32% of the total. Together with emissions from electricity, emissions associated with domestic buildings make up 50% of the borough's total emissions.

The emissions from non-domestic buildings in the data represent the emissions used in heating and lighting buildings that are occupied by commercial and industrial businesses as well as public sector services. These are responsible for just over 20% of the emissions in the borough. 'Process emissions' from industry are emissions associated with fuel and energy used by businesses for industrial and manufacturing processes. These are accounted for separately in the data and make up a small proportion of emissions in the borough.

Compared with buildings, the transport sector has a smaller impact on emissions in the borough. Currently the transport sector contributes just over 20% of the borough's emissions, though road transport alone is responsible for 17% of the total and is clearly the most significant element of emissions from transport.

Figure 1 Top sources of emissions in 2015 from the borough of Haringey, as a proportion of 100%

Starting with current borough emissions, a forecast of future emissions has been modelled, assuming adoption

of a series of energy efficiency measures and low carbon technologies out to 2050. The model is based on the GLA's 'Zero Carbon Pathway Tool' which brings together existing information and proposed activities to inform the Mayor of London's 2050 ambition for a zero-carbon city.

The modelled reduction in carbon emissions is the result of the following measures:

- Energy demand in buildings to be reduced through improved energy efficiency of buildings, both homes and workplaces
- Heat supply to buildings to become less carbon intensive (kgCO_2 emitted per kWh heat supplied) through adoption of heat pumps and connection to low carbon district heating networks
- Electricity supplies to become less carbon intensive (kgCO_2 emitted per kWh electricity generated) through greater penetration of renewable and low carbon generation at both national and local scale
- New buildings to require much less energy to heat and power than existing buildings
- Transport related emissions to reduce as people make fewer journeys by car, choosing instead to walk, cycle or take public transport
- Transport related emissions also to reduce as the adoption of low and zero-emission vehicles increases

Route Map

Having identified the sources of carbon emissions within the borough and the activities required to reduce them, the parties that need to be involved in these activities have been identified. In most cases, the ability to act to reduce emissions in homes, workplaces or transport does not lie solely, or even mostly with the council. To drive change, many of the council's actions need to directly and indirectly influence the behaviour and investment decisions of these stakeholders. For effective action, programmes need to be tailored to the stakeholders.

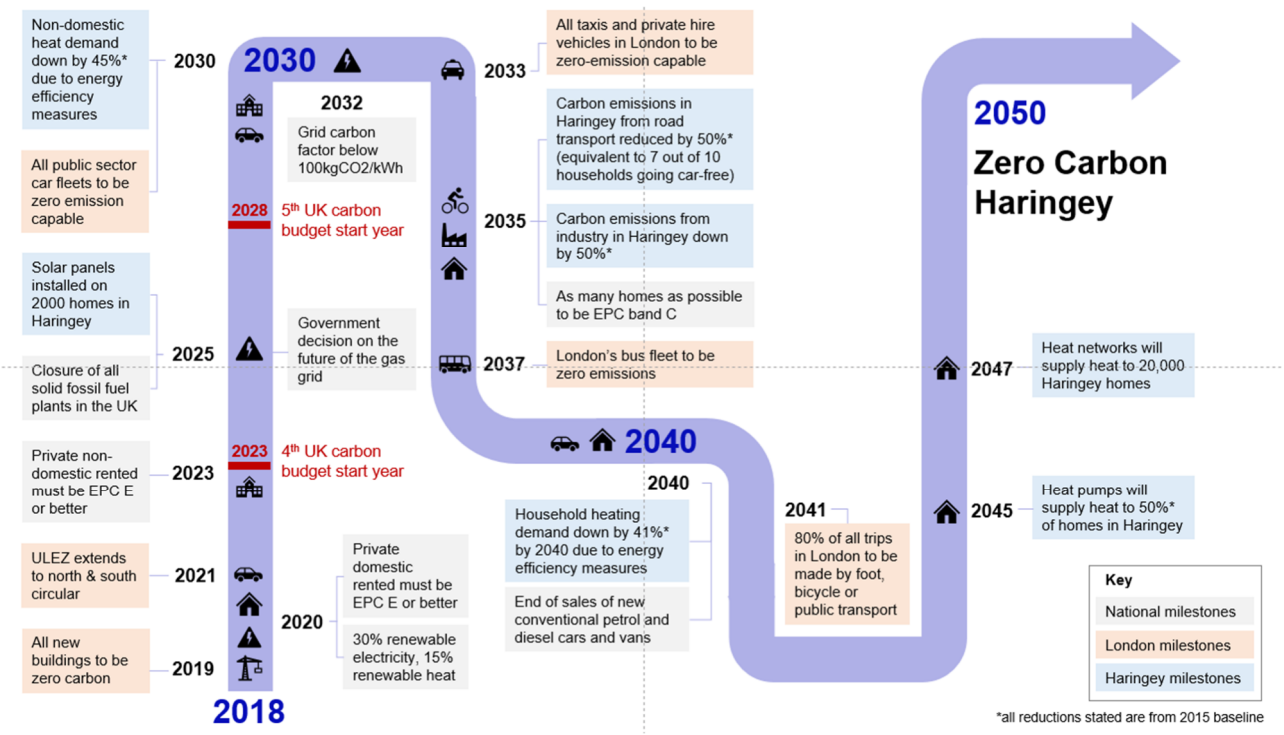


Figure 2: Haringey Borough's route map for approaching zero carbon by 2050

Some of the actions reflect an acceleration of actions that have been carried out in a limited way already (such as energy efficiency measures in homes), and others represent opportunities for new action (e.g. new heating technologies, connection to district heating networks and large scale renewable generation in the borough).

However, none of the actions represent 'business as usual' – it is important to recognise the scale of the challenge. In the domestic building sector, which contributes half of the borough's emissions, some 100,000 homes need to be upgraded to reduce their energy demand by an average of 36%. This will require an average retrofit rate of around 1,700 properties per year, with a maximum rate of retrofit mid-2030s at more like 3,750 properties per year. This is more than three times the maximum rate achieved during the Decent Homes programme which averaged 1,130 social homes per year over 10 years. And it is well over ten times the maximum rate of high-cost measures delivered in the borough under the Smart Homes scheme, which delivered 255 high-cost retrofits to domestic properties in Haringey Borough over the course of two years.

Carbon reductions in the borough need to be accelerated as soon as possible for the best chance of achieving zero carbon by 2050. For this reason, any of the actions that can be begun in the short term should be started now.

These actions include those where the council has the most direct control over immediate decisions; in particular its enforcement of existing national regulations, as well as adoption and enforcement of local planning policies for new and redeveloped buildings that deliver minimal carbon emissions in every case. Carbon emission reduction also needs to be incorporated into the aims of all ongoing maintenance and upgrade works to council owned property.

A mode shift in transport choices can begin immediately, together with co-ordinated action across relevant departments to deliver improved active transport infrastructure. This can stimulate residents and those who work in Haringey to make more sustainable choices every day so that they benefit from improved mental and physical health and cleaner air as soon as possible.

Planning and preparation should also begin now for projects that will be delivered in the medium term. Infrastructure projects such as heat networks, EV charging infrastructure and active transport infrastructure take longer to deliver but must be planned in as soon as possible to maximise impact.

Therefore, development of minimum standards that articulate the council's ambition for each sector and type of deliverable are required to form the foundation for large programmes of investment in the borough that are being defined now.

The main activity in the medium term will be delivery of programmes designed and begun in the short term. For example, actions that will be delivered in the next 5-10 years include upgrade of the council's own building stock including social housing and council offices. Flagship renovations of council owned public buildings can be planned to take place in the mid-late 2020s.

Proposed Actions

Proposed actions on homes:

- H1 – Deep retrofit of all council owned social housing
- H2 – Technical advice on energy efficiency for all domestic property owners and occupiers
- H3 – Funding assistance to support delivery of improvements in privately owned residential properties
- H4 – Enforcement of national regulations
- H5 – Planning policies that deliver low carbon emissions in new and redeveloped homes

Proposed actions on workplaces:

- W1 – Increase prioritisation of carbon emission reduction in commercial decision making
- W2 – Funding assistance to support delivery of energy efficiency in commercial premises
- W3 – Engagement with large businesses and emitters to support large scale projects and effective action
- W4 – Engagement with public bodies to support energy efficiency in public buildings
- W5 – Action to reduce carbon emissions from council owned buildings

- W6 – Planning policies that deliver minimal carbon emissions form all new workplaces

Proposed actions on transport

- T1 – Engagement with Haringey residents to encourage mode shift towards public and active transport choices
- T2 – Programme to improve active transport infrastructure
- T3 – Policies that penalise private car use through parking charges based on fuel type/emissions etc
- T4 – Programme to incentivise move to low and zero emission vehicles by residents and businesses
- T5 – Action to expand provision and accessibility of EV charging infrastructure

Proposed actions on energy

- E1 – Action to install renewable generation in the Lee Valley through wind turbines and PV
- E2 – Programme to encourage installation of distributed renewable generation through roof mounted PV
- E3 – Policies to support appropriate installation of and connection to district heating networks
- E4 – Programme of technical advice to encourage and support residents and businesses to adopt heat pumps

Each action is described using a common template and cost, benefits, stakeholders, required enabling actions, skills and legislation, and potential funding sources are identified. Proposals are made for the scale and timing of the action, a potential delivery route and programme and impact metrics.

Crosscutting and enabling actions

Enabling actions have been identified within each of the 20 actions. These range from feasibility studies, developing business cases and commercialisation, finding sources of funding, reviewing existing council plans to amend or incorporate new actions, training and development of internal skills, revising existing policies, engaging with potential partners and third parties in the private and public sector, and publicity/awareness campaigns. Some enabling actions relate to the national context and policy environment.

In addition to these specific enabling actions, it is also important to recognise that there are things that the council can begin to address immediately that will facilitate the long-term success of its climate action programme. Examples of these include:

- Developing ways of effectively working across Haringey departments, with departmental carbon reduction targets aligned.
- Resolution of conflicting objectives that affect carbon reduction.
- Education and training for all council officers and councillors on the need for carbon reduction, benefits of taking climate action, and communicating the urgency of the action required.
- Haringey owned buildings may be able to have small scale plans developed straight away. For example, roof mounted PV installations, and bike parking facilities and EV charging points.
- Haringey fleet management services can adopt electric vehicles straight away.
- Engagement with third party organisations is required for some actions, and regardless of the indicative timelines provided, these conversations can begin immediately.
- Council officers in all departments, but particularly in the carbon management team, should be proactively identifying new technologies with potential.
- Longer term actions such as heat pumps and large-scale renewables should not be shelved until their allocated time – advances in technology may mean actions become viable in advance of their indicative timelines.

Delivery of the Plan

Potential sources of funding for each of the actions are described within the appropriate action, but listed below are funding mechanisms currently available that the council can access for a range of activities.

- Departmental budgets
- Revenue and council income streams
- Grants and loans
- Technical advice, support and services

Action in the borough can be supported or inhibited by the wider legislative context. The council can lobby and petition the government and the GLA for more support in the form of regulation and legislation as well as guidance and funding.

Changing established behaviour patterns and normalising low carbon choices is a challenging task, and requires the removal of barriers to action, promotion of desired behaviour and incentivisation, amongst other things.

Adoption of social theory and behaviour change principles can aid the effectiveness of action, especially where the ultimate choice lies with someone other than the council.

Monitoring and reporting of each action is critical to capturing both the direct and co-benefits of each action to demonstrate progress toward the eventual goal and to justify and guide future activities.

The existing method of progress monitoring that forms the basis of Haringey's annual carbon reporting is a top-down approach using nationally generated and published data. This is useful to provide a consistent picture of overall emissions within the borough but does not facilitate learning and evaluation at action or programme level.

In addition to monitoring progress and performance related directly to reduction of emissions in the borough, it is also important to identify metrics that could be collected and assessed in relation to co- benefits of action. This will help provide a holistic picture of overall changes in, and improvements to, peoples' experience of living, working and travelling in the borough. This will be action specific, but could include, for example, people's comfort levels in their homes, instances of damp or mould in homes, travel times and enjoyment levels for people's regular journeys, perceptions about the amenity value or safety of areas that have been improved, etc.

Co-benefits are much harder to quantify, but for any measure a baseline is required. Therefore, detailed surveys should be carried out prior to any physical interventions to provide a baseline for future comparison. Such surveys should include both qualitative and quantitative assessments of physical and mental health, home comfort, travel experiences, finances, education and employment, security and wellbeing.

The recommendations outlined in this route map are made based on the information available at the time of writing. Whilst the fundamental transitions that need to occur are certain, the means of achieving these changes and the delivery models that enable actions to be taken most effectively are likely to change with time. We recommend that the council commits to regularly reviewing both the action plan to deliver its 'Zero by 2050' vision as well as progress against these actions and against the overall commitment.

Barriers and uncertainties

Haringey Council could be limited in its ability to deliver on this plan by the following:

- Inconsistency or absence of political will
- Scale of the challenge
- Funding
- Lack of engagement, understanding and support from Haringey borough residents and business owners
- Failure to deliver projected decarbonisation of the electricity grid

Abbreviations

CCC	Committee on climate change
CIL	Community infrastructure levy
CRC	Carbon reduction commitment
DBOM	Design, build, own, maintain
DEC	Display energy certificate
DEEP	Decentralised energy enabling project
DHN	District heat network
EAST	Easy, attractive, social and timely
ECO	Energy company obligation
EfW	Energy from waste
EPC	Energy performance certificate
ESCO	Energy service company
ESOS	Energy saving opportunities scheme
ETS	Emissions trading scheme
FIT	Feed in tariff
FTE	Full time equivalent
GHG	Greenhouse gas
GLA	Greater London Authority
GULCS	Go ultra low city scheme
HDV	Haringey delivery vehicle
HNDU	Heat network delivery unit
HNIP	Heat networks investment project
ICE	Internal combustion engine
IPCC	Intergovernmental Panel on Climate Change
JV	Joint venture
KPI	Key performance indicator

LEGGI	London Energy and Greenhouse Gas Inventory
LIP	Local implementation plan
LLAQM	London local air quality management
MEEF	Mayor's energy efficiency fund
MEES	Minimum energy efficiency standards
OLEV	Office for low emission vehicles
PESTLE	Political, economic, social, technological, legal and environmental
PV	Photovoltaic
RHI	Renewable heat incentive
SAP	Standard assessment procedure
SDG	Sustainable development goal
SMEs	Small and medium (sized) enterprises
SPD	Supplementary planning document
SSSI	Site of special scientific interest
TfL	Transport for London
ULEV	Ultra low emission vehicle
ULEZ	Ultra low emission zone

Introduction

Rising concentration of greenhouse gases in our atmosphere is raising both average and extreme temperatures around the world and changing the planet's climate. Climate change is one of the most pressing concerns of our time, as we experience unprecedented changes in the frequency and severity of extreme weather events and disruption of natural systems. These changes are being felt through short term events such as droughts, flooding, heat waves and storm surges as well as longer term pressures including sea level rise and loss of productive land. These changes will affect our society and economy as well as our environment, and they will become more severe over the course of the century unless concerted action is taken now, at every level of government and society.

To limit the increase in average global temperatures and avoid catastrophic climate change, radical reductions are needed in net emissions of carbon dioxide and other greenhouse gases. Haringey was one of the first councils in London to respond to this challenge with a commitment in 2009 to reduce carbon emissions[1] in the borough by 40% by the year 2020, against a 2005 baseline (the '40:20' goal). This commitment recognised that prevention and early intervention is cheaper in the long term than adaptation and repair. It also recognised that actions to reduce carbon emissions generally benefit individuals and the community as well as reducing the environmental risks associated with climate change; for example, more energy efficient homes are cheaper to heat, walking to the shops is healthier and green jobs provide local employment opportunities. These benefits could transform the borough, with healthier and more resilient communities, a stronger local economy and reduced fuel poverty.

Haringey Council's Annual Carbon Reports show that the borough's emissions fell by 29% between 2005 and 2016[2], meaning that the borough is on track to meet the 40:20 target. The reports describe how community actions and council-led programmes have contributed to this success. However, if the borough is to contribute its share of emissions reduction, the council's ambition must be much greater. The 2018 IPCC special report on global warming of 1.5ºC made it clear how important it is to aim for this limit on average global temperature increase, and states that to achieve this, global greenhouse gas emissions need to reach net zero by around 2050.[3]

The council has already recognised this urgent agenda, and in October 2017 the council launched the 'Haringey Zero by 2050' initiative.

Purpose and content of this report

This Climate Action Haringey report sets out a route map for council action to enable the borough to achieve a zero-carbon ambition. The route map is organised around twenty actions across homes, workplaces, transport and energy. These four sectors represent over 90% of the borough's existing emissions and offer the greatest scope for Haringey to take effective action.

More detailed analysis of Haringey's historic progress and context can be found in Arup's Stage 1 report, dated March 2018[4]. Details of cost, scale of investment required by the council, and potential impact on carbon emissions have been estimated for each action, together with a PESTLE analysis (political, economic, social/cultural, technological, legal and environmental) for each sector.

Finally, the report describes aspects of the delivery mechanisms which are common to all actions, including funding, legislation and behaviour change models. A review of the policy context and recent progress in the borough is included in the appendix.

[1] "Carbon" and "CO_2" are used in this report to refer to a basket of greenhouse gas (GHG) emissions as defined by the UNFCCC/Kyoto Protocol for which the unit of measure is annual tonnes equivalent CO_2 (tCO_2e/yr)
[2] Haringey Borough Council 8th Annual Carbon Report (Haringey Council;2018)
[3] Special report: Global warming of 1.5°C (IPCC, 2018)
[4] Zero Carbon Haringey: Stage 1 Technical Report (Arup, 2018) Available online at:
https://www.haringey.gov.uk/sites/haringeygovuk/files/zc_haringey_stage-1-report_issue_2_2018-03-18.pdf

Approach

The first stage of this project involved a review of Haringey Borough's emissions and the council's work to date on carbon reduction activities, as well as adaptation of the GLA's Zero Carbon model to develop a trajectory to zero carbon. From this work twenty actions were proposed to direct the council's efforts towards the zero-carbon goal.

In stage 2 the trajectory has been analysed to identify the scale of action required and the potential impact of each action. This forms the route map. The actions, which cover homes, workplaces, transport and energy supply sectors, have been developed in more detail, supported by a series of interviews with council staff and informed by wider research and evidence from other projects and programmes, within London and elsewhere.

The actions vary between direct delivery, facilitation, incentivisation and enabling, in response to the roles that the council can play in each different sector.

The actions are high level, they give the framework and justification for action. For each one, the appropriate business unit within the council must adopt their action and develop it into a detailed programme of works. In this way, the council will take ownership of the action plan and individuals will have responsibility for delivering progress.

Justification

If done effectively, reducing carbon emissions in the borough will be brought about through adoption of sustainable actions which address many of the aims of the borough plan and improve life for all who live and work in the borough of Haringey. This will both demonstrate moral leadership and build stronger communities. Preparation now will avoid creating future stranded assets and will reduce future costs when opportunities to introduce change have passed (see Figure 3) or can only be implemented at greater cost and disruption.

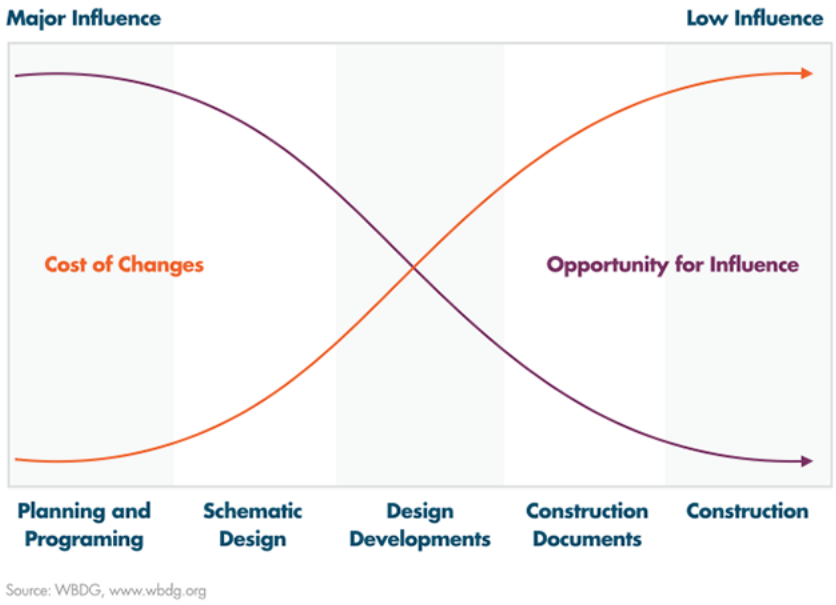


Figure 3 From 'Whole Building Design Guide'[5] – There is opportunity to exert influence for the lowest cost at the beginning of a project. As time goes on, costs of changes increase as influence decreases. The same principle can be applied to the potential of building projects to be truly zero carbon

[5] www.wdbg.org

Benefits to the borough as a result of taking the actions outlined in this report will include improved air quality, increased resilience, reduced building maintenance costs, better mental and physical health and benefits for the local economy.

Therefore, reducing carbon emissions is a justified and responsible policy that should bring wide ranging benefit to the borough for its own sake, as well as delivering benefit to the global community by reducing the risks and impacts associated with climate change.

Note on data

When assessing figures for Haringey we have used the London Energy and Greenhouse Gas Inventory (LEGGI). The 2015 data set was published in December 2017 and was used during Stage 1 of this project, in the early part of 2018. Interim data for 2016 only became available in November 2018, well after Stage 2 was in progress. This report therefore still uses 2015 as year zero. Updating the figures would not change the scale of the numbers presented throughout this report.

The GLA Zero Carbon Pathways Tool has 2015 as its year zero. Therefore, there is a consistency in continuing to use 2015 data across a variety of sources.

All numbers have been presented to two significant places and are to be considered approximate.

1 Pathway to 2050

To understand how the borough might reduce its emissions to zero and what the council's role within this should be, it is important to understand where these emissions come from. With this knowledge, appropriate solutions can be proposed, and the relevant stakeholders can be identified.

Haringey Borough emissions breakdown

When measuring and accounting for carbon emissions, common terminology divides emissions into three scopes depending on where the emissions physically occur. Considering the geographical boundaries of the borough of Haringey, 'scope 1' emissions relate to direct emissions from fuel being burned within the borough, 'scope 2' emissions relate to emissions released through production of electricity which is used within the borough, and 'scope 3' emissions relate to all other indirect emissions associated with products and services consumed or used within the borough (including the 'embodied' emissions of materials and products). For the purposes of this assessment, only scope 1 and 2 emissions are included.

The government collects annual emission data. Analysis of this data in Figure 4 shows that three areas make up most of Haringey Borough's emissions: residential buildings (homes), commercial buildings (workplaces) and transport.

Figure 4 Top sources of emissions in 2015 from the borough of Haringey, as a proportion of 100%

Of all the sectors included in the data, domestic heating is responsible for the largest share of Haringey Borough's emissions at almost 32% of the total. Together with emissions from electricity, emissions associated with domestic buildings make up 50% of the borough's total emissions.

The emissions from non-domestic buildings in the data represent the emissions used in heating and lighting buildings that are occupied by commercial and industrial businesses as well as public sector services. These are responsible for just over 20% of the emissions in the borough. 'Process emissions' from industry are the emissions associated with fuel and energy used by businesses for industrial and manufacturing processes (i.e. the other energy they use that is not for heating and lighting the buildings they occupy). These are accounted for separately in the data, and make up a small proportion of emissions in the borough.

Compared with buildings, the transport sector has a smaller impact on emissions in the borough. Currently the transport sector contributes just over 20% of the borough's emissions, though road transport alone is responsible for 17% of the total and is clearly the most significant element of emissions from transport.

It should be noted that emissions from waste have not been included for the reasons set out in the technical report in stage 1; principally that waste emissions are likely to be a relatively small component (~3%) of the borough's total emissions, but the actual figures are difficult to establish as very little if any waste from the borough of

Haringey is sent to landfill; as a member of the North London Waste Authority, Haringey's municipal waste is generally sent to the incinerator at Edmonton, where it is burnt to generate energy. There are complex issues around emissions from waste disposal, but in general energy from waste (EfW) is a better solution than landfilling.

Trajectory to 2050

Starting with current borough emissions, a forecast of future emissions has been modelled, assuming adoption of a series of energy efficiency measures and low carbon technologies out to 2050. The resulting emissions trajectory is shown in Figure 5 below.

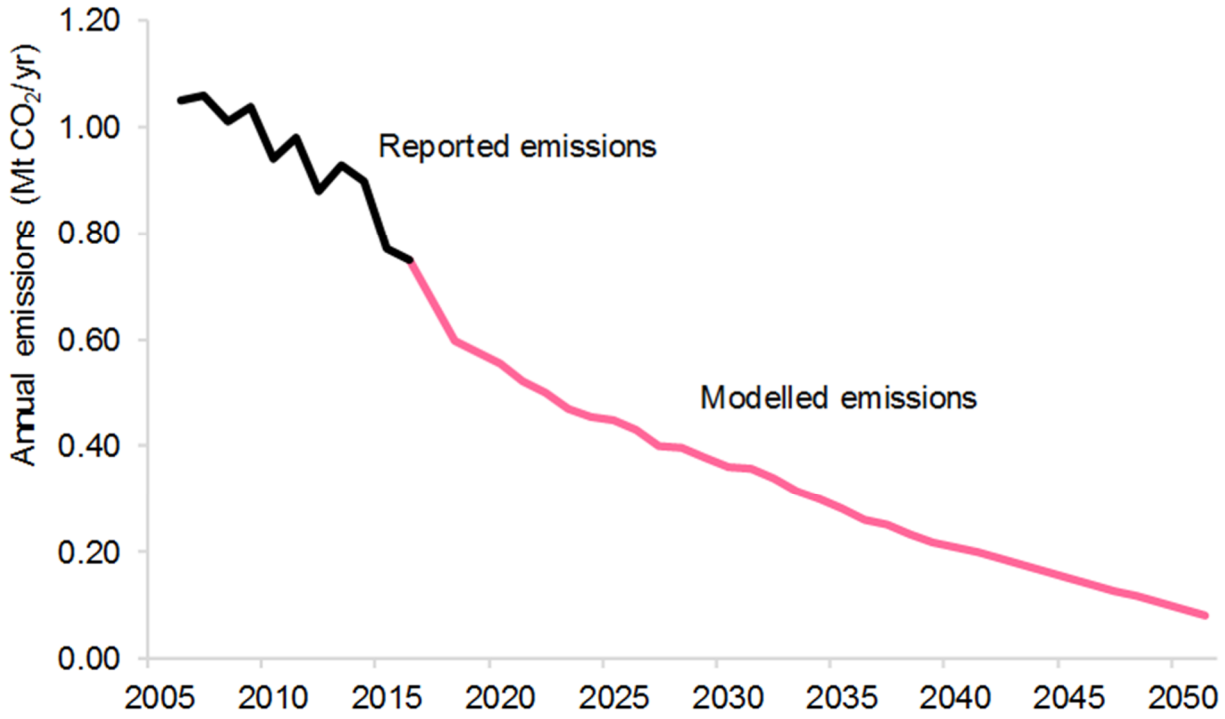


Figure 5 Haringey Borough's Zero Carbon emissions trajectory based on the GLA Zero Carbon Model.

The model is based on the GLA's 'Zero Carbon Pathway Tool'[6] which brings together existing information and proposed activities to inform the Mayor of London's 2050 ambition for a zero-carbon city. Further detail on the modelling approach is outlined in the Technical Report for Stage 1 of this project[7].

The emission trajectory to 2050, shown in Figure 6, shows the projected breakdown in emissions in areas of homes, workplaces and transport. Figure 7 shows some of the changes in energy demand and energy supply respectively that contribute towards this overall trajectory.

[6] Available from https://data.london.gov.uk/dataset/london-s-zero-carbon-pathways-tool
[7] Zero Carbon Haringey: Stage 1 Technical Report (Arup, 2018)

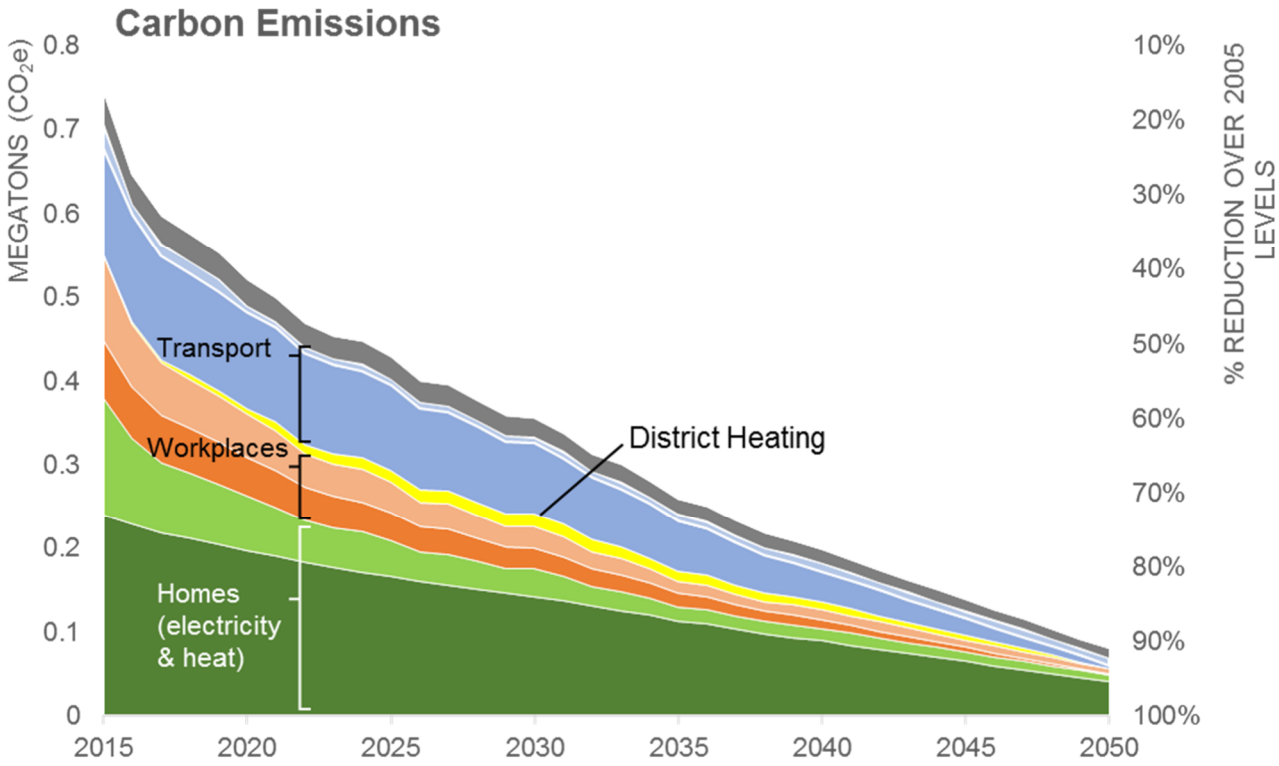


Figure 6 Haringey Borough Zero Carbon trajectory showing breakdown between homes, workplaces and transport emissions

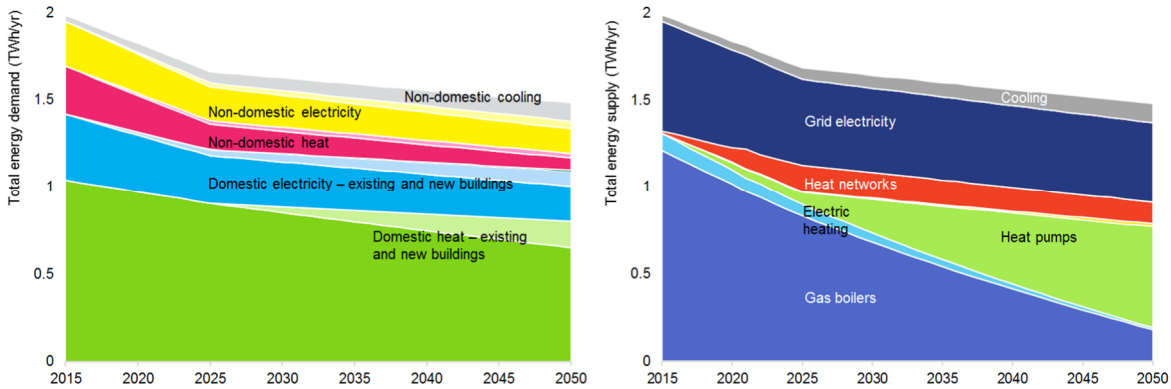


Figure 7 Changes in energy demand from key sectors (left) and changes in energy supply sources (right) that contribute to the zero-carbon trajectory for the borough of Haringey

Demand is the energy that is called for by a user; i.e. the amount of heat required, the amount of electricity used. Energy supply is the energy used to respond to the demand; gas to burn for heat, electricity for lighting and domestic appliances. Different supply options have different carbon intensity factors (measured in kg CO_2 per kWh of energy).

Improved efficiency in energy supply can reduce carbon emissions while demand remains constant; however, together with falls in demand, carbon reductions are amplified and it also becomes easier to supply this smaller demand from renewable and low-carbon sources.

The modelled reduction in carbon emissions would be the result of the following measures:

- Energy demand in buildings to be reduced through improved energy efficiency of buildings, both homes and workplaces
- Heat supply to buildings to become less carbon intensive (kgCO_2 emitted per kWh heat supplied) through adoption of heat pumps and connection to low carbon district heating networks

- Electricity supplies to become less carbon intensive (kgCO_2 emitted per kWh electricity generated) through greater penetration of renewable and low carbon generation at both national and local scale
- New buildings to require much less energy to heat and power than existing buildings
- Transport related emissions to reduce as people make fewer journeys by car, choosing instead to walk, cycle or take public transport
- Transport related emissions also to reduce as the adoption of low and zero-emission vehicles increases

Reaching zero

Haringey's aim is to reach zero carbon emissions by 2050. The powers of the council are such that this target cannot be reached through action by Haringey Council alone. Everyone who lives or works in Haringey will need to change their behaviour, and the majority of buildings, most of them privately owned, need to be retrofitted to improve their energy efficiency. In addition, the modelling that underpins this action plan relies on regional and national action, in particular decarbonisation of the national electricity grid. Even if the grid does decarbonise as fast as the government predicts, electricity generation will still cause emission of some carbon.

The modelling assumptions deliver a 90% reduction in carbon emissions, compared with a 2005 baseline. To deliver zero emissions at this point would require some form of carbon offsetting or carbon capture to produce negative emissions to match emissions remaining.

On this point Haringey will have to develop a strategy that aligns with their principles, although national strategy and/or new technologies may come to the rescue in the years between now and 2050.

Stakeholders

Having identified the sources of carbon emissions within the borough and the measures required to reduce them, we can identify who will need to be involved in these activities. In most cases, the ability to act to reduce emissions in homes, workplaces or transport does not lie solely, or even mostly with the council. To drive change, many of the council's actions need to directly and indirectly influence the behaviour and investment decisions of these stakeholders.

Residential sector stakeholders

There are currently over 100,000 households in Haringey. Many new homes are planned between now and 2050 but most existing homes will be still standing in 2050. To reduce the energy demand of these homes their energy efficiency needs to be improved, getting more benefit out of the energy that is used. To reduce demand for heat, better insulation is required. This will require improvements to the fabric of existing buildings. Other potential energy improvements include improved lighting and appliance efficiency.

There are many stakeholders in the domestic sector and they vary depending on the tenure type, and socio-economic circumstances. Occupants are the most obvious group of stakeholders, and as residents of the borough this plan needs to benefit them and meet their ambitions as much as the council's. Occupants are generally tenants or owners.

Landlords may be the council or other social housing organisation, a large commercial landlord or a small-scale private landlord. Estate agents and property management companies are also involved in the letting and management of domestic properties.

The stakeholders associated with owner-occupiers comprise a shorter list but may include mortgage companies or other parties with an ownership interest as in shared ownership properties. In conservation areas the council, neighbours and heritage groups will also have an interest.

Local interest groups such as such as residents' associations, neighbourhood watch groups, friends of local parks, charitable and not-for-profit support groups, local branches of national membership groups, local faith groups linked to a specific place of worship, and school or other education-based networks, may not have a direct interest in homes but can be important places for instigating change, driven by grass-root aspirations, neighbourly examples and philanthropic aims.

Other than residents and those involved in facilitating the letting and sale of homes, other stakeholders include those involved with maintaining existing homes and building new homes. These stakeholders are an important part of the team that will deliver carbon emission reductions. Developers, engineering and architecture firms as well as the various businesses that comprise the construction supply chain all have a part to play in fulfilling Haringey Council's ambitious plan, and have an important link to the local economy and provision of jobs.

The council also has a role to play in its capacity as the local planning authority, with the power to set policies and principles by which new developments and renovations will be permitted. It also has a significant role to play in setting minimum standards for regeneration areas in the borough.

Commercial and other non-residential building stakeholders

Non-residential buildings in the borough are many and varied, from shops, restaurants and offices to industrial units, leisure and entertainment venues and schools/other education centres. Haringey's workplaces are dominated by small- and micro-businesses, with almost 9 in 10 businesses in the borough employing less than 10 people. Emissions from these workplaces are likely to be similar to the emissions from homes and will be reduced through improved insulation and more efficient heating, lighting and appliances.

In many cases businesses lease their workplaces from a landlord, often through a commercial letting agent. In mixed-use buildings or larger non-residential buildings, a property management company may also be involved in maintaining and operating the building.

In terms of employment, medium and large businesses in the borough have a larger part to play, accounting for the employment of 43% of the borough's workforce. According to government published information, there are 15 business units within the borough that belong to large businesses.

For these businesses, there may well be decision making processes that extend well beyond the borough's boundaries who will need to engage with Haringey Council's activities. Conveniently the larger businesses will already have to engage with energy efficiency and carbon emission issues through the national schemes described in Section A1 below. As such they may already have carbon emission reduction programmes in place.

Local business groups and trading associations could play a role in supporting action and disseminating knowledge, particularly for the many micro and small businesses in the borough.

The council itself owns a significant amount of land in the borough, both through its offices and public facilities, as well as through its commercially let portfolio and as such is a key stakeholder. Within the council there are a variety of stakeholders, each with a different interest; this includes the community of council staff in terms of the operation of buildings, but also decision makers and leaders who can make significant changes.

As described above for homes, the companies that comprise the construction supply chain that supply maintenance, refurbishment and new development services for commercial properties in the borough are also stakeholders to carbon reduction activities in the borough.

Energy stakeholders

Improving energy supply efficiency will reduce carbon emissions in the borough and provision of renewable generation within the borough will reduce reliance on traditional utility suppliers. Stakeholders in this area include anyone with space or interest in hosting renewable generation, for example rooftop photovoltaic (PV) arrays or low-carbon heating supplies to local heating networks. This might include property owners, the council and large-scale developers.

The borough also has a local community benefit society, En10ergy, set up by Muswell Hill Sustainability Group, which has achieved significant local success in installing rooftop solar PV on public buildings through community share offers to raise capital for projects that benefit the community

Transport stakeholders

Emissions from transport are significant within the borough. The same themes of reducing demand and increasing efficiency will be required to reduce transport related emissions. This will be delivered through increased use of active transport options; walking and cycling, increased use of public transport and adoption of low and zero-emission vehicles for journeys that are still made by car. To support this, areas of new development should be designed to reduce reliance on cars through reduced journey distances and support for active transport choices.

Stakeholders to these changes will include individuals who start and/or finish a journey in Haringey, including all those who live or work in the borough, as well as businesses who have staff and/or customers who use a car to reach them There are also local groups around neighbourhoods or interests that relate to transport issues such as Haringey Cycling Campaign, air quality interest groups and local schools.

Transport for London (TfL) is a key stakeholder in addressing transport within the borough; TfL is responsible for major roads through the borough and almost all of the public transport services and associated infrastructure in Haringey. TfL and the GLA are also key sources of funding and support.

Industry stakeholders include businesses that support low and zero-emission vehicle adoption, and deliver electric vehicle charging infrastructure or cycle parking solutions.

Within the council, transport planning, parking, smarter travel and carbon management teams as well as planning and regeneration teams are key to a co-ordinated approach across all areas in which the council has influence.

2 Route Map

The proposed actions have been developed to cover the sources of carbon emissions in the borough in a way that responds to the council's remit in each area while addressing the particular characteristics of the stakeholders involved. The actions also cover the three elements of the energy hierarchy: energy demand reduction (energy efficiency actions), improved energy supply efficiency (moving towards electrification for heating and transport), and increased renewable generation. The actions are informed by modelling, research, case studies, and engagement with the council and community representatives.

Sections 3 to 6 detail the proposed actions across each sector. The actions are tagged with a reference code (e.g. W2) but note that the numbering within this coding does not carry any prioritisation or scoring meaning.

Some of these actions reflect an acceleration of actions that have been carried out in a limited way already (such as energy efficiency measures in homes), and others represent opportunities for new action (e.g. new heating technologies, connection to district heating networks and large scale renewable generation in the borough). However, none of the actions represent 'business as usual' – it is important to recognise the scale of the challenge. In the domestic building sector, which contributes half of the borough's emissions, some 100,000 homes need to be upgraded to reduce their energy demand by an average of 36%. This will require an average retrofit rate of around 1,700 properties per year, with a maximum rate of retrofit mid-2030s at more like 3,750 properties per year. This is more than three times the maximum rate achieved during the Decent Homes programme which averaged 1,130 social homes per year over 10 years. And it is well over ten times the maximum rate of high-cost measures delivered in the borough under the Smart Homes scheme, which delivered 255 high-cost retrofits to domestic properties in the borough of Haringey over the course of two years.

A high-level summary of the route map is shown overleaf, with key points on the timeline between now and 2050 associated with the actions identified as part of this work, as well as notable dates, deadlines and commitments from a wider London and national context.

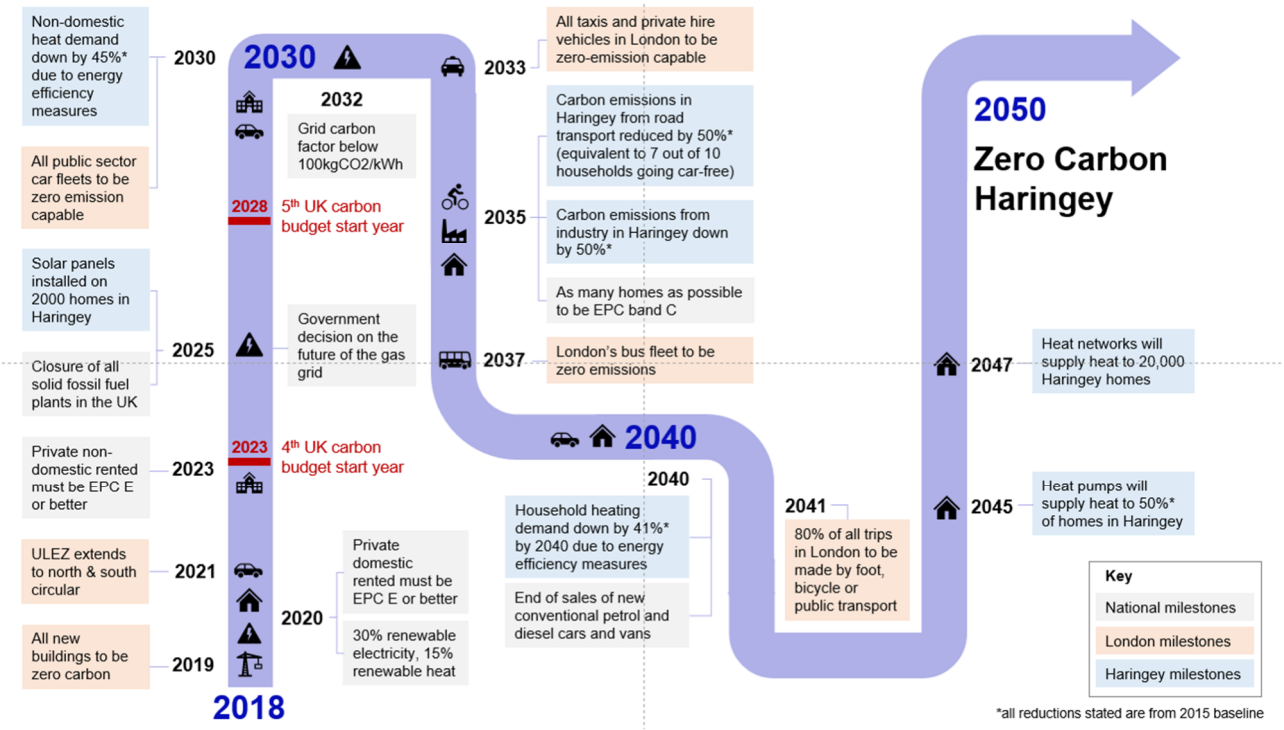


Figure 8: Haringey Borough's route map for approaching zero carbon by 2050

Short term actions: 2019-2021

Carbon reductions in the borough need to be accelerated as soon as possible for the best chance of achieving zero carbon in 2050. For this reason, any of the actions that can be begun in the short term should be started now.

These actions include those where the council has the most direct control over immediate decisions; in particular its enforcement of existing national regulations as well as committing to progressive local planning policies for new and redeveloped buildings.

Carbon emission reduction also needs to be incorporated into the aims of all ongoing maintenance and upgrade works to council owned property.

Early engagement with public bodies in the borough needs to start now, especially with those where shared goals and significant co-benefits exist. For example, working with NHS Clinical Commissioning Groups to fund air quality improvement schemes around schools.[8] Engagement with businesses through business improvement district boards and other existing networks should also be prioritised to enable change to begin in some of the hardest areas for the council to reach.

A mode shift in transport choices can begin immediately,[9] together with co-ordinated action across relevant departments to deliver improved active transport infrastructure. This can stimulate residents and those who work in Haringey to make more sustainable choices every day so that they benefit from improved mental and physical health and cleaner air as soon as possible.

Taking advantage of existing sources of funding can help deliver an increase in solar PV on rooftops across the borough. An example is the Mayor's Solar Together London scheme which gives residents the opportunity to purchase solar panels at a highly competitive price through a group-buying, reverse-auction mechanism. These opportunities can support a scaling up in rooftop solar PV in line with the zero-carbon pathway modelling. The

[8] The Mayor of London's School Air Quality Audit Programme: William Patten Primary School, London Borough of Hackney (Mayor of London, 2018)
[9] London Borough of Haringey Local Implementation Plan (LIP3): Draft for Public Consultation 2019-2022 (Haringey, October 2018)

scale assumed by the modelling corresponds to 12% of available rooftops (around 10,000 buildings) in the borough having solar PV installed.

Planning and preparation should also begin now for projects that will be delivered in the medium term. Infrastructure projects such as heat networks, EV charging infrastructure and active transport infrastructure take longer to deliver but must be planned in as soon as possible to maximise impact.

Therefore, development of minimum standards that articulate the council's ambition for each sector and type of deliverable are required now to form the foundation for large programmes of investment in the borough that are being defined now.

Medium term actions: 2022-2030

The main activity in the medium term will be delivery of programmes designed and begun in the short term. For example, actions that will be delivered in the next 5-10 years include upgrade of the council's own building stock including social housing and council offices. Flagship renovations of council owned public buildings can be planned to take place in the mid-late 2020s.

Working up effective packages of technical advice on delivery of energy efficiency retrofits to residential buildings in the borough will take time to plan properly but could begin in the short-medium term, as can engaging with businesses that are outside the council's immediate sphere of influence. Similarly, encouraging prioritisation of carbon reduction in decision making should be prioritised for the medium term. This could be facilitated by lobbying for wider policy changes such as linking business or council tax rates to the energy efficiency of buildings.

As new and emerging and technologies for reducing emissions from buildings and transport become cheaper and more prevalent, the focus should move towards encouraging uptake of these technologies. For example, low carbon heat networks can deliver carbon reductions at scale and provide an incentive framework for the network operator to continue to drive down emissions. For buildings not suitable for connection to a heat network, heat pumps are today in use in very few buildings in the UK, but they are a proven alternative to gas, and would continue to deliver declining emissions in buildings as the UK electricity grid decarbonises.

Long term actions: 2031-2050

Larger scale infrastructure projects such as the installation of wind turbines or reservoir solar PV in the Lee Valley are longer term actions which could be promoted by the council. It will also be important to continue with any outstanding or ongoing actions from earlier years, and to stay abreast of advances and innovations in low carbon technology as well as in policy, regulation and financing mechanisms.

3 Proposed Actions on Homes

Introduction

Whilst new homes are an opportunity for the adoption of best practice and minimising new emissions, the bigger challenge and opportunity in the borough, as with most urban settings, is existing building stock. Taking action to reduce emissions from existing homes in the borough is best considered in terms of tenure type and the owner's need and ability to pay for property improvements.

The council's ability to achieve action on housing varies considerably between different tenure types, and each group is likely to require a different approach to drive reductions in carbon emissions from heating and electricity. The housing actions have therefore been developed to address the different groups within the sector.

Action H1 - Deep retrofit of all council owned social housing

Description
Develop a retrofit strategy to improve the energy performance of all council owned housing, including insulation and energy related infrastructure (eg. loft, floor and wall insulation, double or triple glazing, heating sources & controls, LED lighting and energy efficient appliances etc.) in all residential blocks and individual homes to improve energy efficiency of properties and reduce energy demand.
Scale and timing
18,000 council owned homes to achieve a minimum of EPC C (with average of SAP 80) by 2035.
Cost
Capital cost of £190m at an average of £11,000 per property. These figures are based on modelling by Arup for the GLA in development of London's climate action plan[10]
Direct benefits
Reduced energy costs for residents. By 2035 council housing retrofits to have reduced energy use in these homes by 68GWh per year, compared with 2015, delivering an average reduction of 20% per property. These figures are based on work by Arup for the GLA as referenced above.
Other benefits - *Economic, social, environmental, health etc*
• Health and well-being: warmer, quieter, improved air quality, better occupant control - leading to health benefits for residents and reduced burden on health services • Reduced heating bills for social housing residents, reduction in fuel poverty • Local economy: local jobs for installers
Delivery route
Delivery by Homes for Haringey with council funding, led by council's Housing Director & Strategy Team
Stakeholders and their roles
• Homes for Haringey: agreement of and management of delivery of work • Council housing management team: Securing funding, ensuring alignment with other Council actions. • Council tenants: Engagement with maintenance and upgrade programme to allow necessary access to the properties and training to make the most of new controls • Delivery partners (e.g. installers, contractors, investors, ESCOs): Delivery of programme of works
Enabling actions
• Establish EPC baseline across housing stock and identify short term opportunities to build momentum • Evaluate funding and delivery models, develop business case for large scale investment. • Review existing contract KPIs and programme to determine timing for integration of this increased ambition into plans.
Required internal staff skills
Programme design, implementation and management General building maintenance including insulation, including roof, floor and wall insulation Delivery of public awareness and engagement programmes
Legislation - *Supporting or required*
Minimum energy efficiency standards
Funding requirements and possible sources
• Contributions from housing maintenance budget • Carbon offset fund • Third party finance with repayment from energy savings
Metrics
Programme metrics - % of social housing units at or above EPC C
Impact metrics - Total energy consumption of social housing in borough of Haringey, or average per housing unit. Useful to monitor also thermostat settings, satisfaction levels, patterns of usage to understand if behaviours change following improvements to increase/decrease impact of the action

[10] CAP Technical Assistance for London Work Package 2 – Zero Carbon Building Policies: Key findings Report (Arup, 2018)

Context

Carbon emissions from Haringey's homes comprise the largest component of the borough's emissions, and the council owned homes are where the council has ability to deliver the greatest reduction directly through its own work.

Haringey Council owns around 15,000 residential properties. According to a 2015 survey, the average property standard across the portfolio is EPC band D, with estate-based dwellings and high-rise flats generally better performing than scattered street dwellings. Smaller properties have higher SAP ratings than larger ones. Haringey Council has carried out spatial analysis which showed the average SAP rating by ward (see Figure 9).

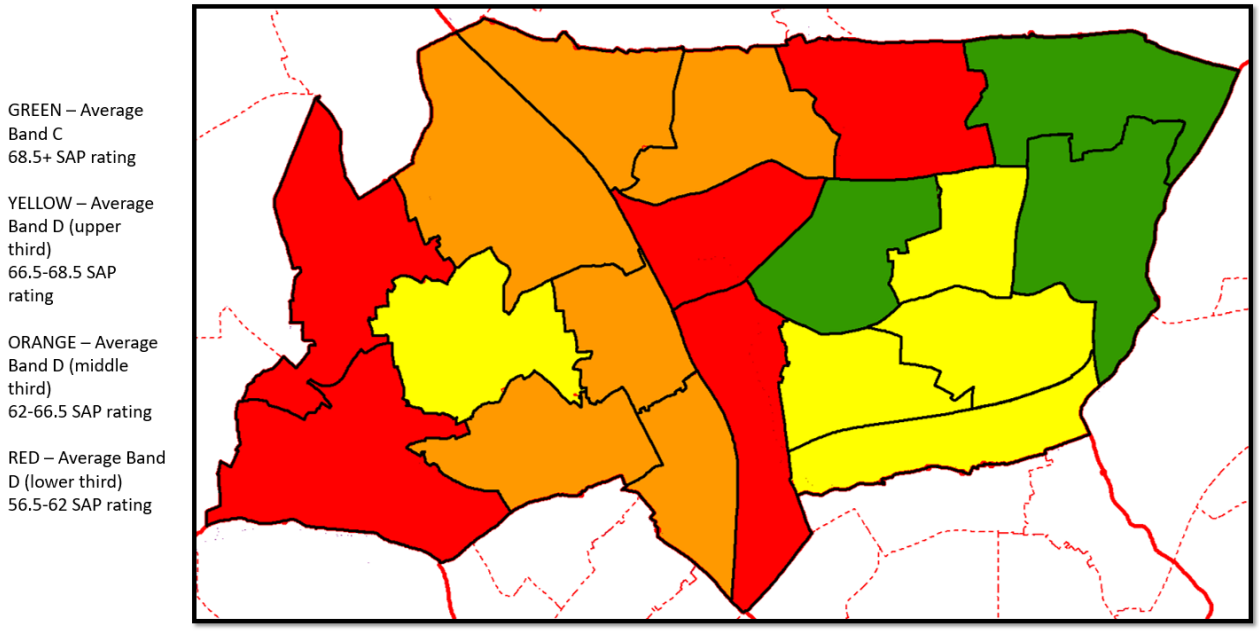


Figure 9 Average SAP rating by ward (image: Homes for Haringey)

Homes for Haringey manages Haringey Council's housing. Its capacity to improve social housing has been demonstrated by the Decent Homes programme, a ten-year programme to improve the quality of social housing in the borough and ensure that homes met the minimum comfort, and health and safety standards set out by the governments' Decent Homes criteria.

The programme delivered improvements to over 11,000 homes. Whilst the primary focus was not carbon reductions, emission savings associated with interventions, such as boiler replacement, insulation and double glazing, are estimated to be approximately 5,000 tCO_2/year.

Homes for Haringey is now taking a more holistic approach in its improvement programmes, having developed a new asset management strategy comprising an agreed five-year programme of investment that runs until 2023. This will enable contractors to take a longer-term view and tackle problems using a systemic approach to prioritise and identify where the biggest impacts can be delivered, with a cost-benefit focus and a long-term view.

This action should encourage Homes for Haringey to increase the priority of carbon reduction activities in their improvement works and use the first five-years to pilot activities that will deliver the required improvements across all properties by 2035.

Delivery

Successful implementation of action H1 depends on a combination of aggressive capital cost reduction, maximising operational energy savings and securing additional funding for the investment.

Data-driven works and operations

Specification of the works for each property is a critical driver of the cost of the works. Inspecting and specifying activities are themselves significant costs, but more importantly they determine the energy- and carbon-saving effectiveness (i.e. kWh saved per £ of capital investment). Better quality and more accessible data would allow the specification of works to be completed more rapidly and with greater accuracy. Modern data analytics and cloud computing enables meaningful, affordable and timely analysis to be conducted on colossal amounts of data. A data-driven approach to the capital programme could involve:

- Digitising building records and automatic 3D façade modelling
- Installation of hourly electricity and heat metering and temperature monitors throughout estate. Installation of smart lighting and heating controls in each room.
- Capture of hourly temperature, electricity and heat metering from each property in a central database
- Analysis and optimisation of each building's control system through a heating season, to achieve readily available energy savings and to characterise fabric-based savings opportunities.

Scaling up the programme

Although the scale of Haringey Council's ambition is already significant, scaling up even further could deliver greater efficiencies and potentially enable the programme to access other funding options, such as impact investors and pension funds. If Haringey Council were able to link up its housing programme with neighbouring boroughs (or even a network of dispersed but like-minded local authorities) accessing closer to 100,000 properties for a single programme of works, it could bring the scale of capital expenditure required up to more than £1bn and thereby stimulate the interest of the international investment community.

Engaging with the supply chain

Given the scale of ambition, the council has the potential to engage supply chains to deliver a more innovative solution to building retrofit. For instance, there would be opportunities to work with partners to drive forward "digital construction" using 3D modelling and advanced manufacturing techniques to employ offsite bespoke component manufacturing and rapid onsite installation. These techniques, which are becoming mainstream in new build projects, can drive down costs and reduce disruption for tenants due to shorter installation times.

Another opportunity would be to establish a local "smart retrofit academy" (or similar) to train local builders or apprentices, helping to maximise the local economic impact of the investment programme. This should be grounded in learnings from the experience within the borough, for example from existing skills development programmes at educational institutes such as the College of Haringey, Enfield and North East London (CONEL) and from schemes run or participated in by local businesses – such as RetrofitWorks.

Action H2 - Technical advice on energy efficiency for all domestic property owners & occupiers

Description
Provide technical advice to residents and residential property owners on energy efficiency and energy saving improvements. This advice would support private action to improve energy performance of privately owned housing units, including owner occupiers and private landlords. To include recommended traders and contractors, funding options and advertising/engagement activities to raise awareness of the service, support for behaviour change, as well as practical property specific advice on technical improvements. Tailored to support different tenant types differently. This action should be a catalyst for private and independent action within the borough, and will also strongly support action H3, linking in to where funding opportunities exist as appropriate.
Scale and timing
86,000 non-council owned homes. Starting now and continuing until all residential properties are at EPC C or better by 2035. Following 5 years working to improve properties to EPC B or A.
Cost
Programme cost of £525,000/year based on 15 staff, each to spend half a day per property. Total staff allocated to H2 and H3 combined is equal to the number of staff per property that delivered the Smart Homes programme
Direct benefits
Reduced energy costs delivering 260GWh/yr reduction in energy consumption by 2035 if all non-council owned homes are improved to EPC C. This represents 16% of domestic energy demand in 2015. Estimated savings are based on work by Arup for the GLA, as referenced under action H1.
Other benefits - Economic, social, environmental, health etc
• Better homes - warmer, quieter, improved air quality, better occupant control - leading to health benefits for residents and reduced burden on health services • Reduced heating bills for residents, alleviation of fuel poverty • Local jobs for installers
Delivery route
In-house service delivery or partnership with an external provider
Stakeholders and their roles
• Council carbon/energy efficiency team (or external provider): as service providers • Residents (owner occupiers and tenants) and residential property owners (landlords): as customers of the service
Enabling actions
• Development of in-house skills (or appointment of external provider) • Survey of housing in the borough to understand the range of improvements required
Required internal staff skills
Technical understanding of available improvements Marketing and public engagement to build awareness of the service and encourage take-up
Legislation - Supporting or required
Minimum energy efficiency standards Would be useful to have tools to mandate improvements to owner occupier units
Funding requirements and possible sources
• Council operational budget • Carbon offset fund
Metrics
Programme metrics - % of privately owned housing units with an EPC of C or better. Number of properties improved each year. % of eligible homes engaged.
Impact metrics - Total energy consumption of privately owned housing in Haringey, or average per privately owned housing unit

Context

Homes represent the biggest source of existing emissions within the borough, but the number of homes that Haringey Council has control over is relatively small. Therefore it is important for the council to act to influence and enable change within privately owned homes in the borough.

40% of homes in the borough are occupied by people with an ownership interest. Another 30% are privately rented and 10% are socially rented, from non-council landlords. Together these add up to over 86,000 owners, landlords and tenants whose behaviour could be influenced by council engagement to reduce energy consumption and invest in energy efficiency and low carbon retrofit.

Barriers to action by property owners can include an absence of a mandate, lack of funding, lack of awareness that retrofit is valuable or necessary, or lack of skill to implement a retrofit project. This action addresses the awareness and skill aspect, and is targeted at building owners as those with most control over implementation of retrofit measures. This could be property landlords or owner occupiers, although tenants would also have a role to play in the use and operation of domestic energy systems.

There are already non-council initiatives and groups that provide energy efficiency advice and guidance within borough of Haringey, including the Muswell Hill Sustainability Group who provide support and advice, and SHINE London[11] who offer a fuel advice service and help residents look for eligible grants. SHINE London is also building a network that will include council frontline staff and organisations such as the Citizens Advice Bureau to better link up the existing provisions within the borough.

These are relatively small and specific services. This action proposes that the council creates or employs a more comprehensive programme of technical advice that targets a much larger audience with a comprehensive range of services. Technical advice has been a feature of previous programmes such as the Smart Homes programme in 2013-15, and it is important to capture the lessons from such programmes to maximise the effectiveness of a technical advice service scaled up to encourage all home-owners to act. Learning from individuals' experience and other, third party expertise will also be important, and consideration should be given as to the best way to identify and collate knowledge from various individuals and groups within the community, as well as collating and/or signposting people to the most up to date information from specialist organisations such as the Energy Saving Trust, 'Which?' and the Centre for Sustainable Energy.

Delivery

An effective technical advice programme depends on the council's ability to influence outside its direct sphere of control (i.e. where the council does not directly control through contractual or procurement requirements, or through legislation, but may have influence through regular communication channels, e.g. collection of council tax etc). Successful implementation of action H2 depends on targeting the right audiences, publicising the programme(s) well and linking effectively to funding and financing options. These are each considered in turn.

Targeting the right audiences

Different homes have different circumstances, and to be effective, a technical advice programme needs to take this into consideration and target interventions and link to appropriate funding opportunities. For example, privately rented homes are likely to require a different approach to owner occupiers, and fuel-poor, vulnerable homes will require a different provision compared to those with the ability to fund, or part-fund improvements.

Another aspect of targeting the right audiences is to consider when people are most receptive to having this type of work done – for example, residents that are already planning or in the process of renovating a house are in a better position to include an uplift in cost to achieve improved energy efficiency. This may not be something they would think of automatically, but a technical assistance programme could help.

[11] https://shine-london.org.uk

Publicising the programme

If people are unaware or disinterested, they will be unlikely to engage with a technical advice programme even where funding would support the delivery of measures. To maximise accessibility of the programme, publicity to raise awareness needs to be designed and targeted effectively. This means thinking about where and when people may be most receptive to information, as well as how the council could stimulate interest amongst its residents; this might be from a climate change perspective but might also target other reasons that people may have for engaging with home renovations such as comfort, aesthetics, property value or savings on fuel bills.

Using existing networks and groups in the borough to accelerate word-of-mouth publicity and engage a wide range of people will help. This might include schools and other education-related groups, faith groups and residents' associations.

In many cases, there are significant opportunities to not only increase publicity but also to build capacity and economic benefits in the borough by linking interested homeowners and landlords to local installers. This could be effectively done through establishing a collaboration with existing bodies such as the RetrofitWorks co-operative.

Linking effectively to funding and financing options

Whilst some residents may value the opportunity to access technical assistance but have the means and inclination to fund the work, for many people, energy efficiency improvements may not be a priority.

By linking technical assistance services effectively to sources of funding (see action H3), this will give the opportunity for both funding and technical assistance programmes to achieve more together than they would separately.

This aspect links closely to the point on targeting the right audience; as many funding options or opportunities to finance energy efficiency retrofit will depend on the circumstances and type of home in question. This links closely to principles of community wealth building and these elements should be explored further.

Action H3 - Funding assistance to support delivery of improvements in privately owned residential properties

Description
Identify funding sources and manage distribution of funds to support adoption of energy related improvements in privately owned residential properties.
Scale and timing
86,000 privately owned homes. Starting now and continuing until all residential properties are at EPC C or better by 2035. Next 5 years working to improve properties to EPC B or A.
Cost
Capital cost of required works £660m at an average of around £7,700 per property. These figures are based on work done by Arup for the GLA, as referenced in action H1. Programme cost of £420,000/year based on 12 staff, based on each person managing grants to 480 properties/yr. Total staff allocated to H2 and H3 combined is equal to the number of staff per property that delivered the Smart Homes programme
Direct benefits
Reduced energy costs delivering 260GWh/yr reduction in energy consumption by 2050 if full retrofit of private housing sector is achieved. This represents 16% of domestic energy demand in 2015. These estimated savings are based on work done by Arup for the GLA, as referenced in action H1.
Other benefits - Economic, social, environmental, health etc
• Enable uptake of improvements supported under action H2 through financial assistance • Reduced fuel poverty in the private rental sector through reduced energy bills • Improved housing quality
Delivery route
In-house service provided by the council or partnership with external provider/s
Stakeholders and their roles
• Residents and private owners of residential properties as recipients of funding • Council carbon/finance team as programme managers
Enabling actions
• Identification of funding sources, within council budget and from external private and government sources
Required internal staff skills
Project and financial management, fundraising and public engagement
Legislation - Supporting or required
Minimum energy efficiency standards Would be useful to have tools to mandate improvements to owner occupier units
Funding requirements and possible sources
• Regional and government grant schemes • Large scale investment funds who could provide loans paid back on the sale of the property
Metrics
Programme metrics - Number of grants and/or loans awarded. Amount reported spent on retrofit solutions either voluntarily or as part of grant/loan programme. For grant/loan programmes, the % of eligible homes given funding.
Impact metrics - EPC improvement following distribution of grants. Reduction in energy at each supported property

Context

As discussed under action H2, there are around 86,000 privately owned homes in Haringey, and over £600m needs to be spent on these properties to reduce energy consumption and carbon emissions. The council does not have the authority or funds to deliver retrofits in the private market but can support delivery of retrofits through identifying funds and developing a programme to link investors with investment opportunities.

For many of the borough's residents, the cost of energy efficiency retrofits is prohibitive, particularly the interventions that have a higher impact, and therefore higher cost. Even for those that can afford to self-fund retrofit work, long payback periods for interventions such as solid wall insulation dissuade people from investing.

Solutions include a number of funding mechanisms, from simple grants to low-interest loans that are paid back through the savings on fuel bills as a result of the work, or 'green mortgages' and conditional low-cost lending to encourage home owners to carry out the required measures. New 'energy as a service' business models are being developed and tested, with promising results for driving better energy behaviour and connecting incentives to invest in energy savings with service providers who have the ability to invest.[12] Few of these mechanisms, incentives and business models can be delivered by the council, but it can play a key role in connecting people to the funding that is available both internally and from third parties. The council can also seek and encourage potential funders to become involved in the retrofit sector.

Delivery

Successful implementation of action H3 depends on making an attractive and sustainable proposition for potential funders, identifying ways to scale up and cut costs, and creating long-running programmes that are maintained until all properties have an acceptable minimum energy efficiency performance. These are each considered in turn.

Presenting an attractive and sustainable proposition

Property owners are more likely to undertake retrofit activities if it is easy and affordable. By identifying funds and making them readily available to property owners the council can reduce barriers for owners to engage with retrofit activities and can also make the market more attractive for potential investors. The council's experience with the Smart Homes project is useful experience on which to build in delivering this action.

An attractive option could be one that provides reasonable return at a large scale and low risk for large scale investors.

Scaling up action and cutting costs

As with action H1 (deep retrofit in all council-owned housing), economies of scale could be generated by facilitating whole-street retrofit schemes, or by linking with neighbouring boroughs as was done by the council's Smart Homes programme which delivered for six north London boroughs in 2013-2015. Scaling up like this streamlines administrative costs, but also generates an investment potential of a size that is more attractive to larger investors.

The council is a trusted organisation within the borough. This trust is a valuable asset which can help in influencing action within the borough. Facilitating neighbours to work together and benefit from shared overhead costs for retrofit works is something that the council can do in this position of trust, as well as signposting legitimate and sustainable sources of funding for residents.

Funding should also be accessible to owners and residents across the spectrum of property ownership and tenure arrangements to maximise the opportunity to parcel together larger numbers of similar properties (type, location etc).

Longer running programmes to maximise uptake

One barrier to engagement and the success of schemes such as the Smart Homes programme is the fact that funding is often available for relatively short-term programmes lasting only a year or two, if that. A longer programme would allow for slower, word-of-mouth spread in uptake; the Smart Homes delivery team noted that interest in the scheme was growing even as the scheme came to an end.

[12] Smart Energy Services for Low Carbon Heat. Smart Systems and Heat Programme: Phase 2 Summary of key insights and emerging capabilities (Energy Systems Catapult, 2019)

Delivery of the Smart Homes programme supported the development of RetrofitWorks, a local retrofit co-operative; if the programme had lasted longer it could have been even more successful by maintaining support for longer term development of the local market and supply chain.

Kirklees Warm Zone – domestic insulation scheme

Kirklees Council set up an award-winning 3-year, £20 million project to offer free cavity wall and loft insulation to every private residence in the borough regardless of household income, circumstances or property size. The project ran between 2007 and 2010.

In total, 51,155 homes had energy saving measures installed. 42,299 properties received free loft insulation and 21,473 had cavity wall insulation installed[13]. The delivery mechanism offered a joined-up approach to other council and partner service offerings such as heating system replacement, fire and water services, and benefits advice.

The total cost of the scheme was approximately £21 million; of which the majority of funding came from Kirklees Council and CERT (Carbon Emissions Reduction Target) funding from ScottishPower[14].

The scheme created 103 full-time jobs, and delivered annual carbon savings of around 28,000 tCO_2. It is also estimated to have saved participating households around £200 a year on fuel bills.

Figure 10 Kirklees Warm Zone – case study for large-scale, council-led domestic energy efficiency retrofit project. *Image from Ashden website [https://www.ashden.org/winners/kirklees-council]*

[13] YES Energy Solutions – Kirklees Warm Zone summary: https://www.yesenergysolutions.co.uk/schemes/kirklees-warm-zone
[14] Kirklees Warm Zone Scheme: End of Project Process Evaluation Report (Kirklees Council, 2011)

Action H4 - Enforcement of national regulations

Description
Provide support and advice to enforce national regulations with respect to energy efficiency and energy consumption in homes. Ensuring that any penalties are interventions that assist in achieving compliance. Also working to support creation, and continuing improvement of, energy efficiency standards
Scale and timing
43,000 privately rented homes. Starting now and continuing until all housing units are compliant with all relevant national regulations
Cost
Capital cost of energy efficiency works in the private rented sector to bring all properties to EPC C estimated to be £320m. This is a sub-set of the figure provided in H3 and would be improvement beyond what is currently required by MEES. This figure is based on work done by Arup for the GLA, as referenced in action H1 £140,000 over 2 yrs proposed to cover identification of non-compliant properties and develop an enforcement strategy that supports environmental health and building control teams to identify properties and deliver compliance, in conjunction with teams delivering actions H2 and H3
Direct benefits
Energy efficiency works in the private rented sector to bring all properties up to EPC C could deliver 120GWh of energy savings. This figure is based on work done by Arup for the GLA, as referenced in action H1
Other benefits - Economic, social, environmental, health etc
• Maintaining availability of maximum number of housing units while improving the living conditions of residents • Health benefits associated with better quality housing • Reduced heating bills for social housing residents, alleviation of fuel poverty
Delivery route
In-house team/s
Stakeholders and their roles
• Council environmental health and building control teams - to identify non-compliant properties and specifics of non-compliance • Private property owners - to engage with improvement process to avoid penalties • Private rental tenants – to raise concerns and allow access for remedial works
Enabling actions
• Identification of non-compliant properties and specifics of non-compliance • Development of a strategy that offers straight forward routes to compliance, drawing on actions H2 and H3
Required internal staff skills
Regulation enforcement - conflict resolution and public engagement
Legislation - Supporting or required
Minimum energy efficiency requirements Standards for homes in multiple occupation
Funding requirements and possible sources
• See actions H2 and H3 for capital funding of remedial works • Council programme funded by operational budget
Metrics
Programme metrics - Number of non-compliant properties and annual change
Impact metrics - Measure of improvement per property following compliance (SAP or EPC improvement)

Context

Regulation relating to domestic energy efficiency is currently limited; there is a requirement for all homes to have an EPC at point of sale (but not to be at a particular standard), and there is recent legislation that requires a

minimum standard of EPC E in privately rented properties[15]. Haringey Council already have a set of minimum property standards for privately rented buildings that include a requirement for an EPC D or above[16]. Furthermore, private rented households are typically recognised as a difficult sector to engage. Tenants pay the energy bills and therefore benefit from energy efficiency improvements, but rarely have the authority or incentive to carry out improvements to a building that they do not own.

Haringey has a particularly high proportion of private rented housing stock (31% compared to the national average of 21%), and the council is the responsible authority for enforcing the new Minimum Energy Efficiency Standard legislation (MEES). The effective enforcement of these regulations, as well as using this as leverage to go beyond EPC E therefore presents a significant opportunity to tackle a traditionally challenging tenure type within the domestic market. Close co-operation and support from the carbon management team will be essential to optimising the benefits from this legislation.

However, there will be barriers to address; the council currently has limited influence over private landlords and recognises that awareness of the new legislation among frontline staff is low. There is also a lack of resources to support effective enforcement, and there are legitimate concerns about the knock-on effect of heavy enforcement of the regulations on other issues such as homelessness in the borough.

Delivery

Successful implementation of action H4 depends on early and effective engagement with landlords, tying penalties to retrofit offerings, and utilising the opportunity to go beyond the minimum standard required by the legislation. These are each considered in turn.

Early and effective engagement

Affected landlords are likely to be aware of the legislation but may not be considering how they can use the opportunity to maximise savings and energy efficiency improvements. The council can play a role in facilitating the uptake of required improvements by landlords and using this opportunity to encourage improvement beyond the minimum required. The council could introduce landlord registration for all private landlords in the borough to facilitate engagement with this sector. An important part of engagement will include an aim to better understand the barriers that landlords face and to demonstrate the potential benefits. Other tools that may help the council to effectively enforce the legislation as well as engage with landlords include for example, setting up a hotline contact number and email address, which would enable landlords to proactively seek support, and could also function as a way for tenants or other parties to report non-compliant properties for investigation.

Penalties that are a sufficient deterrent to inaction

Issuing significant financial penalties to non-compliant landlords benefits the enforcement approach in two ways; firstly, it should increase compliance amongst those landlords that can afford to invest in the improvements and are responsible landlords, and secondly it means that the council can then afford to offer a retrofit service to deliver compliance, funded by the penalty fee. This would also reduce the risk of the non-compliance resulting in uninhabitable properties and impacting homelessness/housing insecurity within the borough.

Full scale retrofit in the private rental market is estimated at an average of around £8,000 per property. With the maximum penalty currently set at £2000, or £4,000 depending on the period of non-compliance, the target energy reductions in this sector will not be met through this action alone. It is however an important tool, together with H2 and H3, for encouraging activity in the domestic market beyond the council's direct control.

[15] Energy Efficiency (Private Rented Property) (England & Wales) (Amendment) Regulations 2019
[16] Haringey Minimum Property Standards (Haringey Council, 2015)

Action H5 – Achieving zero carbon in new and redeveloped homes

Description
The development and implementation of planning policies that deliver ambitious energy efficiency performance in all new and redeveloped homes within the borough, covering both council and non-council owned properties. Elements include setting a carbon price to support adoption of technologies that reduce on-site emissions, supporting development of technology agnostic and future-ready solutions, and preventing creation of future stranded assets.
Scale and timing
50,000 new homes to be delivered by 2050. Starting now, with annual policy and carbon offset price reviews to steadily tighten requirements in line with best in class
Cost
No additional cost for the council for setting and enforcing policy. Gathering evidence may involve additional cost of commissioning study etc.
Direct benefits
• Reduced energy costs in operation and avoided cost of future retrofit works • Potentially increased level of S106 funding to deliver new carbon reduction schemes within the borough
Other benefits - Economic, social, environmental, health etc
Warmer, healthier homes, cheaper to run.
Delivery route
In house through evidence-based policy setting and enforcement. There may need to be some level of building the evidence through e.g. a study on best practice price of carbon
Stakeholders and their roles
• Council leadership - in their commitment to sustainability and reducing carbon emissions within the borough • Planning and redevelopment teams - enforcement of published policies for all planning applications without exception • Developers and builders who deliver new housing within the borough - engagement with the targets and commitment to the spirit of Haringey Council's intent
Enabling actions
• Ambitious, but achievable, policies with respect to predicted carbon emissions from new buildings • Setting carbon offset prices that encourage on-site energy efficiency measures • Training for planning staff and other supporting teams on the importance of securing the relevant conditions and what should/should not be considered a legitimate viability appeal. • An update to the Sustainable Design and Construction SPD may be required. • Establishing monitoring of energy performance and carbon emissions from new homes borough-wide to enable comparison with local planning policies.
Required internal staff skills
Unambiguous policy setting and delivery that respects and where possible enhances or goes beyond associated national and regional policies. Recognition of where there is still potential to ask more of developers and where viability tests are a legitimate justification. Engagement with and understanding of developer's priorities to ensure requirements are clearly communicated.
Legislation - Supporting or required
Part L of the Building Regulations and the London Plan. Desirable that these regulations are regularly updated to require ever improving building energy efficiency performance.
Funding requirements and possible sources
Funding not required for implementation of the action except for one-off costs of commissioning specific evidence gathering studies etc where required.
Metrics
Programme metrics - Number of new homes delivered each year and EPC or SAP ratings
Impact metrics - Energy performance of, and carbon emissions from new homes in borough of Haringey in comparison with the requirements of the London Plan

Context

Haringey is set to gain around 50,000 new homes between now and 2050. Unless these new homes are built to the best available standards of energy efficiency, these new homes will become part of the future problem. The council can play a key role in ensuring that these new developments are built to the highest standards possible.

The GLA, through the draft new London Plan, requires that from 2019 all new major developments will be zero carbon, delivering at least 35% improvement over the minimum requirements of Building Regulations Part L on site. The remainder can be achieved through carbon off-set payments. The carbon price for off-set payments is set at a council level, informed by a local viability assessment or a nationally recognised carbon pricing mechanism (such as the non-traded price of carbon at £95/tCO_2 per year) tested as part of the viability assessment for the London Plan. A local viability assessment may support the council to increase its ambition by setting a price sufficiently high to encourage on-site carbon savings. Haringey Council has at present a carbon offset price of £90/tCO_2 per year considering a lifetime of 30 years; and is currently reviewing this figure to ensure that carbon savings can be delivered. It is widely acknowledged that the current carbon offset price is too low to encourage significant on-site carbon reductions.

A common barrier to achieving the best standards on site is the cost of building to this standard and the consequential impact on a developer's ability to provide affordable housing. However, it is possible to build homes that meet the highest energy efficiency standards without substantial additional cost, as demonstrated in Figure 11.

The delivery of new, zero carbon social housing in the borough is dependent on the council's own ambition in the projects that it procures. This is a opportunity for the council to lead the way. While new social housing will be a relatively small contributor to overall emissions, the publicity afforded by this opportunity as well as the potential scrutiny means that the council could have a much larger impact in terms of a spillover effect, inspiring others in and outside the borough to aspire to lower carbon standards on site through design and construction methods. This is also an opportunity to stimulate the local construction market and support the local low-carbon economy

Delivery

Successful implementation of action H5 depends on proactive engagement with developers, a carbon offset price that stimulates on-site carbon reduction as well as covering costs of carbon reduction measures within the borough, and a co-ordinated approach within the council to ensure clear and consistent messaging. Improved co-ordination between key council teams including development management, regeneration, transport and carbon management should focus on delivering early and consistent advice to planning applicants on reducing carbon emissions within developments. Internal conversations regarding how this is best facilitated within the council should be encouraged by senior leadership.

This action does not impact existing emissions but reduces the scale of the growth in emissions. It is cheap for the council to deliver, and cheap compared with the cost of future retrofits. It is completely within the council's control and demonstrates leadership through commitment to the zero-carbon goal. As such this is a relatively easy, but powerful action.

Greatest impact will be delivered if this action is developed in conjunction with the energy supply and transport planning actions where the council has similar powers to shape strategies and development plans.

Planning policy can also support retrofit activities through blanket support for interventions that would often require planning permission such as roof-top PV arrays, external, solid wall insulation and changes to windows. This may not be possible in all locations due to constraints such as conservation areas etc; however, it could be looked at on a zonal basis with the intention to deliver the least complicated blanket policy solution.

Where carbon offsets are paid by true necessity, the council should consider placing a condition that enables staged collection of payments (for example collecting half on approval and half on completion) to allow the benefits of these payments to be delivered earlier on.

Welsh Future Homes – low cost, low carbon design[17]

Cost is often cited as a key barrier to developing low-carbon homes. Welsh Future Homes is a showcase for experimental, low energy homes specifically designed for the local conditions, and to Passivhaus standard, at low cost.

At the time of construction in 2010, Larch House was the UK's first zero carbon, low cost house (built to Code of Sustainable Homes (CSH) level 6).

The Welsh Future Homes houses, built to CSH levels 5 and 6, cost £1,300 to £1,700 per m^2, which compared to the average cost of CSH level 3 social housing at £1,200 per m^2. The houses offer significantly reduced operating expenses, with heating costs as little as £80 per year.

By focusing on using local skills, and locally produced materials, the project also demonstrated the potential for stimulating the local economy and building the low carbon construction market.

Figure 11 Welsh Future Homes – case study for low carbon design at low cost. *Image from Design Commission for Wales*.

[17] Design Commission for Wales: Welsh future Homes – The Larch House and Lime House - https://dcfw.org/larch-house/

4 Proposed Actions on Workplaces

Introduction

In Haringey, most business-related carbon emissions derive from the buildings they occupy. Therefore, the actions proposed in the non-domestic sector are similar to those proposed in the domestic sector and targets relate to the characteristics of the workplace buildings, such as:

- new vs existing buildings
- energy efficiency measures vs energy supply choices
- tenure type of property; leased vs owner-occupied vs council or public owned
- size of business; SMEs vs large enterprises

Within the commercial sector there is also an opportunity to make use of sector-based networks and competition to increase emission reduction efforts.

Action W1 - Increase prioritisation of carbon emission reduction in commercial decision making

Description
Engagement with business networks to increase prioritisation of carbon emission reductions in commercial decision making. Raising awareness in commercial arenas through the Chamber of Commerce, trade associations or similar. Supporting public commitments to make energy or carbon savings in commercial operations. Making use of a platform such as We Mean Business. Include raising awareness of landlords' obligations under MEES legislation
Scale and timing
Total business base is 9,600 businesses. Starting now and running for 3-5 years
Cost
Programme cost of £70,000/yr based on 2 FTEs; 1 full-time member of staff to co-ordinate the programme alongside the equivalent of a second full-time member of staff that may be made up of different existing team members increasing their remit to include part-time work on this action. Additional funding may be required to cover the cost of technical studies and project development assistance
Direct benefits
Retrofit activities in small, medium & large enterprises in the borough could deliver up to 140GWh/yr of savings by 2050
Other benefits - Economic, social, environmental, health etc
• Reputational benefits to companies making positive changes • Improved working conditions for staff
Delivery route
In house engagement team
Stakeholders and their roles
• Carbon management team – to develop an engagement and education programme • Business engagement team – to facilitate communication with businesses in the borough • Businesses in Haringey, particularly SMEs that are less likely to have corporate sustainability agendas
Enabling actions
Understanding of specific and common opportunities for carbon reduction measures within the Haringey business community to facilitate appropriate targeting
Required internal staff skills
Influencing and behaviour change skills Good understanding of businesses' priorities and challenges; ability to build rapport and relationships with businesses Experience of bringing people together to facilitate collective action
Legislation - Supporting or required
Mandatory Greenhouse Gas Reporting under the Companies Act 2006 (Strategic and Directors' Reports) Regulations 2013 Energy Saving Opportunities Scheme (ESOS)
Funding requirements and possible sources
• Funding required for programme from council's operational budget
Metrics
Programme metrics - Number of meaningful engagements. Number of commitments made by Haringey businesses.
Impact metrics - Scale of savings implied if commitments are delivered

Context

Reduction of carbon emissions within businesses depends on it being a priority for each business. The reasons for supporting retrofit activities in their properties, as with homeowners, may be associated with many different drivers; for example, potential for financial savings, reputation and competitiveness, to meet customer expectations or to link with developing markets that place a priority on carbon reductions in the supply chain.

The purpose of this action is to gain a better understanding of business decision making and encourage inclusion of energy efficiency as an important criterion when making decisions.

This engagement with businesses in the borough is likely to result in a significant number and variety of different enquiries, requests and case-specific issues. One way to ensure that the internal team leading on this action are equipped with the right support would be to set up or make use of an existing panel of external experts. Collaborating with existing organisations could be a route to making this work effectively.

Delivery

Successful implementation of action W1 depends on:

- Making use of existing networks including business improvement district boards, trade associations and other location and service related communities. Fostering business to business knowledge sharing through a self-sustaining conversation that leads to effective action.
- Facilitating access to information and guidance available through action H2 given that many of the necessary retrofit measures are the same for both homes and businesses
- Assistance and funding supported by action W2

Action W2 - Funding assistance to support delivery of energy efficiency in commercial premises

Description
To identify funding sources and manage distribution of funds to support adoption of energy related improvements in privately owned commercial properties including small, medium and large enterprises
Scale and timing
4,700 privately owned SME commercial properties. Starting now and continuing until all commercial properties are at EPC C or better. Assuming 15 years.
Cost
Capital cost of £100m to deliver the necessary retrofits in privately owned workplaces in the borough at an average of £22,000 per property. Large variation in property size means that this cost may not reflect the cost of a typical commercial property retrofit. Programme cost of £70,000/yr for 2 members of staff working alongside the H3 action team reflecting the relatively smaller capital budget required and fewer number of properties
Direct benefits
Full retrofit in the privately-owned business sector would deliver 140GWh/yr At today's average electricity prices[18] and using 2015 energy supply data this represents a collective financial saving on energy bills of over £12m to businesses in the borough.
Other benefits - Economic, social, environmental, health etc
• Improved productivity including better staff retention resulting from better workplaces • Improved reputation
Delivery route
In-house service provided by the council or partnership with external provider/s
Stakeholders and their roles
• Carbon, finance and energy efficiency teams within the council – to identify available funding and co-ordinate the service provision • Business owners and facility managers within the borough to proactively engage and identify opportunities where collective action may present a better funding proposition.
Enabling actions
• In house influencing and behaviour change skills • Identification of funding sources in council budget, plus from government or private sources
Required internal staff skills
Project and financial management, fundraising and public engagement
Legislation - Supporting or required
Minimum energy efficiency standards for leased properties Legislation to require improvements to EPC rating of owner occupier properties would be useful
Funding requirements and possible sources
• Regional and government grant schemes • Large scale investment funds who could provide loans paid back on the sale of the property • In some cases where the payback period is short and future cost savings are attractive, businesses may be willing to fund the work themselves if technical support helps them to identify these opportunities. • At a local level, the Wood Green Business Improvement District levy fund could facilitate a joined up and scaled up procurement process for business retrofit in the district.
Metrics
Programme metrics - Number of grants given. Amount of funding available. % of eligible businesses given grants
Impact metrics - EPC improvement following expenditure of grant funding. Reduction in energy consumption at each supported property

[18] UK Power, Average commercial electricity and gas bills - https://www.ukpower.co.uk/business-energy/average-business-energy-bills

Context

The non-domestic buildings in Haringey include businesses, schools and public buildings. Businesses make up over 85% of these buildings by number.

Haringey has a micro-business economy, and it is small businesses with small balance sheets that are least likely to have funds for energy efficiency or carbon reduction measures. Action on non-domestic buildings in borough of Haringey will therefore depend on developing funding and financing mechanisms to help facilitate uptake of improvements.

It should be noted that many micro-businesses and self-employed people operate from domestic premises, while other small high-street retail units are situated below residential accommodation. In such cases action for these businesses may be more appropriately be captured under the domestic building sector emissions and associated actions.

Delivery

Action W2 is very similar to H3 and success factors will be largely the same:

- Developing an attractive and sustainable proposition for potential investors
- Scaling up action to reduce costs by developing packages of properties that require similar retrofit interventions
- Supporting long term programmes that enable the development of local supply chains, increasing the local economic co-benefits of the action
- Ensuring that funding is available for all properties, regardless of occupancy or tenure arrangements. Ensuring that initiatives tie in to community wealth building principles.

Action W3 - Engagement with large businesses and emitters to support large scale projects and effective action

Description
Engagement with large enterprises and emitters within the borough to support large-scape projects and high-profile action to inspire and encourage uptake of emission reduction activities. Examples include Tottenham Hotspurs & Alexandra Palace.
Scale and timing
Focussing on the largest 10-20 emitters in the borough. Starting now and running for 3-5 years
Cost
Cost covered under action W1
Direct benefits
Up to 65GWh/yr that would be delivered by retrofit of all large enterprise premises. Assuming today's average electricity prices[19] and using the 2015 supply data a £5.3m saving in energy costs could be achieved collectively for these businesses.
Other benefits - Economic, social, environmental, health etc
• Improved sustainability profile for businesses that engage • Greater productivity and staff loyalty in engaged businesses • High profile support for the council's plan encouraging uptake among other businesses
Delivery route
In-house council service in tandem with external providers
Stakeholders and their roles
• Council carbon / energy efficiency team to encourage and advise • Energy & facility managers at targeted businesses to engage and undertake action • Customers etc of targeted businesses to encourage and support action
Enabling actions
Identification of the big carbon emitters within the borough and engagement to understand their priorities
Required internal staff skills
Influencing skills. Understanding of business drivers
Legislation - Supporting or required
Requirements to report carbon and greenhouse gas emissions, such as mandatory carbon reporting under the Companies Act 2006, the Energy Savings Opportunity Scheme (ESOS), and the CRC scheme (or subsequent replacement when this becomes clear)
Funding requirements and possible sources
Council operational budget
Metrics
Programme metrics - Number of targeted businesses that respond favourably and engage with target setting and carbon emission reductions. Number of commitments made.
Impact metrics - Reductions in energy consumption for each business that engages. Total amount of carbon saved if all commitments are met

Context

Although medium and large businesses make up only 2% of businesses operating in the borough, they account for 43% of people employed in the borough and comprise over a third of the non-domestic buildings in the borough. Whilst large businesses may well have access to finance to invest in capital improvements within their businesses and buildings, this is not enough on its own to drive action.

Action by the largest emitters will have the largest impact on carbon emissions and will support the council in its efforts to set an example at a community level. Action by businesses may also encourage staff to consider action

[19] UK Power, Average commercial electricity and gas bills - https://www.ukpower.co.uk/business-energy/average-business-energy-bills

at home and large businesses are likely to have many employees living in the borough, extending the impact of this action.

In most cases the council does not have any jurisdictional leverage and so this action relies on softer engagement work. Haringey Council already has access to businesses operating in the borough through engagement with, for example, the Wood Green Business Improvement District and other planning and regeneration schemes, and as large employers within the borough these businesses also have influence with the council. Whilst many large businesses will be part of city or nationwide chains with decisions made outside the borough, there is some degree of control available at a local level, and local action also has the potential to impact wider decision making even at a national level.

This action is about having a big impact through a small number of engagements and extending the reach of the example that Haringey Council wants to set within the borough, and in the regional and national context.

Delivery

Successful implementation of action W3 depends on:

- Being aware of, and making use of opportunities presented by existing relationships and obligations
- Using results of ESOS to frame energy reduction activities
- Finding the people within each organisation that make investment decisions and support carbon reduction activities
- Considering how the council can support carbon emission reductions by large emitters and amplify recognition of activities within the borough

Action W4 - Engagement with public bodies to support energy efficiency in public buildings

Description
Engagement with public bodies to support energy efficiency improvements in public buildings within the borough, including education and health facilities in particular
Scale and timing
Around 270 buildings in Haringey relate to health and education. Programme to start now and run 10-15 years, reflecting the scale of the institutions that are involved, rather than the number of buildings.
Cost
Capital cost (to be borne, or funding found by the public bodies) estimated at £12m for retrofit of health and education related buildings. With building numbers relatively small this high-level estimate may not be as accurate as a more granular assessment based on a building by building assessment. Council programme £70,000/yr based on 2 staff to support council engagement with public service, allowing one week per building per member of staff every 3 years.
Direct benefits
Full retrofit of the sector could reduce energy consumption by around 28GWh/yr
Other benefits - Economic, social, environmental, health etc
• Improved productivity in public services, financial savings for public services, reduced staff turnover
Delivery route
In house council engagement service working with council service providers such as social care and education, as well as working with national public bodies such as the NHS
Stakeholders and their roles
• Council teams that manage interfaces with public bodies, in particular health and education to engage and raise awareness. • Energy and facility managers of public buildings to engage with the issue and facilitate retrofit works • NHS and Departments of Health, Education and others linked to provision of public spaces and services in Haringey to put building energy efficiency higher up the agenda
Enabling actions
• Identification of targeted public buildings and services • Identification of people within these services with responsibility for energy bills and maintenance regimes etc
Required internal staff skills
Influencing and behaviour change skills Understanding of available opportunities to improve energy efficiency in relevant buildings
Legislation - Supporting or required
Government delivery of carbon emission reductions in its own building portfolio
Funding requirements and possible sources
• Council programme funded from operational budget • Capital costs funded by national government and mechanisms identified by national government
Metrics
Programme metrics - Number of public buildings that have been targeted, and that have responded positively
Impact metrics - Measured reductions in energy consumption in public buildings, improvement in DEC performance

Context

Display energy certificates (DECs) are required in public buildings larger than 250m^2 that are occupied wholly or in part by a public authority and are frequently visited by the public.

Analysis of national DEC data provided by the council lists the carbon emissions of all buildings with DECs in Haringey; in 2010, there were 61 buildings in the borough on the DEC register. The reported emissions from the top quartile of these buildings made up 8% of the borough's total emissions according to their most recent DEC

certificate. Nationally, hospitals feature high on this list however Haringey is not home to a large hospital. The highest emissions associated with any building with a DEC in the borough of Haringey are for Alexandra Palace, at 3,900 tCO_2 (for the latest DEC issued in 2011).

This register provides a ready list of buildings to target. As a public body, the council is well positioned to connect with other public-sector organisations within the borough and encourage change. It can build a local forum for action in the public sector, accessing funding and support for carbon reduction in public buildings on behalf of all public bodies.

Delivery

Successful implementation of action W4 depends on:

- The council showing leadership and providing support and encouragement
- Building or providing technical expertise to public bodies in the borough to support adoption of appropriate building retrofit measures
- Pooling projects and resources to reduce the cost of retrofit activities
- Considering energy as a service as a way of encouraging commercial interests to support public bodies in efforts to reduce energy consumption

Action W5 - Action to reduce carbon emissions from council owned buildings

Description
Improve energy efficiency and reduce carbon emissions from council owned, non-residential buildings as demonstrated by the EPC rating of all council owned commercial premises. To extend council influence by including sustainability requirements in council supply chain contracts; e.g. energy reduction targets included in leisure centre operating contracts. Requirement that all council operators report energy consumption data year on year to facilitate monitoring and reporting on progress
Scale and timing
All council owned buildings in the borough, including the commercial let portfolio. Starting now with a 15-year programme to tackle all buildings and achieve EPC C as a minimum.
Cost
With building numbers relatively small a high-level estimate will not be as accurate as a more granular assessment based on a building by building assessment. Programme delivery covered by the existing council property management teams. Council will need to finance these improvements.
Direct benefits
Reduced energy costs for the council and improved comfort for building occupants.
Other benefits - Economic, social, environmental, health etc
• Improved staff productivity and retention. Reduced energy costs. • Local jobs for installers • Leading by example
Delivery route
Tender of contracts to contractors In house facility management teams Supply contracts for supply chain and outsourced operations
Stakeholders and their roles
• Council property and facility management teams to support adoption of energy efficiency measures • Operators of council owned properties (eg. leisure centres) to engage with the council's aims in relation to energy consumption • Contractors that carry out improvement works – to deliver against council-set KPIs relating to emissions reduction, and to proactively seek opportunities for reducing emissions during and as a result of improvement or maintenance works.
Enabling actions
• Review of existing buildings and identification of actions required to improve energy performance • Specification of minimum level of upgrade and scope of works required • Identification of funding sources • Review of supply chains and identification of opportunities to improve energy performance of suppliers and contracted operators. This will require support from procurement staff and close collaboration with the carbon management team to ensure expertise both in carbon management and procurement opportunities is maximised.
Required internal staff skills
Skills to identify energy saving opportunities
Legislation - Supporting or required
Government targets for performance of public buildings
Funding requirements and possible sources
• Council capital works budget • Potential third party finance with repayment from the energy savings achieved
Metrics
Programme metrics - Number of properties targeted each year. Expenditure on energy efficiency improvements
Impact metrics - Council energy consumption figures year on year, including council owned properties operated by others

Context

Haringey Council has responsibility for a significant number of buildings in the borough either through ownership and/or operation and has a responsibility to lead by example in its mission to become a zero-carbon borough.

Many of its commercially let buildings are leased on a long-term basis, and with these buildings there is limited opportunity for immediate action, however any opportunity for contract review or renewal should be taken to add energy efficiency improvement or carbon reduction obligations onto the leaseholder or operator.

Among its own offices the council has some poorly performing buildings. River Park House has a Display Energy Certificate (DEC) score of 163, which equates to band G, the lowest available. As discussed under action H1 the council is in control of decisions regarding its own buildings and should use this as an opportunity to demonstrate their commitment to the zero carbon goal.

Most buildings with a DEC in Haringey are schools and colleges, some of which are owned by Haringey Council, often on a long lease with little opportunity for the council to intervene in operational and maintenance issues. Action to support non-council public bodies is covered in action W4.

Delivery

Successful implementation of action W5 depends on clarity of purpose, certainty of future ownership plans and political leadership.

Energy performance indicators

To aid building operators to deliver energy efficiency improvements and associated carbon emission savings the council should develop energy performance indicators that identify the sources of emissions and the opportunities to reduce emissions. This will assist facility mangers to identify areas of concern and where to focus their efforts to deliver improvements.

Future certainty

One barrier to the council acting on its own properties has been a lack of certainty over its future estate; which buildings it will retain and for what purpose. Under the proposed Haringey Delivery Vehicle (HDV), many properties were scheduled for sale and investment in these properties was not a priority. Now that the HDV has been closed the condition of properties and associated investment decisions need to be revisited. This process should include identification of opportunities to improve energy efficiency and reduce carbon emissions.

Political leadership

The council has published a commitment to deliver carbon emission reductions of 40% from its own operations by 2020 compared with 2005[20]. To achieve this aim, it will need to make improvements to its own estate and cannot honour this commitment without delivering this action.

[20] The Haringey Carbon Commission Report: A Sustainable New Economy (Carbon Commission, 2012)

Action W6 - Planning policies that deliver minimal carbon emissions from all new workplaces

Description
Development and implementation of planning policies that demand ambitious carbon emission reductions in all new and redeveloped workplaces in the borough. Setting a carbon offset price to support adoption of technologies that reduce on-site emissions. Supporting development of technology agnostic and future-ready solutions, preventing knowing creation of future stranded assets.
Scale and timing
An additional 500,000m^2 of non-domestic floorspace is anticipated by 2050. Starting now with annual policy and carbon offset price reviews to steadily tighten requirements in line with best in class
Cost
No additional cost to the council Some additional cost to developers
Direct benefits
Reduced cost in operation and avoidance of future retrofit costs
Other benefits - Economic, social, environmental, health etc
Improved productivity among workforce and reduced staff turnover due to improved conditions
Delivery route
In house through policy setting
Stakeholders and their roles
• Council leadership - in their commitment to sustainability and carbon emissions within the borough • Planning and redevelopment teams - enforcement of published policies for all planning applications without exception • Developers and builders who deliver new workplaces within the borough - engagement with the targets and commitment to the spirit of Haringey Council's intent
Enabling actions
• Ambitious, but achievable, carbon emission targets that push the boundaries of what is practical in lowering emissions. • Setting carbon offset prices that encourage on-site energy efficiency measures • Training for planning staff and other supporting teams on the importance of securing the relevant conditions and what should/should not be considered a legitimate viability appeal. • An update to the Sustainable Design and Construction SPD may be required. • Establishing monitoring of energy performance and carbon emissions from new workplaces borough-wide to enable comparison with local planning policies.
Required internal staff skills
Unambiguous policy setting and delivery that respects and where possible enhances or goes beyond associated national and regional policies Internal staff skills in recognising where there is still potential to ask more of developers and where viability tests are a legitimate justification. Engagement and understanding of developers to ensure requirements and council approach is clearly communicated.
Legislation - Supporting or required
Part L of the Building Regulations and the London Plan. Desirable that these regulations are regularly updated to require ever improving building energy efficiency performance.
Funding requirements and possible sources
Funding not required for implementation of the action
Metrics
Programme metrics - Square meterage of new workplaces delivered each year and associated EPC or SAP rating
Impact metrics - Energy performance and carbon emissions from new workplaces in Haringey in comparison with the requirements of the London Plan

Context

An increase of over 20% in the commercial and non-domestic floorspace in the borough by 2050 (anticipated London wide average) is a considerable opportunity to limit additional emissions from new developments.

Similar principles to those described under action H5 can be applied in terms of the council's role in ensuring that new non-domestic premises are as low carbon as possible; using carbon offset pricing, applying policies strictly to planning applications and proactively communicating with the landowners, developers and businesses in the area.

5 Proposed Actions on Transport

Introduction

Transport is the third largest source of emissions in the borough, and transport emissions are also associated with poor air quality and health issues within the borough. Vehicles do not usually have the life span of a building so there is less need to reduce emissions from existing vehicles, however the social and psychological barriers that prevent people from choosing sustainable modes of transport may be just as hard to tackle.

Transport is also a complex issue due to the transience of journeys and the fact that journeys are not necessarily contained within the borough. In addition, Transport for London (TfL) has a high degree of control over public transport and key road networks, leaving Haringey Council with more limited influence.

This does not mean that the borough cannot set itself ambitious targets for shifting to cleaner, greener mobility solutions, for the sake of the health and wellbeing of people who live and work in the borough as well as for the potential reductions in carbon emissions.

Whilst low carbon forms of motorised transport do exist, there are still air quality issues associated with these solutions, for example from tyre wear and braking, and congestion issues are not solved by making every car electric. For these reasons, as well as the health benefits associated with cycling and walking, Haringey Council should prioritise adoption of these active transport modes.

Cycle sharing, cycling infrastructure, parking restrictions, walkable streets, pedestrianisation and prohibition of vehicle use in some contexts can all help deliver a mode shift for the borough. Research indicates strongly that the best way to stimulate an uptake in walking and cycling (and a reduction in car use) is through a complementary package which includes both hard and soft measures.[21]

Increasing the number of active transport journeys will also have beneficial impacts on people's health. Statistics show that a higher proportion of the population in the borough is overweight or obese (59%) than the London average (57%),[22] and there is evidence to demonstrate that increasing active transport results in both individual and population-level health benefits.[23,24] Improved public and active transport provisions can also address issues of inequality and social exclusion, where they are designed and delivered with this in mind.

[21] Investing in Cycling & Walking: Rapid Evidence Assessment. A report for the Department for Transport. (Brook Lyndhurst, 2016)
[22] Obesity in Adults. (Department of Health, 2013). Available at https://data.london.gov.uk/dataset/obesity-adults
[23] Flint & Cummins 'Active commuting and obesity in mid-life: cross-sectional, observational evidence from UK Biobank', 2016
[24] Nazelle et al 'Improving health through policies that promote active travel: A review of evidence to support integrated health impact assessment', 2011

Action T1 – Engagement with Haringey residents to encourage mode shift towards public and active transport choices

Description
Deliver a five-year sustained programme of targeted engagement with borough residents to facilitate a shift towards public and active transport, away from private car use. This will build on existing plans in the LIP3 and Haringey's Transport Strategy. Timelines for interim review can be arranged to coincide with the next key business and transport planning horizons.
Scale and timing
61,000 cars were registered in Haringey in 2015, and drove 420m km. The number of car journeys has to halve by 2050 to deliver the transport emission trajectory. Starting now and continuous until active and public transport mode share is in line with TfL plans.
Cost
Annual cost to run programme: £380,000, based on 11 FTE at £35,000 per FTE, scaling up from Cycling Demonstration Towns programme[25]. Total programme cost of £1.9m over 5 years
Direct benefits
The modelling indicates that emissions in the borough from road transport will reduce by 120ktCO_2 by 2050.
Other benefits - Economic, social, environmental, health etc
Improved physical health and mental wellbeing, social inclusion, and air quality, increased community cohesion, better productivity in workplaces
Delivery route
In house - relevant teams plus potential partner organisations such as community groups and charities
Stakeholders and their roles
• TfL to provide funding to boroughs for transport improvements. It also has responsibility for strategic transport infrastructure in London. The council can influence how TfL spend money and provide funding within the borough. • Neighbouring councils will also play a role due to transport's cross-cutting nature and the fact that many residents in Haringey will work in other London boroughs (and vice versa). • Haringey Council transport planning, highways and active transport teams to co-operate to ensure a joined up approach to behaviour change and infrastructure sides of transport mode shift, and ensure common goals and clear programmes of work. • All those who travel in and through the borough. Engagement could be encouraged through local businesses, schools, community and residents' groups. • Existing Haringey Walking and Cycling Groups
Enabling actions
• Improved infrastructure for cyclists and pedestrians (see action T2) • Training for all council staff that can have an influence either directly or indirectly on mode shift.
Required skills
Behaviour change skills, engagement and communication skills, workshop skills, transportation/planning/infrastructure awareness
Legislation & policy - Supporting or required
Mayor's Transport Strategy London Local Air Quality Management (LLAQM) - supported by the Environment Act 1995 A comprehensive government review of all road traffic offenses and penalties
Funding requirements and possible sources
• Mayor's Air Quality Fund • LIP (local implementation plan) funding provided to Haringey Council by TfL to deliver the agreed programmes set out in the LIP document • S106 (Section 106 of the Town and Country Planning Act 1990) funding from development planning obligations to be invested into the local community • CIL (community infrastructure levy) funding from planning obligations on developers to contribute towards local infrastructure

[25] Making a Cycling Town: a compilation of practitioners' experiences form the Cycling Demonstration Towns programme. Qualitative survey 2005-2009 (Cycling England)

Metrics
Programme metrics – Number of individuals engaged with/commitments made, number of supporting businesses within the borough.
Impact metrics – Number of active transport journeys per day. Number of car journeys avoided.

Context

Between 2013/14 and 2015/16, 28% of journeys in Haringey were made by private car, and cycling rates were very low with only 3% of journeys being made by bike[26]. The council's transport strategy states that almost 40% of vehicle movements could be replaced by cycling. Walking in the borough is around average for London, with just over a third of journeys that originate in Haringey being on foot. The Mayor has set an ambition for 80% of journeys within London to be made on foot, by cycle or using public transport by 2041[27].

Behaviour change is an important aspect of enabling a mode share shift, and Haringey Council's smarter travel team is already carrying out work in this respect. But providing improved infrastructure at the same time will deliver a greater modal shift, therefore this action is closely linked to action T2 (action to improve active transport infrastructure). Whilst this programme is set as five years for an initial, sustained campaign, there will likely be a continuing need beyond this to encourage residents to make sustainable transport choices. However, the nature of a programme extension will depend significantly on progress made during the first programme and also on the level and quality of new infrastructure provided. It should be emphasised that a rapid shift in mode share towards active transport needs to happen as one of the short-term elements of this plan; there are few physical barriers to implementing this now and the benefits to individuals, the health service, and employers in the borough far outweigh the costs of investing in this change.

Delivery

The programme will begin by identifying priority communities and stakeholders for an initial pilot phase. Priority groups may be those where existing infrastructure has most potential for increased use, where the programme is likely to be most effective, for whom the co-benefits may be most significant, or those that are most likely to engage. Behavioural perspectives should be included, for example recognising that it is easier to create behaviour change in people that are already making changes in their lives that result in new routes and journeys (e.g. moving house or changing job or school). Financial and non-financial incentives may be considered as a tool to support behaviour change; Sutton council is currently trialling an app-based scheme where residents can track their sustainable transport activity to earn points[28], which can be exchanged for vouchers to spend in local shops, restaurants, or donated to charities. The app, provided through partnership with BetterPoints, includes features such as a school holiday 'treasure hunt' aiming to encourage families to enjoy the borough's parks.

For cycling in particular, consideration should be given to the barriers which limit adoption of cycling in some groups to cultivate more diverse participation, for example from women, black and minority ethnic groups and those on lower incomes. There should be co-ordination between this action and active transport infrastructure actions, using information gathered during engagement to inform better infrastructure planning, and using new/improved infrastructure to catalyse engagement and a shift to active transport choices.

Alongside targeted engagement, a general publicity campaign in the borough could be run in association with partner organisations/charities. Assessment of the impact of the initial engagement phase can be used to inform a scaled-up campaign across the borough. The engagement programme should be aligned to the LIP and transport strategy targets and programmes, reinforcing the existing planned work.

Successful implementation of this programme depends on finding the most effective access points, tackling representation, and increasing the scale of engagement through linking up with existing networks.

[26] Travel in London 9 supplementary information. Borough Local Implementation Plan (LIP) performance indicators. (TfL)
[27] Mayor's Transport Strategy (Mayor of London, 2018)
[28] https://www.sutton.gov.uk/news/article/276/get_active_and_earn_reward_points_to_spend_locally

Effective access points

Individual behaviour change depends in part on social norms, and changing social norms requires individual behaviour change. There will be some residents within the borough for whom it is more convenient to switch their mode of transport for certain journeys than others. Behavioural perspectives should be included, and identifying and targeting these residents who are making new journeys to new schools, homes or places of work may result in faster or greater mode shifts.

On the other hand, although increasing participation among under-represented groups may be more challenging, it is important in reducing inequality and transforming societal norms which could catalyse significant change.

Schools can be a key point where outreach deliver significant impact not only on the children but also on parents, carers and relatives, especially in the context of poor air quality around schools, and with most primary aged children living within an easy walk or cycle of school.

Linking with existing networks

There are many community groups based around interests, or location, that could be encouraged to support a shift to active transport choices. Identification of community champions or leaders that would act as role models in the community could also be effective. Groups such as Haringey Cyclists, Haringey Transport Forum and the recipients of council funding for active travel community projects[29] have already been identified, but there are likely to be further examples of existing networks that should be engaged.

Using these networks and the pilot phase communities it will be important to establish and fully understand the existing barriers to uptake; things that may include level of ability and initial cost for cycling, safety concerns, mobility or health issues, or a lack of awareness about the best routes to take. There may be other barriers not identified here, and this programme will rely on identification of all barriers so that they can be addressed systematically, either within the programme or through linked programmes such as action T2.

[29] https://www.haringey.gov.uk/parking-roads-and-travel/travel/smarter-travel#activetravel

Action T2 - Programme to improve active transport infrastructure

Description
Delivery of a 10-year plan to transform the borough's active transport infrastructure so that walking or cycling becomes the most obvious and efficient mode of transport for most people living and working in the borough, well integrated with public transport services for those making longer journeys. Making use of the three redevelopment areas in the borough to establish new standards for active transport connectivity.
Scale and timing
61,000 cars were registered in Haringey in 2015, and drove 420m km. The number of car journeys has to halve by 2050 to deliver the transport emission trajectory. Planning can begin now. Roll-out begins by 2020 and 10-year programme runs until 2030
Cost
Annual capital investment of £4 million, £40m in total. Depending on nature of work required and quality of cycling infrastructure chosen[30], this should equate to between 30km and 60km of dedicated cycle route infrastructure, supported by clear signage and 20mph zones. Sufficient secure public bicycle parking will also need to be factored in at additional cost. Operational cost of 1 additional FTE (£35,000/yr) to co-ordinate the programme, other programme costs covered by existing council staff time spent on transport planning/operations/maintenance.
Direct benefits
The modelling indicates that emissions in the borough from road transport will reduce by 120ktCO_2 by 2050.
Other benefits - Economic, social, environmental, health etc
Safer streets, improved physical health and mental wellbeing, social inclusion, and air quality, increased community cohesion, better productivity in workplaces
Delivery route
Council-run programme utilising external opportunities where possible.
Stakeholders and their roles
• TfL provide funding to boroughs for transport improvements. It also has responsibility for strategic transport infrastructure in London. The council can influence how TfL spend money and provide funding within the borough. TfL also collect London-wide data; which is important for impact metrics, setting targets and for programme evaluation. • Haringey Council transport planning, highways and active transport teams to co-operate to ensure a joined-up approach to behaviour change and infrastructure sides of transport mode shift, and ensure common goals and clear programmes of work. • Those who travel in or through the borough who will use the infrastructure • Neighbouring boroughs to co-ordinate routes across borough boundaries • Local/national cycling and walking groups that can support and advise on effectiveness of infrastructure proposals
Enabling actions
Engagement and collaborative planning to ensure maximum uptake Prioritising bikes, buses and pedestrians in transport planning in the borough. Dedicated sustainability and best practice cycling/walking infrastructure design training for all council transport and urban planners. Embedding sustainability and best practice into all areas of the council's work on infrastructure and urban regeneration in the borough.
Required skills
Transport planning, programme delivery, in-depth understanding of what makes good active transport infrastructure & co-ordinated approach.
Legislation - Supporting or required
Mayor's Transport Strategy London Local Air Quality Management (LLAQM) - supported by the Environment Act 1995
Funding requirements and possible sources
• TfL budget • Borough transport budget • Mayor's Air Quality Fund

[30] Typical Costs of Cycling Interventions. Interim analysis of Cycle City Ambition schemes (Transport for Quality of Life, 2017)

Metrics
Programme metrics - km of safer cycling/walking routes delivered, km or km^2 of areas that have been partially or fully pedestrianised, numbers of additional cycle parking facilities installed, number of cyclists travelling past key locations, diversity of cyclists in age, gender, ethnicity etc
Impact metrics - Change in mode share towards walking and cycling, reduction in the number of car journeys taken in the borough. Existing metrics in Transport Strategy can also support and be supported by this action, including: % of people doing at least 20 minutes of active travel each day, % of people having access to a safe and pleasant cycle network, levels of car ownership, levels of public transport use, and levels of key pollutants.

Context

Cycling and walking are more inclusive modes of transport than car journeys, and with the right provision can be accessible to almost all borough residents. Aside from the savings on fuel and vehicle depreciation, increases in cyclist and pedestrian numbers are associated with economic benefits for the borough and wider society. At a city level, if every Londoner walked or cycled for 20 minutes each day, it would save the NHS £1.7 billion on treatment costs over 25 years; and for every £1 spent on walking and cycling in the borough, £13 worth of benefits are returned to the economy[31]. A shift towards active transport also frees up space within the borough and reduces congestion on the roads; a car takes up 5 times as much space as a bike, and twenty times as much space as a pedestrian. The provision of new cycling and walking networks can provide an effective alternative to public transport, which has a predominance of linear rather than orbital routes

Haringey Council has historically under-invested in active transport provision, however with a new transport strategy for the borough released in early 2018, and a new draft Local Implementation Plan (LIP3) covering 2019-2022 which links to the nine outcomes of the Mayor's Transport Strategy, the borough is beginning to address this issue.

The council is due to consult on a new walking and cycling action plan in early 2019 and this is an opportunity to set out the scale of the vision for the borough over the next 10 years. If the borough is to reduce emissions to zero by 2050, the next 10 years are critical for setting the necessary changes in motion. The designated regeneration areas within the borough provide unique opportunities make a start and it is crucial for all the relevant council departments to be supporting a co-ordinated vision for sustainable transport solutions in these areas.

In 2017, Haringey Council won initial funding from the TfL Liveable Neighbourhoods programme to improve walking and cycling provision in Crouch End, and the council see this as an opportunity to create an example for the borough as a whole and to trial plans that could be adopted in the regeneration areas.

Barriers to the implementation of better active transport infrastructure include difficulty of engaging those who do not live in the borough but travel into it for work or other reasons and negative perceptions from local businesses about the impact on their trade. A survey carried out in Waltham Forest as part of the Lea Bridge Road scheme (A Street For Everyone) showed that the perceived importance of vehicle access to local businesses for their trade is not matched by reality; local businesses believed that up to 63% of customers arrived by car, whereas in reality around 20% used a car to make the journey.[32] Clear signposting, digital mapping and journey-planning tools can all support increase in use of new infrastructure. This includes the provision and mapping of linked infrastructure provisions such as bicycle parking, free-to-use bicycle tools and pumps, water fountains and bike shops/workshops. The bicycle storage request scheme could be better advertised as part of this supporting work.

A city-wide air quality poll in September 2017 found that 40% of Londoners thought they would start cycling or cycle more if there were fewer cars on the road, and evidence presented to the European Cyclists Federation suggests that well designed, well connected infrastructure that makes cycling and walking obvious choices from a

[31] Walking & cycling: the economic benefits (Transport for London)
[32] London Borough of Waltham Forest – Minutes of the Cabinet, 8th September 2015

time, convenience and cost perspective will lead to increased levels of active transport[33]. This has also been recognised within Haringey Council's draft LIP3.

Experts recommend that spending on good infrastructure needs to reach £10-15 per head each year to provide adequate systems and encourage this change.[34] The London Mayor pledged in 2016 to invest an average of £154m per year in cycling over the subsequent five years[35], which represents £17 per head per annum, matching levels of investment in countries such as Denmark and the Netherlands where cycling rates are among the highest in Europe. The council's current walking and cycling action plan has been allocated over £1m in investment, less than £4 per head, for the first three-year delivery plan, and the LIP3 identifies that without a step-change in investment, the plan and the target outcomes will not be achieved.

Delivery

Successful implementation of action T2 depends on:

- Allocation of sufficient funding
- Ensuring that a strategic approach to the design of new infrastructure is taken and best practice is followed, including adoption of minimum design standards
- Engaging with the communities in Haringey to ensure that the provision is meeting their needs and tackling the barriers they face

In the short to medium term, several areas for planned development/regeneration have been identified across the borough, including North Tottenham, Tottenham, and Wood Green. This provides a significant opportunity to deliver well designed active transport infrastructure to catalyse a mode-shift in these areas of the borough. Funding from developers working in these areas should be used to support this action.

A focus should also be given to key locations within the borough such as school catchments and existing local centres. Traffic-free/pedestrianised zones should be considered, especially in light of the success of the 'Mini-Holland' schemes in neighbouring boroughs of Enfield and Waltham Forest. Other priority areas may relate to existing or planned green infrastructure, focusing on enabling people to walk/cycle for leisure and increasing accessibility of parks and green spaces within the borough. Accessibility and inclusivity should be a fundamental consideration to ensure people with different needs can enjoy the changes being made and are not disadvantaged by active-transport infrastructure and environments. Alongside improvements to cycling and walking routes within the borough, a review of existing secure cycle parking/storage provision across the borough should be carried out to inform investment priorities in this respect.

A programme of new infrastructure and improvements to existing provision to better connect the borough as a whole, should be informed by engagement with residents and those who travel into or through the borough. These plans should be made collaboratively, bringing together stakeholders from Haringey and neighbouring boroughs, technical specialists and active travel campaigners, to develop a comprehensive, transformative and long-term plan. Concepts of people, place and purpose should be defining aspects in ensuring the plan's effectiveness. The planning should also include a review and learning from examples of best practice and success stories in other cities, for example Copenhagen's use of desire line analysis to improve infrastructure provision, Seville's transformation through investment and good design, Greater Manchester's' Beelines proposal developed collaboratively between 10 metropolitan boroughs alongside engineers and experts, and the mini-Holland schemes being piloted across London.

[33] Jensen, S.U., Rosenkilde, C. & Jensen, N., 2007. Road safety and perceived risk of cycle facilities in Copenhagen. Presentation to AGM of European Cyclists Federation, pp.1-9.
[34] Beelines. Greater Manchester's cycling and walking infrastructure proposal. (Greater Manchester Combined Authority)
[35] https://www.london.gov.uk/press-releases/mayoral/mayor-secures-record-investment-in-cycling

Cycling in Seville

In the last 10 years, Seville has built new infrastructure for cycling, resulting in a more than tenfold increase in the number of journeys made by bicycle[36]. The bulk of the cycle network was constructed in under 2 years (2007-2009), and political will was at the heart of the transformation; the network was a coalition requirement by one political party during a period of joint governance in the city.

The voluntary organisation 'Cycling Embassy of Great Britain' considered the lessons that could be taken from this case to a UK context[37]; with key points being that the basics need to be in place (by which they refer to '*safe and obvious separation from all but the slowest of traffic*'), but once this is achieved then connectivity and extent may be more important than achieving the highest quality construction.

Figure 12 Cycling in Seville – case study for the impact of building a safe, well connected cycle network. *Image from Cycling Embassy of Great Britain.*

[36] How Seville transformed itself into the cycling capital of southern Europe (The Guardian: Cities, January 2015)
[37] Cycling Embassy of Great Britain: Blog post by Sally Hinchcliffe 'Cycling in Seville - never mind the width, feel the network', May 2017.

Action T3 - Policies to that penalise private car use through parking charges based on fuel type/emissions etc

Description
Development of policies that discourage private car use. Continuing to price residents' and visitors' parking permits according to the emissions associated with the vehicle. Reducing parking availability in locations where typical journeys are short or easily made by other modes of transport or considering a pricing structure for the borough that subjects busier parking zones to higher charges. Consideration of increasing parking permit costs for individuals or households applying for additional parking permits, or implementing a workplace parking levy. Communicating the success of such schemes to demonstrate the impact.
Scale and timing
61,000 cars were registered in Haringey in 2015, and drove 420m km. The number of car journeys has to halve by 2050 to deliver the transport emission trajectory. Planning can begin now, roll-out likely to require 6-12 months of planning and preparation
Cost
£90,000 for programmes running for one year, being 1.5 FTEs for studies plus £40k for programme management and expert input
Direct benefits
Reduced road maintenance, reduced costs associated with air pollution. The modelling indicates that emissions in the borough from road transport will reduce by 120ktCO_2 by 2050.
Other benefits - Economic, social, environmental, health etc
Reduced air pollution, and congestion, increased revenue for council
Delivery route
In-house delivery through relevant parking permitting and estates teams
Stakeholders and their roles
• Residents and local businesses to engage with (and comply with) parking restrictions and charging • Haringey Council estates, transport planning and parking enforcement teams to set parking charging policies and regularly review.
Enabling actions
• Improved provision and awareness of active and public transport infrastructure
Required skills
Transport planning Experience in implementing effective parking policies Enforcement skills
Legislation - Supporting or required
National ambition to ban sale of diesel/petrol cars by 2040 (with calls for this date to be brought forward) Mayor's transport plan London Local Air Quality Management (LLAQM) - supported by the Environment Act 1995
Funding requirements and possible sources
Partially or fully realised through increased parking tariffs.
Metrics
Programme metrics - Number of emissions-based parking areas and reduction in overall parking spaces in council-owned and operated parking schemes.
Impact metrics - Change in emission ratings of vehicle registered in the borough. % of vehicles in the different pricing structure or bands of parking charges.

Context

As discussed under previous actions, private vehicles are the most popular form of transport within the borough. People's decisions to use cars are in part influenced by ease and cost of parking, both at home (ie. residential parking) and at their destination.

By reducing parking availability, people may consider alternative modes of transport to reach their destination, and by linking parking tariffs to the fuel consumption of a vehicle, people may choose a more fuel efficient (or electric) car for their next one.

It is important to note that the effectiveness and progressiveness of such policies also depends on the existence of good quality alternatives to car travel, and on provision of information about these alternatives.

Increasing revenue from parking has the added benefit of providing funds complementary actions, for example the award-winning workplace parking levy implemented in Nottingham, which has generated over £44m in revenue since 2012, enabling the city to fund significant investment into alternative transport infrastructure[38].

Delivery

Successful implementation of action T3 depends on linking with behaviour change initiatives and community engagement on public and active transport infrastructure, and tackling the issue from a range of directions within the council. This could include steady decreases in the number of parking spaces available at local destinations within the borough, planning policies to support delivery of car-free developments, and changes to residential parking permit arrangements.

[38] https://bettertransport.org.uk/blog/better-transport/winning-policy-nottinghams-workplace-parking-levy

Action T4 - Programme to incentivise move to low and zero emission vehicles by residents and businesses

Description
Incentivise residents and local businesses to switch to low and zero emission vehicles. To include an expansion of the existing electric car trials being offered, collaborating with a partner organisation to provide an advice service for people considering a new car purchase. Encouragement of local car dealerships to promote electric and low-emissions cars. Support for car clubs with a local presence to increase availability of low- and zero-emissions vehicles.
Scale and timing
61,000 cars were registered in Haringey in 2015, and drove 420m km. The number of car journeys has to halve by 2050 to deliver the transport emission trajectory through shift to active transport modes and remainder to be in zero emission vehicles. Starting now
Cost
£50,000 over 3 years, being 0.5 FTE for the duration of the programme.
Direct benefits
CO_2 emissions will fall over time as the electricity grid decarbonises Removal of tailpipe emissions will significantly improve air quality
Other benefits - Economic, social, environmental, health etc
• Health benefits for residents from cleaner air • Financial savings for vehicle owners based on cheaper cost of fuel and less maintenance • Lower noise pollution
Delivery route
Council-led programme
Stakeholders and their roles
• Residents and businesses that currently use internal combustion engine (ICE) vehicles • Car clubs operating in the borough
Enabling actions
• Publication of EV strategy • Improve communication of ULEZ to residents and businesses • Support SMEs to switch to EVs and e-bikes by providing advice and trials
Required skills
Programme management, knowledge of EV market
Legislation - Supporting or required
National ban on sale of new diesel and petrol cars by 2040 London Plan and TfL policies supporting expansion of EV charging facilities
Funding requirements and possible sources
Promotion of OLEV grants for residents
Metrics
Programme metrics - Number of low and zero emission vehicles registered in the borough
Impact metrics – Number of low and zero emission vehicles registered in the borough as a percentage of the total number of vehicles registered in the borough

Context

Whilst absolute reductions in personal car use will be necessary, through increased use of public and active transport, car sharing and continuing developments in flexible and home-based working, switching from traditional internal combustion engine (ICE) vehicles to low- and zero-emissions vehicles will also be an important part of Haringey Council's zero carbon strategy. This will be though adoption of electric or possibly hydrogen fuel cell vehicles.

Currently, 52% of households in Haringey are car-free. The modelling shows that by 2025, vehicle emissions need to reduce by 30% across the borough. This reduction will come from both a transition to electric vehicles, and reduced car use through an increase in active and public transport usage.

The model suggests that there will be around 2,500 EVs in Haringey by 2025 and by 2050 all cars in the borough will be electric or other zero-emission alternative. An estimate in 2016 for TfL for high EV uptake predicts 4,800 EV in the borough by 2050[39]. Both 2,500 and 4,800 are higher than estimates set out in Haringey Council's draft ultra-low emissions vehicles (ULEV) strategy.

Delivery

Successful implementation of action T4 depends on:

- Haringey Council leading the way with its own fleets and contractors
- Increasing the number and coverage of EV trials available to Haringey borough residents
- Finding ways to increase awareness of and access to EVs such as engaging with large employers to promote the benefits of EVs.

[39] Plug-in Electric Vehicle Uptake and Infrastructure Impacts Study (Element Energy, WSP, and Parsons Brinkerhoff, 2016: p.41)

Action T5 - Action to expand provision and accessibility of EV charging infrastructure

Description
Expand provision of EV charging infrastructure across the borough for on-street residential parking in co-ordination with the existing TfL provider for electric vehicle charging across London, Source London. Approach rapid charging providers to provide rapid charging points at strategic locations around the borough. Facilitate regional approaches supported by TfL to support a consistent approach to EV charging across London.
Scale and timing
Starting as soon as possible, but with thought given to future requirements and technological advances
Cost
Capital cost of £8m to deliver 320 on street charging points by 2025 to support 4,800 EVs in the borough. Expected to be covered by charging companies within their business models. Programme management costs assumed to come from current council operational budget (ULEV officers etc)
Direct benefits
• CO_2 emissions will fall over time as the electricity grid decarbonises • Removal of tailpipe emissions will significantly improve air quality
Other benefits - Economic, social, environmental, health etc
• Health benefits for residents from cleaner air • Financial savings for vehicle owners based on cheaper cost of fuel and less maintenance • Lower noise pollution
Delivery route
Council-delivered programme, including working with commercial charging companies to improve provision in the borough
Stakeholders and their roles
• Haringey Council teams involved in planning for charging locations and facilitating planning approvals etc • Residents and visitors – to use the charging facilities • EV owners/prospective owners – to use the charging facilities • TfL – to develop and maintain standards for EV charging facilities • UKPN – to facilitate electrical connections • Commercial charging providers – to provide payment facilities for vehicle charging • Retail businesses with parking – to provide locations for vehicle charging
Enabling actions
• Technical study to identify the best locations for EV charging infrastructure and evaluate distribution network capacity. • Working with charging point companies to deliver a range of charging technologies for users.
Required skills
Understanding of EV charging infrastructure, impacts on grid. Programme management
Legislation - Supporting or required
National Infrastructure Assessment - National Infrastructure Commission (July 2018), preparing for 100 per cent electric vehicle sales by 2030, including a core network of charging points subsidised where the market won't provide. London Plan policies on provision of EV charging points Wood Green Area Action Plan (100% of parking spaces in new developments should have an active charging point)
Funding requirements and possible sources
• TfL grants • OLEV grants (e.g. GULCS) • Council investment (if council owns and operates charging stations, fee on charging could deliver return) • Charging rent/fee to fast charging companies if eg. using council-owned land/facilities
Metrics
Programme metrics - Number of charging points installed in the borough.
Impact metrics – Volume of charge being delivered usage of installed charging points

Context

The increase in EVs set out under action T4 will require widespread on-street charging infrastructure in the borough as the majority of Haringey residents do not have access to off-street parking. Inadequate charging facilities would be a significant barrier to high uptake of EVs, and whilst the council does not intend to install or manage EV charging facilities it can play a role in supporting provision by others.

In 2017 there were 225 electric vehicles (EVs) registered in Haringey. Even the borough with the highest number of registered EVs (Westminster) had only 691 in 2016[40]. TfL predicts that under a high uptake scenario 7.9% of all cars will be electric by 2025. This would equate to roughly 4,800 EVs in Haringey, whereas the projections from the Haringey climate modelling require 2,500 cars to be electric or removed from the road by 2025.

Whilst the rate of this transition depends on factors outside the borough's control such as the vehicle market, and national legislation and incentives, the borough can support provision of charging infrastructure.

The council's draft Ultra Low Emissions Vehicles (ULEV) strategy states that around two thirds of Londoners do not have access to off-street parking. Assuming this ratio applies to car owners in Haringey, and assuming that around half of road transport emissions reductions will need to come from the transition to EVs, around 4,800 electric cars will need to be charged from on-street or public facilities by 2025. Whilst it is difficult to suggest an appropriate ratio of electric vehicles to public charging points[41], the EC suggest at least one recharging point per 10 cars[42]. On this basis, around 320 on-street, public charging points could be required over the next six years.

Delivery

Successful implementation of action T5 depends on:

- A well-distributed and reliable network of charging points
- A mixture of charging solutions to cater for different user needs
- A unified approach with neighbouring boroughs, ideally through the GLA and TfL.

[40] Electric Vehicle Charging Infrastructure Location Guidance for London (TfL, 2016)
[41] Emerging best practices for electric vehicle charging infrastructure (The International Council on Clean Transportation, 2017)
[42] Article 23 of the EU Directive 2014/94/EU of 22 October 2014 on the deployment of alternative fuels infrastructure

6 Proposed Actions on Energy

Introduction

Actions in homes and workplaces focus primarily on building energy efficiency improvements which reduce demand for energy. Carbon reductions can also be achieved through improving the efficiency and carbon content of energy supplies.

Heating traditionally relies on combustion. In Haringey this is typically combustion of natural gas. The efficiency of heat creation can be improved through electrification of heating using heat pumps (air, ground or water source), and adoption of low carbon district heating networks (DHNs)[43].

Electrification alone does not necessarily mean decarbonisation; decarbonisation also relies on reducing the carbon emissions associated with electricity generation by moving towards lower carbon sources.

The modelling that underpins this report assumes that the carbon intensity of grid electricity decreases in line with the government's projections for CO_2 emissions per unit of electricity consumed[44]. Haringey Council can encourage this, through support for local renewable generation as well as through procurement choices, ie. selecting renewable tariff options from energy providers for its own energy contracts.

The council can manage the energy supply to its own properties, and can set requirements for new and redeveloped buildings within the borough. It can also encourage and support a shift across the borough through adoption by individual residents and businesses. However, it could also take a bigger step and consider larger scale renewable generation within the borough through installation of a wind turbine or two in the Lee Valley or floating solar arrays on the reservoirs on the border with Waltham Forest.

[43] Note that 'district heating networks' are sometimes referred to as 'decentralised energy networks' (or DENs). These terms are broadly interchangeable.
[44] https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

Action E1 - Action to install renewable generation in the Lee Valley through wind turbines and PV

Description
Contribute to the decarbonisation of the grid as well as engaging residents with renewable energy through installation of large scale wind and/or solar power generation in the Lee Valley. Subject to feasibility studies and financial modelling, this could offer the council a revenue stream and could be facilitated through a community energy company or joint venture.
Scale and timing
2 x 1.5MW wind turbines, plus 17kWp (160,000m^2) of floating PV array on Banbury Reservoir. Planning/feasibility study could begin now, with delivery as early as 2020
Cost
Wind - Installation of 1.5MW wind turbine £2.7m, annual maintenance costs £70,000 (cost for one turbine) Solar - £6m based on cost of QEII scheme in west London
Direct benefits
Two 1.5MW turbines could supply around 5.3MWh/yr of low carbon power, enough for around 1,400 homes A floating PV array of 17kWp could supply around 16MWh/yr of low carbon power, enough for around 4,200 homes In 2020, with both systems at full capacity, this would offset around 4.1ktCO_2
Other benefits - Economic, social, environmental, health etc
Raising awareness, local engagement, potential revenue stream
Delivery route
Several options exist for the council to pursue this action; from setting up a community energy company or joint venture, to working with existing landowner/s to facilitate a scheme led by Thames Water.
Stakeholders and their roles
• Thames Water or other local utility company to engage with or facilitate the project • Landowners to make land available • Local residents to support the project as a positive action
Enabling actions
Feasibility studies to assess the practicality of the action in more detail with respect to environmental, technical and economic considerations
Required skills
Project/programme management, commercial expertise, understanding of energy infrastructure and markets
Legislation - Supporting or required
Mayor's draft Solar Action Plan
Funding requirements and possible sources
• Financial model/economic assessment would identify payback period etc. • London Community Energy Fund 2018/19 is available for feasibility studies
Metrics
Programme metrics – kW capacity installed. kWh generated annually.
Impact metrics – Carbon emissions offset through local renewable power generation

Context

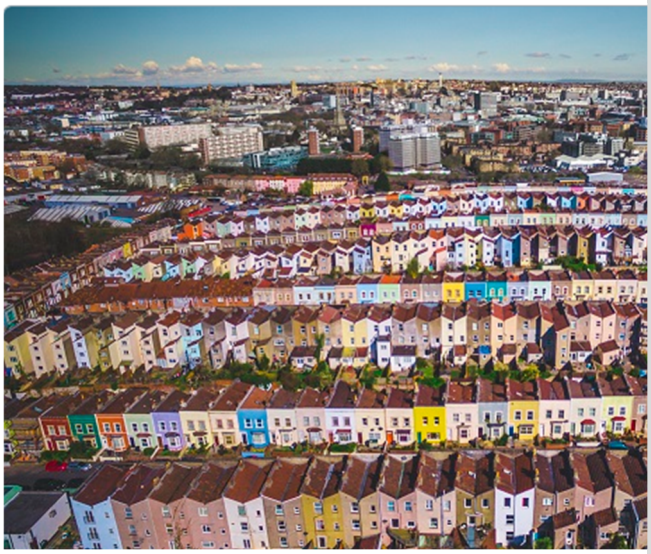
Generation at this scale could contribute to decarbonisation of the electricity grid or offset remaining emissions within the borough. It also offers the potential for direct benefits to the borough in terms of raising awareness and providing opportunities for educational visits and studies to schools or colleges in the area. The action could also boost the local economy if it was associated with a council- or community-owned energy supply company such as the Mayor's Licence Lite proposal or the example set by Bristol Energy (see case study in Figure 13). The borough already has a small-scale energy company, En10ergy, that is working to increase levels of renewable generation in the borough.

Delivery

Two 1.5MW wind turbines plus 17kWp of floating PV arrays could generate around 21MWh of renewable electricity each year, which is enough to power 5.5% of homes in the borough. Delivery of this action could have an additional effect on residents through its symbolic nature and could form a compelling part of education and outreach programmes run by the council and local community groups to raise awareness around renewable energy and reducing carbon emissions in the borough.

The council could work with Thames Water who own and operate the reservoirs in the Lee Valley, to facilitate installation of floating solar PV similar to the array that the company has already installed on the Queen Elizabeth II reservoir in west London.

Successful implementation of action E1 depends on completion of a detailed feasibility study, on finding the required capital investment, and having a financeable project proposal and payback plan. Other challenges include the designations on the site; most of the reservoirs are designated sites of special scientific interest (SSSIs), it is a local nature reserve and part of London's green belt.



Bristol Energy – a council-owned gas and electricity provider

Bristol Energy was set up in 2015 by Bristol City Council, to supply non-profit energy using renewables at lower prices than larger commercial energy companies.

Whilst the company does not offer only renewable energy, it prioritises support for renewable generators and reports a much lower-carbon fuel mix than the national average (51% renewables vs. National Grid average 29% for 2017-18). Bristol Energy is also undertaking energy services to deliver renewable energy generation, acting as generator and distributor as well as supplier.

By operating a non-profit energy company, Bristol City Council is providing local jobs and a revenue stream that it can re-invest into the local community (it is expected to start making profit in 2021), as well as offering lower bills for customers.

The company is also able to offer a face-to-face 'hub' in the centre of town for dealing with general customer enquiries as well as providing energy efficiency advice for homes and businesses.

Figure 13 Bristol Energy – a case study for a publicly-owned energy provider and the local benefits this can offer. *Image from Bristol Energy.*

Action E2 - Programme to encourage installation of distributed renewable generation through roof mounted PV

Description
Develop a programme to support uptake of roof-top PV installations in the borough, linking by businesses, residents and landowners. Support existing grass-roots action in the borough already making progress through En10ergy. Provide leadership by expanding installation of PV arrays on council properties.
Scale and timing
To deliver the Mayor of London's Solar Action Plan, and deliver 2GW of solar capacity in London, Haringey needs to grow from 2,000 homes with solar generation in 2025 to 9,500 by 2050. Continuation of existing action.
Cost
£28m total capital investment to 2050
Direct benefits
Each property with roof mounted PV will make direct savings on their electricity bill. Savings will vary according to property electricity consumption and array size, but on average PV installation will generation around a third of household consumption. Roof mounted PV on 9,500 homes will generate around 13GWh/yr
Other benefits - Economic, social, environmental, health etc
• Boost local economy and jobs for solar panel companies and fitters • Raise awareness within borough around climate action and low carbon energy
Delivery route
Engagement programmed delivered by council staff, potentially in tandem with local installer/s. Technical support provided under action H2
Stakeholders and their roles
• Existing community groups focused on PV uptake such as En10ergy • Local PV installers • Residential and commercial owner occupiers who can benefit directly from their investment
Enabling actions
• Better communication of permitted development status associated with PV installations • Identification of grants or other financing mechanisms to support PV installations • Increased publicity for the Mayor's Solar Action Plan
Required skills
Community engagement PV installation experience
Legislation - Supporting or required
Mayor's draft Solar Action Plan An alternative subsidy to replace feed-in-tariffs (FITs) and support uptake
Funding requirements and possible sources
• London Community Energy Fund 2018/19 • Mayor's 'Solar Together London' scheme
Metrics
Programme metrics – kW capacity installed. kWh generated annually.
Impact metrics – Carbon emissions offset through local renewable power generation. Annual financial savings

Context

Installation of distributed renewable energy generation provides resilience and local economic benefits, and residents and businesses that generate their own energy save money through reduced energy purchases from utility energy providers.

There are currently schemes in place to encourage installation of distributed renewable energy generation at local, city and national levels. The Mayor of London has set out his ambition to deliver 2GW of installed solar generation capacity across London by 2050. Much of this will need to come from rooftop installations. Within Haringey, local success has been driven by En10ergy, a social enterprise dedicated to promoting and investing in local renewable energy. Scaling up existing capacity of groups such as this will be an important aspect of delivering the necessary volume of renewable power generation in Haringey.

If PV installations sustain current growth rates there could be 2,000 homes in the borough with roof-top PV arrays by 2025, or the capacity to generate up to 2.7GWh of electricity each year.

By 2050 this needs to be around 9,500 homes with roof-top PV arrays.

Delivery

Successful implementation of action E2 depends on:

- Sufficient funding for the capital investment required
- A reasonable payback period supported by the replacement of feed-in-tariffs with an equivalent or better fiscal incentive.
- Recognising the power of collective action in generating economies of scale and driving investment appetite.

Action E3 - Policies to support appropriate installation of and connection to heat networks

Description
Further development of energy master-planning work to support delivery of low carbon heat networks in Wood Green, North Tottenham/Northumberland Park, and Tottenham Hale. In addition, a requirement to future-proof buildings that cannot currently be connected to DHNs (eg. by oversizing radiators to allow for future lower temperature systems). Increasing publicity for existing policies around adopting/planning for DHN connection, and facilitating or convening workshops for sharing of current approaches to DHNs and associated challenges. The council can act to kick-start schemes either by being the scheme developer/owner, or by acting as a sponsor to co-ordinate selection of a third-party scheme owner.
Scale and timing
The modelling assumes development of district heat networks to supply 11% of domestic heat and 15% of non-domestic heat by 2025 and only minor expansion thereafter, to 13% and 19% by 2050. 120GWh of heat to be supplied to 12,000 domestic properties by 2025 and 120GWh of heat to be supplied to 21,000 homes by 2050.
Cost
£30m capex over 15 years for all three schemes identified in the existing energy masterplan Haringey Council will need to fund or arrange suitable financing for the project; the council is likely to invest in and own the infrastructure but may procure or partner with another organisation for the design, build, operation and maintenance of the DHN.
Direct benefits
Contributes to removal of gas boilers from around 12,000 homes by 2025, and savings of 8,000 tCO_2[45]
Other benefits - Economic, social, environmental, health etc
• Improved internal air quality where gas boilers are avoided or removed. • Reduced maintenance burden on home owners • Investment opportunity and revenue for the council
Delivery route
The council will likely need to invest in and own the infrastructure, but there are several possible arrangements whereby another party could take responsibility for the design, build, operation and maintenance (DBOM) of the network.
Stakeholders and their roles
• Council, JV or DBOM partner (as appropriate) to develop and operate the heat network • Residents and businesses who receive their heat supply via a heat network • Property management companies that manage properties heated via a heat network
Enabling actions
• Completion of commercialisation, planning and design stages for proposed heat networks • Procurement and customer acquisition • Government support to fund the scheme.
Required skills
Energy strategy assessments Commercial, financial, legal, technical, construction, and project management skills for development of the heat network business
Legislation - Supporting or required
London Plan Regulation of heat market (proposed)
Funding requirements and possible sources
• Revenue could pay back investment • Funding for initial investment could come from borrowing, either corporate e.g. Public Works Load Board or Mayors Energy Efficiency Fund, or through equity investors via joint venture or 100% third party • Council could operate in a joint venture with an ESCO Government funding and GLA funding - e.g. HNIP, DEEP, HNDU and similar future equivalents

[45] London Borough of Haringey Energy Masterplan (Parsons Brinkerhoff, Jan 2016)

Metrics
Programme metrics - Homes connected to DHNs, units of heat provided through DHNs, satisfaction of customers, profit for JV, reduction in cost of heating homes
Impact metrics – Carbon emissions of DHNs, and emissions per connection, compared with individual gas boilers

Context

Heat networks are particularly suitable for new buildings and regeneration areas. Such networks can supply heat to many homes more efficiently than separate systems heating individual homes. DHNs can also be designed to use low carbon or waste energy source, and when designed, built and operated well, heat networks can deliver significant financial savings to residents.

Haringey Council has carried out an energy masterplan for the borough to identify locations most suitable for heat networks[46]. This led to further investigation into three potential heat networks; Wood Green, North Tottenham/Northumberland Park, and Tottenham Hale. A technoeconomic assessment has been completed for the Wood Green Investment Framework Area[47], and an outline business case has been presented for the North Tottenham Decentralised Energy Network district heating network[48]. The council has a supplementary planning document on 'sustainable design & construction' that was adopted in 2013, and includes a 'heat hierarchy' for developers' decision making, as well as a requirement to future-proof buildings that cannot currently be connected to heat networks. The council could increase publicity of the existing policies around adopting/planning for heat networks, and could facilitate workshops for sharing of current thinking and challenges associated with heat networks.

Delivery

Successful implementation of action E3 depends on:

- A clear vision from the council in its strategic regeneration frameworks, following through with action in planning decisions
- Proactive engagement with developers and potential suppliers and operators of heat networks.
- Ensuring that the district heating schemes will be a genuinely low carbon alternative, seeking and ensuring that it will provide equivalent or better levels of comfort at the same or lower cost to residents.

[46] London Borough of Haringey Energy Masterplan (Parsons Brinkerhoff, Jan 2016)
[47] Wood Green Decentralised Energy Options (AECOM, July 2016)
[48] North Tottenham Decentralised Energy Network (London Borough of Haringey)

Action E4 - Programme of technical advice to encourage and support residents and businesses to adopt heat pumps

Description
Integrating an assessment of heating provision options into any retrofit programme (delivery or technical assistance); and where appropriate make recommendations for switching to a heat pump system together with appropriate technical guidance. Monitor the status of proposals for low-carbon heat supply in the UK market and when appropriate run a programme to raise awareness, and provide technical advice on installation of heat pumps
Scale and timing
5-year programme to begin in 5-10 years' time, when many homes have received deep retrofit and the government has settled on a strategy for low-carbon heat supplies.
Cost
£700,000 over 5 years for a programme team of 4 staff to provide a programme of technical advice £440m capital investment at today's costs to install 96,000 heat pumps in domestic properties in the borough by 2050
Direct benefits
79GWh of heat supplied by heat pumps by 2050
Other benefits - Economic, social, environmental, health etc
Improved indoor air quality
Delivery route
Council-led technical assistance programme
Stakeholders and their roles
• Council energy infrastructure team to provide technical advice • Local specialists and installers to carry out installations • Residents and businesses that have heat pumps installed
Enabling actions
Development of national approach to decarbonising heat supplies in the domestic and commercial building sectors
Required skills
Understanding of heat and energy markets and technologies, ability to think ahead and plan appropriate action in advance of market development. Communication skills to effectively explain heat pump benefits to residents and businesses
Legislation - Supporting or required
Carbon tax/decarbonisation of the grid
Funding requirements and possible sources
Council to fund the advice programme, and to lobby government and GLA for funding to support capital costs.
Metrics
Programme metrics - Number of residents/businesses contacted. Number of heat pumps installed in homes and businesses in Haringey. Growth of heat pump installation businesses locally.
Impact metrics - Number of gas boilers taken out of service. Total heat delivered by heat pumps.

Context

Heat pump technology is still relatively expensive compared to traditional gas-fired boilers, but heat pumps offer a greater efficiency and are cheaper to run than gas boilers. The suitability of buildings for heat pumps depends in part on the energy efficiency of the building fabric, and therefore this action is closely linked to the energy efficiency actions for buildings described under Homes and Workplaces.

Modelling work to support the zero carbon trajectory forecasts that by 2045 around half the borough's domestic properties will be using heat pumps as their heating source.

Delivery

This action is for the longer term, being implemented after the government settles on a strategy for low-carbon heat supply. At this point it will be possible to refine this action and identify routes to successful implementation.

7 Crosscutting and Enabling Actions

Enabling actions have been identified within each of the actions set out in sections 3 to 6. These range from feasibility studies, developing business cases and commercialisation, finding sources of funding, reviewing existing council plans to amend or incorporate new actions, training and development of internal skills, revising existing policies, engaging with potential partners and third parties in the private and public sector, and publicity/awareness campaigns. Some enabling actions relate to the national context and policy environment, and within the suite of twenty actions there are actions that are deliberately designed to complement one another.

In addition to these specific enabling actions, it is also important to recognise that there are things that the council can begin to address immediately that will facilitate the long-term success of its climate action programme. Some examples of these elements are set out below:

- Developing ways of effectively working across Haringey departments, with departmental carbon reduction targets aligned. The actions set out in the previous sections will delivered by a range of council departments including housing management, health, education, building control, carbon management, energy efficiency, finance, facilities management, transport planning, active transport, Haringey estates, and council leadership.
- In some cases there may be conflicting objectives that affect carbon reduction; these may ultimately require intervention from council leadership to identify and resolve.
- Education and training for all council officers and councillors on the need for carbon reduction, benefits of taking climate action that can help combat air pollution, inequality, fuel poverty and mobility, and communicating the urgency of the action required.
- Haringey owned buildings may be able to have small scale plans developed straight away. For example, Haringey owned buildings, including those leased to leisure centres, academies etc, can have roof mounted PV installations, and bike parking facilities and EV charging points for officers and visitors.
- Haringey fleet management services can adopt electric vehicles straight away. Considering whole-life costs of EVs should help ensure purchase decisions no longer involve petrol or diesel vehicles, and contracts requiring vehicles could be amended to influence contractors away from using internal combustion engine vehicles.
- Engagement with third party organisations is required for some actions, and regardless of the indicative timelines provided, these conversations can begin immediately; the Haringey carbon management team is well placed to proactively offer assistance in decarbonisation aims to public bodies and interested organisations in the borough.
- Council officers in all departments, but particularly in the carbon management team, should be proactively identifying new technologies with potential, such as pre-fabricated, low energy construction and micro renewables. This is an activity that can begin right away.
- Longer term actions such as heat pumps and large-scale renewables should not be shelved until their allocated time – advances in technology may mean actions become viable in advance of their indicative timelines and the council should be in a position to bring actions forward, as appropriate.

8 Prioritisation

A high-level decision prioritisation matrix was developed and is included in our previous report. This matrix provides a framework for assessing proposed actions by factoring the potential carbon reductions associated with an action, along with the scale, effectiveness, timeframe, indicative costs, and the influence of the council on delivering the action. The matrix has the potential to be adjusted and developed with more specific information if the council so chooses.

Another way of assessing the proposed actions for the borough is through considering the political, economic, social (and cultural), technological, legal and environmental factors that support, or are impacted by the actions. A high-level PESTLE analysis of the focus areas is set out in

Table 1

Table 1 Political, Economic, Social/Cultural, Technological, Legal and Environmental (PESTLE) aspects and assessments of the route map

	Homes	Workplaces	Transport	Energy
Political	Sufficient and affordable housing is a political priority. Social housing, and increasingly the private rented sector, are areas in which the council has considerable influence. Improving the quality and affordability of housing in the borough can help achieve political commitments such as the strategic objectives in the council's 2017-2022 housing strategy.	The local economy is another key political priority, and the local economy depends on businesses having suitable, affordable premises within the borough. Haringey Council's economic growth strategy identifies tech-led design and manufacture, low carbon industries and the digital economy as key sectors in which to attract investment into the borough.	Transport is also important politically both at the borough level and city-wide, with statutory transport planning strategies developed by the Mayor of London and each London borough. TfL (part of the GLA) has ownership and control of key transport infrastructure, and a joint effort between TfL and local authorities is often required to deliver any significant changes.	Energy is an area of action quite removed from Haringey Council's direct governance, however energy prices and security have important implications for residents, businesses and the borough's overall resilience. Fuel poverty is one of the council's focus areas, and community-led energy projects could help to support this work.
Economic	The local economy depends on people being able to live within a reasonable distance of where they work. Haringey Council recognises that there are sections of the borough's workforce that are unable to afford to live in the borough.	Workplaces and commercial buildings are integral to the local economy. Businesses, public sector organisations and other occupants of non-domestic spaces can benefit through energy efficiency	Transportation is crucial to driving a healthy local economy, enabling people to be mobile and travel from place to place easily and affordably. A shift to active and public transport, and resulting drop in car use will	The interaction of the energy sector with the local economy can be broadly divided into parts of the local economy that support delivery of energy related projects (for example local engineering and installation firms, and product or component

	Homes	Workplaces	Transport	Energy
	Building of new homes, and retrofitting of existing homes, will support employment and development of local markets for low-carbon solutions There are also indirect economic impacts of improving the condition and comfort of people's homes, with cold, damp properties linked to increased levels of ill health and costs to the local and national healthcare systems.	improvements through reduced running costs and higher comfort levels for staff and customers. As with reducing emissions from domestic buildings, the building of new workplaces, and retrofitting of existing premises support employment and development of local markets.	have associated benefits for the health of the borough's population. Switching to low-emission vehicles will significantly improve air quality and bring consequential reduction in costs of associated health impacts. Walking and cycling have demonstrated economic benefits, including boosting retail spend, reduced employee absences and increasing productivity[49].	suppliers); and the dependency of other parts of the local economy on access to affordable energy. In some businesses, energy costs can make up a significant proportion of overheads, but in many, energy costs are dwarfed by (for example) staffing costs and rents. This can mean that although energy savings often equate to financial savings, businesses may have other priorities and not enough capacity to give focus to energy efficiency actions.
Social & cultural	Homes and the people that reside in them define the neighbourhoods and communities of the borough. Social cohesion and close communities can achieve a significant amount through collective responsibility, especially if supported by the council. The Muswell Hill Sustainability Group is a good example of such action taking place already in the borough, but Haringey has many close communities including residents' associations, faith groups and other	Businesses and other activities within the borough contribute to its social and cultural capital; some businesses and organisations exist primarily to deliver a social or cultural purpose, but places of work, community or worship also bring people together and many people spend as much or more time in the workplace as they do in their own homes. Having comfortable, well performing buildings to work from or gather in is an important part of maintaining	A shift to active transport is proven to increase social value within the borough, with street improvements in London leading to a 216% increase in people stopping, sitting or socialising according to one study[49]. Transport improvements impact everyone in the borough, and need careful thought, alongside consultation with local communities to incorporate local requirements, perspectives and ideas.	Energy use is defined by social and cultural attitudes as well as other situational factors. Behaviour change and decisions to adopt low-carbon energy solutions may depend in part on people's social and cultural attitudes alongside their personal experience and circumstances. Social and cultural capital is also an important factor in building grass-roots action, and community-owned energy projects within the borough.

[49] Walking & cycling: the economic benefits (TfL, 2018)

	Homes	Workplaces	Transport	Energy
	interest groups that could take similar action.	aspects of the borough's social and cultural assets, and the council's economic growth strategy identifies that social infrastructure is central to the continued economic success of the borough.	Community-based consultation relies on elements of the borough's social and cultural value, and reinforces these things through engaging and connecting individuals and establishing a sense of shared ambition and responsibility.	Some forms of low-carbon energy have historically had negative publicity under the social & cultural category. For example, heat networks can often provoke negative or uncertain reactions from people, based on historical reports of poorly designed networks.
Technological	Improving the energy efficiency of new and existing homes is not currently limited by available technology – but technological advances and innovation can reduce the existing barriers to deployment (costs, responsibilities, practical issues with different building types, disruption etc). Concepts such as Passivhaus combine the use of newer, higher-tech materials and solutions with much lower tech design principles that have been used for centuries. New ways of delivering energy efficiency retrofits are being developed, which may facilitate action in the borough. One example	For most businesses, the technological principles of reducing emissions from buildings are the same as those outlined in the 'homes' section to the left. One additional technological aspect is the opportunity for research, development and innovation in the borough on local, low-carbon solutions for both domestic and non-domestic buildings. This links in to the economic aspects discussed above.	Shifting to active transport is inherently a low-tech solution, however it still requires technical skill to ensure delivery of a cycling and walking network that will be used, and not a disjointed set of small, one-off schemes that end up redundant or even reducing mobility in some cases. Technology is important however, when considering that low- and zero-emission vehicles, and charging infrastructure are still in the relatively early stages of adoption nationwide, and improvements/ new innovations continue to be made. The potential for hydrogen fuel cell vehicles in the future depends on this technology	Of all the sectors, energy is perhaps the most subject to technological advances. Advances in PV manufacturing and increases in demand have down the cost of solar generation significantly – costs declined by around 50% between 2010 and 2014[50]. The provision of low carbon heat in the UK continues to face an uncertain future between electrification and hydrogen as two very different alternatives and there is much discussion and research underway at the moment[51]. As yet unforeseen technological advances may give rise to even better solutions for the reducing carbon

[50] The First Decade: 2004 – 2014. 10 years of renewable energy progress (REN21, 2014)
[51] For the purposes of this project, an assumption of electrification along with an increase of 'green gas' to the national gas supply.

	Homes	Workplaces	Transport	Energy
	is 'Energiesprong'; a technique that uses prefabrication of insulated roof and wall modules to enable a rapid, low-cost, whole-building retrofit approach. The method has been applied to social housing in Nottingham and will shortly be used in a pilot study in London		becoming readily available, and in these respects the council should be considering how they can provide for anticipated demand whilst remaining adaptable to emerging technologies and solutions.	emissions in the borough than those proposed and discussed here.
Legal	The legislative framework for achieving low-carbon homes includes a requirement for homes to obtain an Energy Performance Certificate (EPC) prior to being sold, and the recent introduction of Minimum Energy Efficiency Standards (MEES) for privately rented homes. The council can also decide to set up selective licensing schemes for private landlords in the borough to address issues including poor property conditions. Whilst this is not directly related to achieving lower carbon homes, it could provide one avenue to engagement with and improvement of private rented premises. For new and redeveloped properties, building regulations (Part L) and the Mayor's zero carbon policy	A similar legislative framework to domestic properties applies to non-domestic properties as well with building regulations and zero carbon building policies for new and redeveloped buildings, and MEES for leased commercial premises. Where non-domestic properties do not have the same requirements for an EPC prior to sale, they are required to have a Display Energy Certificate (DEC) if they meet size and use criteria. Additionally, there are broader pieces of legislation set by the national government that apply to large businesses, such as CRC, EU ETS and ESOS – with ESOS in particular requiring an energy audit to identify savings opportunities (which may be	The legal and regulatory framework underlying the provision of transport infrastructure within the borough is largely to do with the interaction between TfL and the borough council. A statutory city-wide transport strategy is set out by the Mayor of London, but this needs to be delivered at a local level by the London boroughs. Local implementation plans (LIPs) are required for each borough, and they set out how that borough will deliver the Mayor's Transport Strategy at a local level and funding is awarded through a competitive bidding process. The Mayor has the ability to set controlled charging zones (such as	The generation and supply of energy is dominated by national legislation, facilitated by the energy regulation authority Ofgem. Subsidies and incentives for renewable generation at a national level (such as FITs, RHI) have been very successful as a market-driven approach, however such direct subsidies are not within Haringey Council's power as a local authority (although it could offer incentives either directly from funding sources or linked to other services that the council provides). Since 2011, Ofgem has promoted the option of a 'Junior Electricity Supply Licence' (or 'Licence Lite') which removes some of the barriers facing potential energy suppliers or distributed energy generators, to

	Homes	Workplaces	Transport	Energy
	encourage lower carbon developments.	linked to building energy use or process energy use)	the congestion charging zone, ULEZ and T-charge zones). The provision of car parking within the borough is set out through the Mayor's London Plan, Haringey Council's Local Plan and its Transport Strategy (which will be followed by a specific 'Parking Action Plan'). Provision for parking is also covered under the National Planning Policy Framework.	encourage smaller companies to provide low-carbon energy. In a local example, the Mayor of London is trialling a 'Licence Lite' project, which involves the GLA purchasing electricity from low and zero carbon electricity generators and selling it to TfL initially over a 12-month period as a pilot project.
Environmental	Environmental factors related to improving carbon emissions from domestic buildings include local benefits from reduced fuel use or reduced use of gas boilers and resulting improvements in internal air quality. There is also a significant environmental aspect related to the fact that there are three ongoing regeneration zones within the borough that present a crucial opportunity for making a big difference; with investment now, costs will be avoided later on and spending will be recouped through financial savings and benefits to the borough.	Environmental factors related to improving carbon emissions from non-domestic building stock in Haringey are very similar to those considerations for domestic buildings (left), and include local air quality benefits as well as considerations around how the local environment and weather may change in the future in response to climate change. There is an equally big environmental opportunity for workplaces in the context of the regeneration zones referred to in the 'Homes' section. More broadly, the reduction in carbon emissions from non-domestic buildings in Haringey will contribute to global reductions in GHG	Improvements to active transport infrastructure, especially if green infrastructure and improved aesthetics of the local environment are a part of these schemes, will have a positive impact on the local environment. Switching from traditional ICE vehicles to EVs will have local environmental benefits in terms of improved air quality, as will an overall reduction in vehicle use – which will also result in less congestion and a more accessible environment for people to enjoy being outside and walking/cycling in the borough.	Environmental factors related to the provision of low carbon energy in Haringey mostly relate to the fact that its current regeneration of three particular areas in the borough presents an important opportunity to implement low-carbon developments for the future now. This will include ensuring provision of low- or zero-carbon energy where possible, through low-carbon heat sources (heat pumps, DHNs and solar thermal), as well as decentralised generation through installation of solar PV. Energy systems should also consider future environmental factors such as the consequences of climate change

	Homes	Workplaces	Transport	Energy
	Environmental considerations when upgrading or building new homes include sufficient provision for increased impacts of climate change, including higher likelihood of heat waves and extreme weather events. More broadly, the reduction in carbon emissions from domestic buildings in Haringey will contribute to global reductions in GHG emissions reducing the impact of climate change.	emissions reducing the impact of climate change.		and its associated impacts. Energy systems built now need to be resilient into the future to ensure security of supply.

9 Delivery of the Plan

Funding mechanisms

Potential sources of funding for each of the actions are described within the appropriate action, but listed below are funding mechanisms currently available that the council can access for a range of activities. This is not an exhaustive list, and funding sources continually change. Additionally, many sources offer funds under a variety of categories, for example a source may offer both grants and loans depending on the project, and provision of financing is often available alongside technical support/advisory services:

Departmental budgets

There are already provisions within council departmental budgets for projects that will reduce carbon emissions within the borough. Consideration should be given to how carbon reductions can be included and maximised in existing budgets, commitments and programmes, and how future programmes and allocations can further increase the carbon emission reductions.

Revenue and council income streams

Departmental budgets, discussed above, are funded through revenue and council income streams. The council brings in revenue from activities in the sectors from which carbon savings are to be made. Whilst these revenue streams are primarily used to deliver and improve the services they paid for, there may be opportunities to deliver carbon reductions related to investment of these funding streams.

Examples include:

- Housing maintenance budget: this is used to maintain the council's housing stock, and improvements to homes could incorporate energy efficiency improvements which would benefit residents through warmer, more comfortable homes and savings on fuel bills.
- Carbon offset fund: the council is in control of setting the carbon price, and liaising with developers who will be using offset payments to fulfil policy requirements. This funding is ring-fenced for carbon reductions within the borough. Consideration needs to be given to how this is most effectively used.
- Section 106 (S106) payments from developers can be negotiated specifically to offset the impact of a development, to enhance the physical environment or contribute towards local facilities. These payments could be an important mechanism by which to fund improvements in active transport infrastructure within the borough, for example.

Grants

Grant funding can come from many places, including the GLA, national government departments, development banks, and philanthropic or charitable organisations. Some specific sources of funding that may be applicable to the actions outlined in the Haringey climate action route map are set out below:

- Mayor's Air Quality Fund: a dedicated fund to support projects that support improvement to London's air quality – in many cases such projects are synonymous with carbon reductions, or could easily be designed to maximise impacts in both areas.
- Government Clean Air Fund and Clean Air Grants – to help local authorities tackle air quality issues, and support local community projects to address air quality at grass-roots level.
- The Carbon Trust Green Business Fund – grants of up to £5,000 available to small and medium sized businesses who could benefit from financial support when buying energy saving equipment.
- The Energy Company Obligation (ECO) scheme requires energy suppliers to fund energy efficiency improvements for low-income, fuel-poor and vulnerable households.

- Other grant offerings available for projects meeting specific criteria, for example the Next Generation Fund focused on community energy projects developing new business models.

Loans

Loans can provide an important funding source for carbon reduction measures, in particular for measures that will result in financial savings in operation, such as energy efficiency measures or low-carbon heating systems that will reduce fuel bills, and renewable generation that will provide low-cost local energy as an alternative to purchasing energy from utility companies.

- Long-term, low-interest borrowing is usually more accessible to local councils and public-sector bodies than to other organisations, as they can borrow through prudential borrowing powers. This can be beneficial where large-scale investment is required, for example in new infrastructure such as a heat network.
- Loans can also come from investment groups such as the Green Investment Group, and from national government through mechanisms such as the Clean Growth Fund which was announced alongside the publication of the Clean Growth Strategy in 2017.
- Charities, social enterprises and philanthropic organisations may offer loans/repayable finance and grants to support small businesses and community projects. Examples of such funding providers include Pure Leapfrog, The Ebico Trust, Esmee Fairbairn Foundation, and Charity Bank amongst others.
- The Mayor's Energy Efficiency Fund (MEEF) can invest in larger projects (£1m+) across the public sector, as well as in projects proposed by charities and SMEs.
- For businesses, loans and match-funding can come from the London Local Enterprise Partnership.
- Other funding mechanisms may be supported by specific programmes and organisations, such as the Community Shares Booster Programme,

Technical advice, support and services

Whilst this is not actual funding, there are opportunities to obtain free technical support to deliver larger schemes such as heat networks, or specific services such as energy audits. These services and technical advisory provisions may also come with an element of financial support or commercialisation work.

- The government's Heat Network Delivery Unit (HNDU) provides grant funding, support and guidance to local authorities in the earlier stages of heat network feasibility and project development, and the more recent Heat Networks Investment Project (HNIP) builds on this programme to offer commercialisation and construction support and funding.
- Many other smaller or niche sources of grant funding and free/fully funded provision of services such as energy audits also exist, such as the 'Utilise Plus' programme run by the Sustainable Business Partnership.

Legislation

Actions in the borough can be supported or inhibited by the wider legislative context. The council can lobby and petition the government and the GLA for more support in the form of regulation and legislation as well as guidance and funding.

Particularly relevant pieces of legislation for the actions outlined in this plan include the following:

Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015

Often referred to as 'MEES' (Minimum Energy Efficiency Standards) these regulations make provision for local authorities to enforce a minimum EPC rating of E for all privately rented or leased properties within their boundaries.

The government has not specified the terms of how local authorities enforce these regulations, and there are several considerations for the council as they develop an approach. These include the best avenues to engage with landlords, resources and funding to carry out engagement and enforcement, and the consequences of non-compliance on not only landlords but also tenants of non-compliant properties; if a landlord is sanctioned and/or stops operating, it increases the likelihood of tenants needing to move or even being made homeless.

To resolve these challenges and use the legislation to achieve real change, the council could consider operating a system in which non-compliant landlords are fined, but in return the council helps deliver the necessary improvements to achieve compliance. This would achieve improvements, reduce the impact on tenants and provide an income stream for the council by which it could fund enforcement.

The existing regulations require a minimum of EPC E, but it is possible that the government will raise this minimum in order to help achieve its goal of all homes achieving a minimum of EPC C by 2035. For this reason it may be worth the council pushing to go above and beyond the regulations, and support improvement of privately rented properties to an EPC D or C for example. This which would contribute towards faster emission reductions from buildings in the borough while saving on the cost and disruption of further work that would otherwise be required further down the line.

Business rates relief

The council is responsible for collecting business rates, but not for setting them. However, it does have the power to reduce business rates through a business rate relief, at its discretion. Business rates are an important source of revenue for the council, which keeps 50% of the tax. The power to grant reliefs could be used to incentivise improvements for commercial buildings where the business owns and occupies the building, for example by linking relief to specific improvements or to EPC rating.

In theory a similar principle could be applied to council tax for home improvements, but the tax amounts are much smaller and less likely to make financial sense when considering the costs of deep retrofit interventions.

Carbon offset payments for new and redeveloped buildings

Planning policy set by the Mayor of London requires all new major developments in London to achieve ‘zero carbon’ standard. However, developers are not required to deliver net zero emissions on site and have the option to pay per tonne of predicted carbon emissions from regulated energy consumption above a minimum threshold. These payments go to the council and are ringfenced for spending on carbon reduction measures within the borough.

The council offset price of carbon (currently £90) is not deemed high enough (by the council) to incentivise on-site carbon reductions consistent with the zero carbon ambition.

Energy Saving Opportunities Scheme (ESOS)

Whilst the ESOS scheme is a nationally regulated scheme for large businesses, the council could engage with the scheme or expand upon it. Large businesses in the borough that are required to comply with ESOS will need to have identified (but not necessarily actioned) energy saving opportunities in their business. The council could work with such businesses to help support the implementation of the identified opportunities, through technical advice and/or low-cost loans.

The council could also set up a voluntary scheme based on similar principles for local small and medium businesses who are not required to comply with ESOS due to their size, but may benefit from going through a similar process, especially if there was an attached implementation assistance package through a combination of technical assistance, loans or grants to complete the works.

Devolution of local taxes

The London Finance Commission has called for increased devolution of power from national government to the Mayor[52], including raising of local taxes and other ways of generating revenue. Whilst much of this devolution, if it was granted, would fall to the GLA and the Mayor of London, there would be significant implications for London boroughs, and at the very least the report identifies that the Mayor and boroughs would need to work closely on the mechanisms of each devolved power and the potential improvements it would represent.

Behaviour change

Changing established behaviour patterns and normalising low carbon choices is a challenging task, and requires the removal of barriers to action, promotion of desired behaviour and incentivisation, amongst other things.

Adoption of social theory and behaviour change principles can aid the effectiveness of action, especially where the ultimate choice lies with someone other than the council. Much information and expertise exists relating to models and techniques of communication and behaviour change.

The framework set out below is informed by several models of behaviour change including the 'transtheoretical model'[53], the government behavioural insights team's EAST principles[54], the COM-B model[55] and a social-ecological model and communication approach developed by UNICEF[56].

These principles are brought together in an iterative cycle of progress outlined in Figure 14.

1. Advocacy

Advocacy is the first step in enabling the conditions for change. Advocacy can focus on the policy environment as well as the wider social system within the borough. It is about the council using its reach and platform to make the case for change; lobbying national government, the GLA, and working with neighbouring boroughs and community groups to gain support for the ambitions and benefits of a zero-carbon borough. Advocacy is enhanced by data and evaluation, and the ability to target audiences effectively.

By being an advocate for transformative change, the council sets the conditions to turn pre-contemplation into contemplation, and contemplation into preparation for action. It builds motivation across the borough to create the opportunities for action.

2. Opportunity

The council has an important role in creating and maximising opportunities for action within the borough, as well as reducing the opportunity for inaction. 'Opportunity' in this sense describes all the factors that lie outside the individual or organisation that make behaviour possible, or prompt it, and can be considered in terms of physical opportunities for action and social opportunities driven by cultural and societal influences[55].

Using 'opportunity' as a tool for behaviour change can be either through enablement (creating opportunities and reducing barriers to positive action) or restriction (removing opportunities for inaction, and creating barriers to high carbon choices).

Given previous discussion around how much of the necessary action is outside the council's direct control, the council needs to make the most of situations where it can facilitate opportunities for others to act and make different decisions. Once opportunities are identified, preparation can begin and capability can be built.

[52] Devolution: a capital idea (London Finance Commission, 2017)
[53] Prochaska & DiClemente 'The Transtheoretical Approach'; in 'Handbook of Psychotherapy Integration', 2005
[54] EAST: Four simple ways to apply behavioural insights (The Behavioural Insights Team, 2014)
[55] Michie et al, 2011 'The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions'
[56] A Global Communication Strategy Development Guide for Maternal, Newborn, and Child Health Programs (UNICEF, 2015)

3. Capability

Capability and motivation turn opportunities into action. Capability relies on having the psychological and physical capacity to undertake a change in behaviour. For the borough of Haringey, capability can be considered in terms of individual and collective capability of decision-makers, as well as the capability of the supply chain – developing skills locally is a key part of building the borough's capacity for change.

Making solutions **easy**, **attractive**, **social** and **timely** can accelerate change and increase the effectiveness or uptake of action[54].

4. Social mobilisation

Social mobilisation turns individual and dispersed actions into a collective movement for change. Social norms are a strong driver in behaviour change, and this step is crucial in scaling up action to reach across the whole borough. Social mobilisation is a continuous and multi-level process that requires engagement and participation from an increasing number of people and organisations.

Social mobilisation will increase the potential for action within the borough by making it accessible, desirable and self-sustaining.

5. Evaluation

Monitoring and evaluation of action taken within the borough facilitates learning and continuous improvement. Reporting and communication of progress and results is important to future action and can feed positively back into the advocacy element of change to build momentum. Strong evaluation is important in the design of future action to ensure effectiveness is maximised.

It can be argued that evaluation should really be the first step in this process; good evaluation relies on design from the start. Important principles include: clearly defining success; deciding on aspects to be evaluated and defining the monitoring required for this; setting a counter-factual or useful comparative case; determining the period over which action should be monitored and ensuring involvement of key people from the start[57].

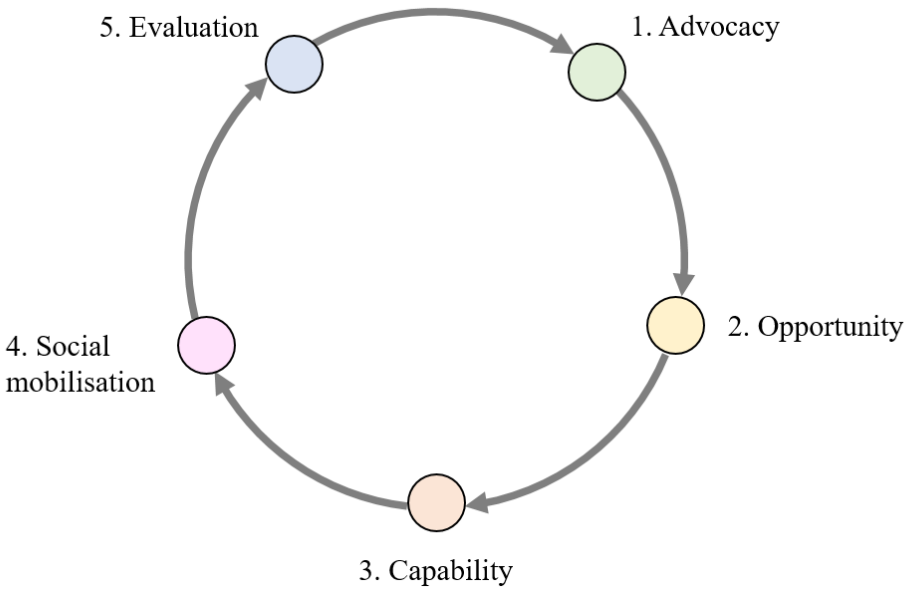


Figure 14 Behaviour change principles; a 'wheel of change' for the borough

[57] What Works Centre for Local Economic Growth 'How to evaluate: Eight things to consider' blog series, 2015.

Monitoring and review

Progress and performance monitoring

Detailed discussion of monitoring, evaluation and reporting has not been included in the individual actions set out in sections 3 to 6, however monitoring and reporting of each action is critical to capturing both the direct and co-benefits of each action to demonstrate progress toward the eventual goal and to justify and guide future activities.

Within each action, metrics have been proposed. Programmes can be monitored in terms of progress, e.g. the completion rate against the annual or total target, and in terms of impact, e.g. the carbon saving. Programmes can also monitor both direct and co-benefits, such as financial or health benefits.

The existing method of progress monitoring that forms the basis of Haringey's annual carbon reporting is a top-down approach using nationally generated and published data. This is useful to provide a consistent picture of overall emissions within the borough but does not facilitate learning and evaluation at action or programme level.

Performance monitoring for individual actions is as at least as important as overall progress monitoring, as it provides a real picture of performance in the borough, and any learnings can be applied to future programmes or phases of work. It can help understand issues such as performance gap, where delivered emission reductions are not as big as forecast, and rebound effect, where inhabitants of a retrofitted home end up using the same amount or more energy as more energy can be used for the same cost.

In addition to monitoring progress and performance related directly to the primary objective of reducing emissions in the borough, it is also important to identify other metrics that could be collected and assessed in relation to co-benefits of action. This will help provide a more holistic picture of overall changes in, and improvements to, peoples' experience of living, working and travelling in the borough. This will be action specific, but could include, for example, people's comfort levels in their homes, instances of damp or mould in homes, travel times and enjoyment levels for people's regular journeys, perceptions about the amenity value or safety of areas that have been improved, etc.

Co-benefits are much harder to quantify, but for any measure a baseline is required. Therefore detailed surveys should be carried out prior to any physical interventions to provide a baseline for future comparison. Such surveys should include both qualitative and quantitative assessments of physical and mental health, home comfort, travel experiences, finances, education and employment, security and wellbeing.

A monitoring plan for each action, or each programme within an action, should be produced at project inception. The plan will identify the metrics to be used to monitor progress and impact (for both emissions and co-benefits), including methods for establishing a baseline for each metric.

Time and budget must also be reserved for monitoring and evaluation to ensure that it takes place.

Reviewing and updating the route map

The recommendations outlined in this route map are made based on the information available at the time of writing. Whilst the fundamental transitions that need to occur are certain, the means of achieving these changes and the delivery models that enable actions to be taken most effectively are likely to change with time. We recommend that the council commits to regularly reviewing both the action plan to deliver its 'Zero by 2050' vision as well as progress against these actions and against the overall commitment.

10 Barriers and Uncertainties

Haringey Council could be limited in its ability to deliver on this plan by the following:

- **Inconsistency or absence of political will** – whilst individuals and teams within the council have the ability to make change, the overall impact and strength of the council's decisions needs to be led from the top.

- **Scale of the challenge –** the scale of the challenge is considerable and should not be underestimated. Programmes need to be designed to cope with the scale of implementation that is required, as indicated on each action sheet.
- **Funding** – even with cost effective proposals and business models or payback schemes, capital investment is often a significant barrier and frequently relies on limited pots of funding from elsewhere (government, GLA etc). In particular, the short-term nature of these funding sources and wider programmes often prevents programmes reaching their full potential.
- **Lack of engagement, understanding and support from Haringey residents and business owners** – ultimately, the council answers to the people it represents. It cannot be expected that everyone will place climate change at the top of their personal agendas, but the council will need the support of its citizens to lend weight to its actions and send a clear message to council leaders.
- **Failure to deliver projected decarbonisation of the electricity grid** – though the council can work to reduce energy demand in the borough and support increasing adoption of rooftop solar arrays it does not have the capacity to be self-sufficient in energy production terms. Therefore, the council will rely on others to reduce the carbon factor of grid electricity which in turn will deliver much of the reduction in carbon emissions required to achieve zero carbon.

Appendix A: Supplementary Material

A1 Context

Haringey's actions and ambitions sit within the context of goals and commitments at a regional, national and international level, as well as within the legislative framework of the UK. The actions that Haringey Council can take are influenced by local contexts; at a city-scale as well as at borough- and community level settings. A list of relevant legislation, policies and programmes at national and international scales can be found in Appendix A1.

International

Climate change has been a recognised global threat for decades; the UN set up the Intergovernmental Panel on Climate Change (IPCC) in 1988 and the Climate Change Convention was signed by 154 nations in 1992.

The Paris Agreement, adopted in December 2015, has been signed by 195 countries including the UK. It represents a step-change in global ambition to tackle climate change, with signatory countries committing to keep average global temperature increase below 2°C and to pursue a more ambitious limit of 1.5°C.

More recently, the IPCC published a special report on the impacts of global warming of 1.5°C above pre-industrial levels. The report notes that we are already seeing consequences of 1°C of warming, and predicts that even the difference between 1.5°C and 2°C degrees of warming will be significant. It warns that the world is currently heading for 3°C of warming and that to limit warming to 1.5°C, rapid and far reaching transitions in land use, energy, industry, buildings, transport, and cities are required, with global CO_2 emissions needing to fall by 45% from 2010 levels by 2030 and to reach net zero around 2050.

National

The UK has considered itself a world leader in addressing climate change, as the first country to legislate to reduce national carbon emissions. The 2008 Climate Change Act requires 5-year carbon budgets to be set to bring the UK's emissions down by 80% (compared to 1990 levels) by 2050. However, even this level of ambition is now not enough: the UK Committee on Climate Change concluded in its May 2019 'Net Zero' report that:

> *The UK should set and vigorously pursue an ambitious target to reduce greenhouse gas emissions (GHGs) to 'net-zero' by 2050, ending the UK's contribution to global warming within 30 years.*[58]

Haringey Council has already responded, by committing to net zero emissions within the borough by 2050.[59]

A number of national schemes, policies and funding opportunities have been developed since 2008 as part of the government's work to tackle climate change. Major schemes include:

- Carbon Reduction Commitment (CRC) scheme, which mandates carbon reporting for large emitters;
- Energy Savings Opportunity Scheme (ESOS) requiring all large businesses to conduct energy audits;
- Energy Company Obligation (ECO) requiring energy suppliers to deliver energy efficiency measures in domestic properties;
- Heat Network Delivery Unit (HNDU) and Heat Network Investment Project (HNIP) which were established to provide, respectively, programme and capital funding to support a market transformation in the delivery of low carbon heat networks across the country; and
- smart meter rollout which set an ambition for every home and business to have a smart meter installed by 2020.

[58] Net Zero: The UK's contribution to stopping global warming. (Committee on Climate Change 2019)
[59] At the time of writing, there is an ongoing debate in the borough whether to set a 2030 target for zero carbon. However, this report is based on the analysis performed for a 2050 target date.

Beyond the policy context, the UK has achieved significant progress in reducing the carbon intensity of the national electricity grid through a combination of sustained support for grid scale renewables and increasing adoption of gas in place of coal for power stations. In buildings, rising efficiency standards and related incentives are helping to reduce energy consumption in buildings. In transport, similar increases in vehicle efficiency standards are reducing fuel consumption. With a market-led and government-supported trend towards electric vehicles, a steady decarbonising of the transport sector is also anticipated.[60]

Heating remains a challenge, particularly for millions of existing buildings which will remain occupied to 2050 and beyond. Much of this stock is poorly insulated and is heated by natural gas burned in boilers in each building. The government's Clean Growth Strategy recognises this challenge and commits to supporting domestic building energy efficiency with measures such as working with mortgage lenders to develop 'green mortgage' products that take account of the lower lending risk and enhanced repayments associated with energy efficiency properties. The strategy also sets an ambition for "as many homes as possible" to reach the efficiency standard of EPC band C. Nevertheless, a clear and robust pathway to improving the energy efficiency of these buildings and providing low carbon heating supplies is not yet in place.

A final element of the national context is the 2016 referendum on EU membership. Whilst 'Brexit' is not a climate change issue in itself, it creates uncertainty over the future of UK governance on climate change related subject matters. It has also been a major distraction, taking up a significant proportion of government time and effort and potentially leading to delays in anticipated climate policy matters.

London

In 2017 the Mayor of London announced his ambition for London to be a zero-carbon city by 2050; achievement of this goal will require contribution and engagement from all London boroughs.

The Mayor's ambition is reflected in policy through the London Environment Strategy (May 2018), which sets out a number of policies, principles and objectives and provides strategic backing for taking ambitious action on a number of environmental issues including climate change.

In addition, the draft new London Plan (2018) supports the London Environment Strategy and specifically records the ambition to reach zero carbon by 2050. It includes supportive policies on green infrastructure, energy infrastructure and new developments for low carbon design, carbon offset pricing and future-proofing to accommodate developments in low carbon technology.

Most recently, the GLA's report on 'Zero carbon London: A 1.5°C compatible plan' was published in December 2018. It sets out the required scale of changes to the energy efficiency of London's existing buildings, and the city's energy systems. Arup modelling, on specific building energy efficiency policies and interventions, underpinned much of the report's analysis.

These policies will be felt through formal planning decisions on new developments but also potentially through borough-level and London-wide programmes and initiatives to stimulate action on existing buildings and infrastructure, and on the behaviour of businesses and citizens.

Haringey

Borough plan

The council is currently consulting on its draft Borough Plan for 2019-2023[61]. This plan outlines what the council sees as its priorities for the next five years. The plan includes a dedicated objective (9d) to '*reduce CO_2 by 40% before 2020 and begin the journey to reduce to zero by 2050*'. It includes objectives that have explicit or direct

[60] The Fifth Carbon Budget. The next step towards a low-carbon economy (Committee on Climate Change, 2015)
[61] Borough Plan 2019-2023: Consultation Draft (Haringey, 2018)

links to meeting this challenge, such as improving air quality, safer streets, increasing connectivity especially for pedestrians and cyclists, a modal shift towards active transport and delivery of new EV charging points and bicycle parking. There are also internal objectives for the council itself that align with many of the needs for a zero-carbon transition, such as having the skills required to deliver for the borough, and using its resources in a sustainable way.

In addition to these objectives and links to the zero carbon ambition, the borough plan contains other objectives, including housing the borough's people, with a commitment to deliver at least one thousand new council homes over the next five years, measures to support residents living in privately rented accommodation and those who work in the borough but who cannot currently afford to live in Haringey. Building and retaining wealth in the borough is another priority, with recognition that every public pound spent needs to provide maximum public benefit. The draft borough plan states that there will be a greater emphasis on procuring goods and services locally, and that it will look to create partnerships to retain spending in the local economy. Tackling serious violent crime, reducing inequality and making the borough a fairer place are the other priorities listed in the plan.

These priorities can play a significant part in supporting the plan for a zero carbon future and vice versa; council home-building can be delivered with sustainable design at its heart which sets an example for other development opportunities in the borough while reducing fuel bills for future occupants. Addressing the quality of private rented housing through engagement with landlords and enforcement of minimum quality standards can encompass necessary carbon reduction measures for private rented properties in the borough. A shift towards active transport in the borough will increase levels of physical activity and deliver improvements to the mental and physical wellbeing of Haringey's residents. Policies supporting local procurement and job creation can build a local market and supply chain ahead of the growth in private demand for low carbon building and retrofits, and community energy projects. In turn, the council can aid delivery by driving demand for these services. Warmer homes that are cheaper to heat, accessible and sustainable transport solutions, and local energy generation can all help to reduce inequalities within the borough.

Inequality is closely connected to climate change; it is widely recognised that whilst the wealthiest in society responsible for the majority of carbon emissions, the poorest in society are least able to cope with the consequences of those emissions. Addressing climate change in the borough can and should be done with the council's priority to reduce inequality at the heart of the plan.

Within the plan there are partner statements from a number of organisations, aligning intentions and ambitions with those outlined in the council's borough plan. This provides the council a clear opportunity to build partnerships and achieve mutually beneficial results with key organisations. For example, the potential health benefits to residents in Haringey from improved housing, active transport and reduced air pollution should be of interest to the Haringey Clinical Commissioning Group, who have also included in their statement a note on work with the Sustainability and Transformation Partnership. Aligning these different elements of public healthcare interests and sustainability could open up new routes for funding, and co-ordinated action in the borough. The Bridge Renewal Trust also make a statement focusing on enabling people to live healthier, longer and more fulfilling lives – making healthy life choices and the importance of community are key aspects of building collective action across the borough. The College of Haringey, Enfield & North East London has a key interest in the development of local skills to support the local economy; this is particularly relevant to actions that will require a capable local supply chain for property retrofits, renewable energy installation and other required infrastructure to facilitate the low carbon transition.

Other relevant council activities include closure of the Haringey Development Vehicle (HDV) and three large redevelopment areas in the borough. The HDV was a public-private partnership the council established in 2017 to facilitate the building of 6,400 new homes in the redevelopment on Northumberland Park. In July 2018, following council elections and a change in leadership, the decision was taken to close the proposed HDV. This decision presents an opportunity for the council to re-evaluate plans for redevelopment of this area and to ensure their alignment with the zero-carbon ambition.

At Northumberland Park, along with the other redevelopment zones in Tottenham, North Tottenham and Wood Green, the council has an opportunity to set the standards of future development in the borough and demonstrate its commitment to their zero carbon ambitions.

Ambition

Haringey Council is among the leading borough councils in London in acting on a Zero Carbon ambition: Its Zero Carbon commitment is in place, it has published a Zero Carbon Commission report and it has begun this more detailed project to establish the evidence base for targeted action.

Each year since 2011 the council has published an Annual Carbon Report which documents progress towards the 40:20 goal. In 2012 Haringey Council's Carbon Commission, in conjunction with the New Economics Foundation published a report, 'A sustainable new economy', and in 2017 the council published Zero Carbon Haringey: A Manifesto to Deliver Sustainable Regeneration in Haringey.

A list of the climate programmes that Haringey Council has delivered or reported on since 2009 can be found in Appendix A3.

Progress

Figures presented in the Annual Carbon Reports show that emissions across the borough are falling, both in total and per capita, despite an increase in population (see Figure 15 and Figure 16).

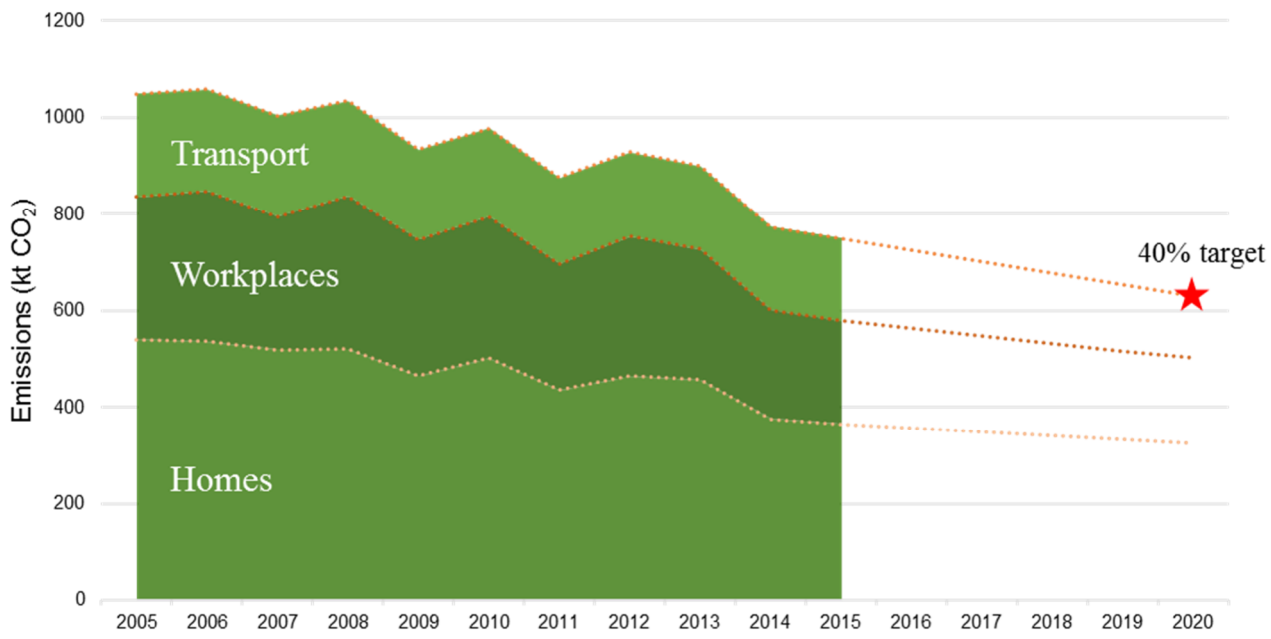


Figure 15 Haringey Borough annual CO_2 emissions, 2005-2015 with indicative pathways to meet the 40:20 target (source: BEIS)

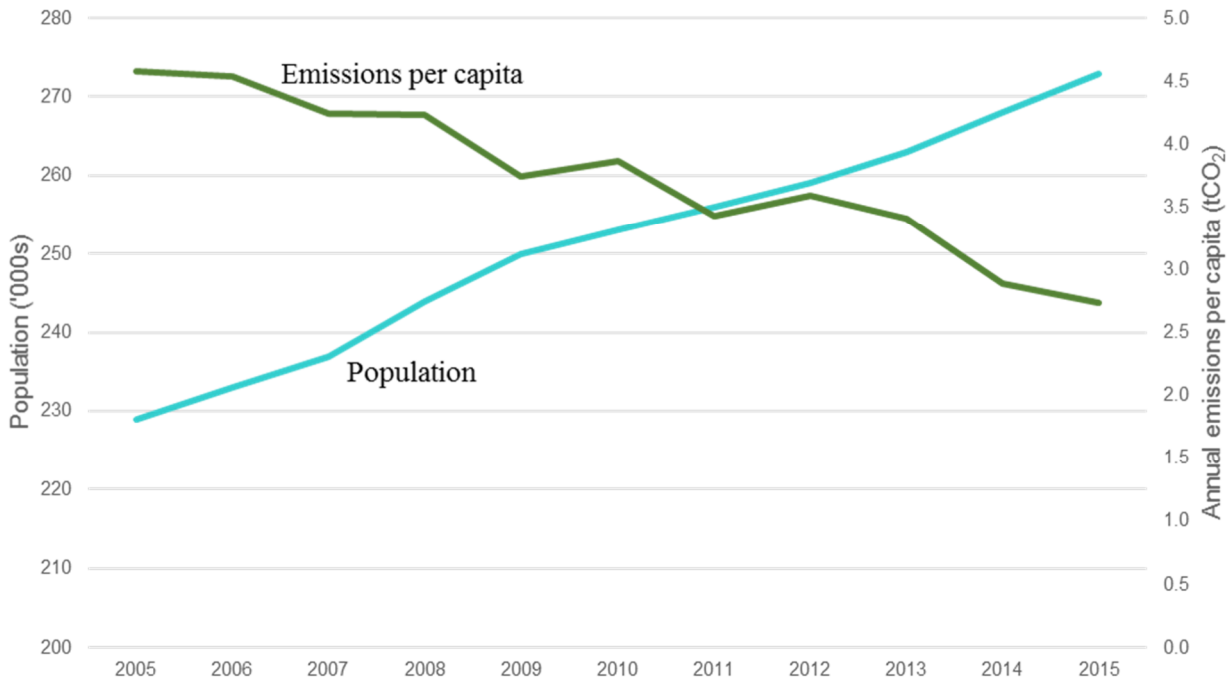


Figure 16 Haringey Borough population and emissions per capita, 2005-2015 (Source: BEIS)

Whilst the general trend across London, and indeed across the country has been steady progress to reduce emissions, Haringey has out-performed many other London boroughs. The shared downward trend comes from steady decarbonisation of national electricity grid over the same period. The effect of decarbonisation can be seen in **Error! Reference source not found.**Figure 17 which shows Haringey's relative carbon emissions (red line) alongside those of all other London boroughs, together with the changing grid carbon intensity (blue line).

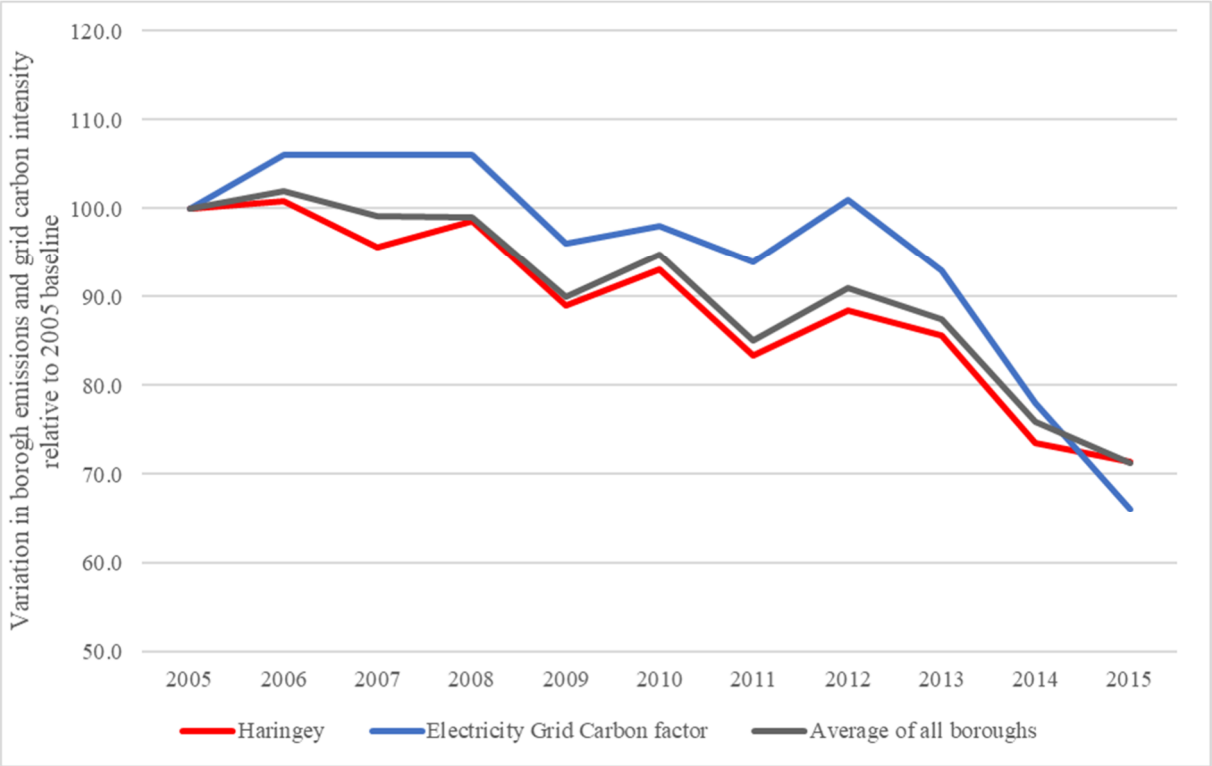


Figure 17 London borough emissions and national electricity grid carbon intensity, 2005-2015, indexed relative to 2005 baseline.

The chart shows that changes in emissions in all London boroughs have correlated strongly with the carbon intensity of the electricity grid.

We estimate that around 55% of Haringey Borough's reduction from 2005 to 2015 is the result of causes other than grid decarbonisation, such as increasing efficiency of buildings and vehicles, declining use of cars and switching to lower carbon fuels for heating and transport. Although other factors such as changes in economic activity and the weather will also impact carbon emissions, Haringey Borough's emissions are reducing, and the council's efforts should be regarded as successful, particularly when viewed in the context of a growing population.

A2 National and international legislative context

Document	Description	Implication for Haringey Council
International context		
Paris Climate Agreement (2015)	An agreement signed by 195 countries, including the UK, committing to reduction of global emissions to keep global temperature rise below 2°C by 2100, and pursuing a more ambitious limit of 1.5°C.	The UK government will need to meet the requirements set out in the agreement, and whilst they will be able to achieve some action through national legislation and schemes, they will also need to rely on delivery in local authorities. Equally, the agreement may form part of a strong base of evidence for lobbying for a stronger national policy landscape.
UN sustainable development goals (2015)[62]	UN countries adopted seventeen 'sustainable development goals' (SDGs) to end poverty, protect the planet and ensure prosperity for all, with specific targets over the next fifteen years.	The UN SDGs are already influencing decisions in business and government, and whilst not mandatory, they do provide a useful framework around which focused action can be developed.
National context		
Climate Change Act (2008)	Requires government to set legally binding carbon budgets covering five year periods, to reach a reduction in carbon dioxide emissions of 80% by 2050 compared to 1990 levels. Budgets are set 12 years in advance of each period	Haringey Council has already committed to going above and beyond this target within the borough. If Haringey Council wanted to align to government methodology it could begin to report against local carbon budgets rather than in terms of % reduction only.
Committee on Climate Change advice to government (various) – (2008-present)	The Committee on Climate Change was set up as a result of the Climate Change Act, and provides independent advice and reviews on setting and meeting carbon budgets and responding to climate change.	Many of the CCC publications are useful to understand actions that could and should be taken at borough level, as well as providing context within the wider national picture.
Department for Transport Carbon Reduction Delivery Plan published (2009)[63]	Outlines the national strategy and opportunities for decarbonising the transport sector.	Sets out how regional and local partners such as Haringey Council can make a difference.
Carbon Reduction Commitment (CRC) scheme (2010)	A mandatory government energy reporting scheme for high energy users in the UK. Requires annual reporting of energy consumption and purchasing of allowances to cover emissions.	The scheme applies to high energy users with a presence in Haringey, as well as the council itself. In 2015/16 Haringey Council's reported emissions under the scheme were around 10,000tCO_2 and it will have been required to purchase allowances to cover this. Scheme to close at the end of 2018-19 with a corresponding increase in the Climate Change Levy
Abolition of local government 'National Performance Framework' (2010) including national indicator 186 (NI186)	Reporting on per capita CO_2 emissions in local authority areas. Two thirds of local authorities had chosen to sign up to NI186	Haringey Council used this performance indicator and has continued to use the Department of Business, Energy and Industrial Strategy's (BEIS) reported per capita emissions at borough level for its annual carbon reporting.
Energy Company Obligation (ECO) (2012)	A government scheme placing an obligation on energy suppliers to deliver	Haringey Council has utilised this source of funding in their programmes – it was

[62] http://www.un.org/sustainabledevelopment/sustainable-development-goals/
[63] Low Carbon Transport: A Greener Future. A Carbon Reduction Strategy for Transport (Department for Transport, 2009)

Document	Description	Implication for Haringey Council
	energy efficiency measures to domestic premises in Britain to help reduce carbon emissions and tackle fuel poverty.	reported that in 2013/14 ECO funding was used to install loft insulation in 168 homes and cavity wall insulation in 104 homes[64].
Energy Act (2013)	Established legislative framework to deliver secure, affordable and low carbon energy.	Limited implication for Haringey Council as relates largely to energy generation at grid scale
Private Rented Minimum Energy Efficiency Standards (2015)	From April 2018 (with a staggered approach lasting to 2023), landlords will be required to improve the EPC rating of their properties to meet a minimum of EPC rating E.	As a local authority, Haringey Council will be responsible for the enforcement of this legislation. It is up to Haringey Council to decide how it will approach this, but it is a significant opportunity to engage with landlords on energy efficiency issues.
Smart Meter Rollout (2017)	The government has set out an ambition for every home and small business to have a smart meter installed by 2020.	Smart meters facilitate consumer behaviour change and also enable smart grids. Haringey Council can encourage and engage with residents and businesses in the borough to encourage the uptake and best use of smart meters.
Industrial Strategy: Building a Britain fit for the future (2017)	Government industrial strategy setting long-term vision for boosting productivity and earning power in the UK. Covers key areas of relevance to climate action including infrastructure, clean growth and innovation.	May provide opportunities for funding of projects; including 'Transforming Cities Fund', EV infrastructure funding, clean growth funds, clean air funding, and local growth funding. Local industrial strategies will be agreed and will focus on local strengths, delivering economic opportunities.

[64] Fourth Annual Carbon Report 2014 (Haringey, 2014)

A3 Previous and current climate action in Haringey

Programme	Type of assistance	Description	Scale of action or impact (see note)
Haringey Big Community Switch[65] (2013)	Information	Living Under One Sun (a Tottenham based charity) used an award from the One Borough One Future fund to meet with residents and encourage participation in a collective energy switching scheme, focusing on vulnerable and fuel poor households, to cut their energy bills.	Over 3000 people received advice.
Decent Homes Programme (2008)	Direct delivery	Through Homes for Haringey the Decent Homes Programme worked to improve the quality of social housing. Whilst the scheme was primarily aimed to upgrade homes to meet minimum comfort and health & safety standards, the government's 'Decent Homes' criteria includes efficient heating and effective insulation, so Haringey Council's Decent Homes programme included installation of measures such as insulation, new boilers and double glazing.	Ten-year project (2008-2018) £292m total investment[66] 11,300 council homes brought up to government's Decent Homes standard. Estimated savings 5,000 tCO_2 /year[67]
Draft Core Strategy and Sustainable Design and Construction Guidance[68] (2013)	Policy	Planning policy adapted to require all new developments to be carbon neutral by 2016 for housing and 2019 for commercial new builds.	No information available on quantified impact.
Smart Homes	Grant funding	Based on a Green Deal assessment, homeowners could be granted up to £6,000 towards the cost of insulation – primarily for more expensive types such as solid wall insulation. The programme operated across six London boroughs including Haringey.	255 homes treated in Haringey[69] 219 grants provided for Haringey[70] £930,000 total grant funding in Haringey £128/tCO_2 average for programme Total estimated annual saving for Haringey[71]: 215 tCO_2
Green Doctor Scheme (WARMTH)[72]	Advice	Ran for a year during 2016/17, offering home visits to residents to match them to relevant services to improve housing condition, including insulation and heating upgrades and advice on reducing energy bills	185 visits made 1,053 energy saving measures installed 15 tCO_2 saved through installation of measures 39 tCO_2 saved through behaviour change intervention
SHINE London (2017)	Advice	Haringey Council have signed up to a pilot project with Islington SHINE, scheduled to run until May 2018 providing holistic advice on fuel poverty and linked issues. Referrals to the scheme	90 residents have benefitted from the service

[65] Third Annual Carbon Report (Haringey 2013)
[66] From information provided by Haringey Council
[67] Based on number of measures as reported in Haringey's annual carbon reports, and Arup benchmark values for CO_2 saving associated with each type of intervention.
[68] Sustainable Design & Construction. Supplementary Planning Document (Haringey Council, 2013)
[69] http://haringey4020.org.uk/home-energy-efficiency-renewables-update/
[70] The Fifth Annual Carbon Report 2015-2016 (Haringey, 2016)
[71] Approximation based on lifetime CO_2 savings for all six boroughs as reported in the Smart Homes Evaluation Report (2016)
[72] 7th Annual Carbon Report – draft (Haringey, 2018)

Programme	Type of assistance	Description	Scale of action or impact (see note)
		can be made (as well as direct requests by residents). The scheme is funded through the Warm Home Discount Industry Initiatives.	
Corporate estate electricity reduction	Estate investment	Investments in buildings and disposal of unneeded buildings were undertaken to achieve efficiency savings in the council's estate. Target is 10% reduction in electricity consumption by 2018/19.	34% reduction in electricity consumption from 2014/15 baseline. 2,400tCO_2/yr savings.
Development of Tottenham Decentralised Energy Network (ongoing)	Information	Haringey Council continue to investigate and promote the use of decentralised energy, focusing on developing a delivery framework for three identified opportunity areas – North Tottenham, Tottenham Hale and Wood Green.	No information
En10ergy social enterprise (2009)[73]	Grant funding	Haringey Council's Green Innovation Fund (2008/9) provided grant funding to set up a social enterprise company selling shares to residents. The company is operating a growing investment fund for carbon saving initiatives, and running a bulk purchasing scheme negotiating discounts for efficient boilers and PV arrays on behalf of residents.	2010 - 45kWp of PV on M&S in Muswell Hill 2011 - 20kWp of PV on the Methodist Church in Muswell Hill 2017 - 50kWp of PV on Woodside School in White Hart Lane
RetrofitWorks: The Good Building Co-operative (2012)[74]	Grant funding	A local cooperative, formed of local retrofit installers, community organisations, local authorities and other partners, to drive retrofit from the 'ground up'. Funding for initial set up and commercialisation of businesses from Green Deal Pioneer Places and Green Deal Communities	75 business members 120 homes retrofitted
Green Light North London[75] (2012)	Technical assistance	The council's Business Support Project which in 2012/13 provided energy saving advice to businesses resulting in lighting efficiency switching and behavioural changes (fuel saving, driving, and recycling). The project also piloted Green Deal Assessments.	101 businesses advised. 327 tCO_2 saved each year £60,000 savings per year
Highways, walking and cycling analysis and studies (2013)	Technical study	The Walking and Cycling study, along with the North London Cycle Strategy, has identified investment requirements for walking and cycling facilities in Haringey - £3.2 million for cycling and £561k for walking.	Study completed
DIY Streets Toolkit[76] (2010)	Technical assistance and funded works.	In partnership with Sustrans, a project for community-led street design and retrofit including smart travel measures.	1,000 households in the focus area 40+ trees planted 34% increase in number of residents who felt the street is a place to socialise.

[73] http://en10ergy.org.uk/
[74] http://retrofitworks.co.uk/
[75] Fourth Annual Carbon Report 2014 (Haringey, 2014)
[76] https://www.sustrans.org.uk/policy-evidence/the-impact-of-our-work/community-led-street-design-turnpike-lane-haringey

Programme	Type of assistance	Description	Scale of action or impact (see note)
Free electric vehicle trials[77] (2017)	Technical assistance	Haringey Council are currently offering free, one week trials to residents and businesses using a selection of electric vehicles.	Project ongoing
Personal Travel Planning (2012-13)	Technical assistance	A personalised travel planning project helped residents identify lower carbon modes of travel for their regular journeys, including an emphasis on active transport.	9,115 homes visited 3,365 conversations 1,424 households requested further information
Business advice (through Green Light North London)	Information	Targeted advice to local businesses regarding waste reduction and/or increased recycling.	0.3 – 7 tonnes of waste reduced or recycled for each individual business
Food waste collection in schools	Engagement and technical assistance	80% of schools (out of 80)[78] have signed up to the food waste collection service, and the Haringey Council Education Officer is engaging with the remaining 20% to encourage them to sign up to the service as well.	64 schools signed up to food waste collection.
Haringey Council Waste Contract Operations	Supply chain improvement	Haringey Council has a target to reduce the emissions from its waste contract operations by 40% from 2011/12. This has been exceeded.	54% reduction in CO_2 emissions from waste contract operations in 2016/17 against a 2011/2012 baseline.[79]

[77] http://www.haringey.gov.uk/parking-roads-and-travel/travel/neighbourhoods-future-wood-green
[78] https://www.gov.uk/school-performance-tables
[79] The Sixth Annual Carbon Report 2015-2016, pre-publication draft (Haringey, 2017)

A4 Relevant Haringey Council documents

Table 2 lists a selection of council documents that have relevance to this work. Not all documents have been reviewed in detail but many have been used to refer to within this work.

Table 2 Relevant Haringey Council documents

Document name
Haringey Borough Plan 2019-2023
Wood Green Area Action Plan (emerging)
Tottenham Area Action Plan
Highgate Neighbourhood Plan
Local Plan: Development Management Policies DPD
Sustainable Design and Construction (Supplementary Planning Document)
Haringey Transport Strategy 2018
Haringey Local Implementation Plan 2019-2022
Haringey Annual Carbon Reports (2007-2018)
Haringey Ultra Low Emission Vehicle Action Plan 2019-2029 (consultation draft, 2018)

A5 Council interviews

The following is a list of all those that were interviewed in the stakeholder engagement interviews and those who made written comments:

- Michael Westbrook – Housing Strategy and Commissioning Manager
- Chris Vavlekis - Neighbourhood Improvement Team Manager, Operations Service (Homes for Haringey)
- Jacinta Walters – Policy and Strategy Manager, Asset Management, Property Services (Homes for Haringey)
- Gillian Cox – Fuel Poverty Officer
- Ron Dixon – Head of Engineering (Homes for Haringey)
- William Ogden – Head of Strategic Property
- Darren Butterfield – Client and Commissioning Manager
- Kamar Zaman – Energy Manager
- Dianne Grant – Education Projects Manager
- Tim Starley–Grainger – Energy Infrastructure Manager
- Joe Baker – Head of Carbon Management
- Ian Kershaw – Community Safety, Enforcement & Waste Manager
- Zahrah Ali – Ultra-Low Emission Vehicle Officer
- Martin Cowie – Principal Planner
- Philip Crowther – Principal Planning Officer
- Beth Kay – Head of Area Regeneration
- Neil Goldberg – Transport Planning Officer
- Andrea Keeble – Active Communities & Leisure Manager (written response)
- Paul Carten – Senior Business Partner (written response)
- Sheela Thakrar – Business Partner (written response)