

Net Zero 2030 Strategy

February 2024

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Seizing the Moment, Shaping the Future



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Executive Summary

What has the Council achieved so far?

What commitments are needed now to reach Net Zero 2030?

What are the next steps?

Background

- The effects of climate change are being felt across the globe and are anticipated to intensify as a result of human activities releasing carbon into the atmosphere.
- The Council has recognised the significance of climate change and in 2019 declared a Climate Emergency. This has since been followed by the launch of Kingston's Climate Action Plan and a public promise for the Council to reduce its own emissions to net zero by 2030.
- The Council has the opportunity to establish itself as a leader of place and use its influence to lead the way for the Royal Borough of Kingston ('the Borough') to reach net zero emissions by 2038, bringing significant benefits to the borough and beyond.

Purpose & Scope of the Net Zero Strategy

The purpose of the Net Zero 2030 Strategy is to outline the steps that the Council will take to achieve net zero by 2030. For the Council's operations to reach this target the majority of Scope 1 and 2 emissions will need to be eliminated, leaving only residual emissions behind.

- **Scope 1 emissions** primarily come from the burning of gas in boilers for heating buildings, and fuel for vehicles.
- **Scope 2 emissions** primarily come from purchasing energy from the National Grid, that does not always come from renewable sources.
- **Scope 3 emissions and emissions within the Borough** not directly attributed to the Council's operations, are outside of the scope this strategy. These emissions are primarily related to the Council's supply chain.

Recommendations

The Council will need to build on the work it is already undertaking and make decisions at pace around the additional interventions required to eliminate the remaining emissions. The recommended direction for the Council is to invest and achieve its target by 2030 by selecting a combination of interventions that would eliminate all Scope 1 and 2 emissions.

The Council should consider not only carbon and cost impacts when making these decisions, but also the impact on place to ensure any benefit the borough holistically e.g., through job creation.

The following interventions are recommended to be chosen for implementation.

Improving Current Operations:

- Disposal of 2-3 assets
- Deep retrofit
- Transition housing fleet to electric vehicles
- Connect to future DHN

Future-Proofing the Estate:

- Introduce a no gas policy
- Implement BREEAM Excellent standards

Transitioning to Net Zero Electricity:

- Commit to a PPA
- Install renewable energy (ground-mounted solar panels)

Next Steps & Considerations

The Net Zero 2030 Strategy provides a clear direction for the Council to take to achieve net zero by 2030 and beyond.

The Council now needs to take key next steps to turn this into reality, including:

- Decisions on the scope and timing of interventions so that it can plan its investment and achieve the net zero 2030 target.
- Development of a detailed Net Zero 2030 Implementation Plan, underpinned by this strategy, so that the Council can lead the way to a sustainable future for the Borough.

In addition, the Council should consider implications of its Net Zero 2030 Strategy on the Borough's 2038 net zero goal as well as on its own Scope 3 emissions.

- Develop a detailed implementation plan, to include business cases, for delivery to achieve net zero council operations by 2030 through interventions around: improving current operations; future-proofing the estate; and transitioning to net zero electricity.
- Utilise monitoring tools as implementation progresses, to ensure that all benefits are realised.
- Development of a Net Zero 2038 plan to address issues around embodied carbon, supply chain and council homes.



Introduction

Context of this report

Following its declaration of a Climate Emergency in June 2019, the Council committed to ensuring its council operations were net zero by 2030 to lead the way for the Royal Borough of Kingston (the “Borough”) to achieve net zero by 2038. The Council needs to demonstrate leadership, as residents, partners and business will look to the Council for leadership on the Borough’s journey to net zero. The Council plays a critical role in achieving the Government’s target of net zero and reaching the targets will bring a multitude of benefits for the Council, its community and beyond. Throughout this report we will refer to the organisation of Royal Borough of Kingston Council and its direct operations as “the Council”. We will also refer to the place of Royal Borough of Kingston as “the Borough”, which comprises emissions from sources not directly attributable to the Council, such as local businesses and privately owned homes across the Borough.

Achieving net zero involves either eliminating or reducing and offsetting carbon emissions so that the net output of carbon from the Council’s estate is zero. Greenhouse gas emissions are categorised into three scopes and are internationally recognised by the Greenhouse Gas (GHG) Protocol:

- **Scope 1:** Direct GHG emissions that occur from sources that are controlled or owned by the Council e.g. a gas boiler.
- **Scope 2:** Indirect GHG emissions associated with the purchase of electricity, heating and cooling e.g. electric lighting.
- **Scope 3:** Emissions resulting from activities not owned or controlled by the Council but that indirectly impact the Council’s value chain e.g. supplier emissions.

The Council has the opportunity to deliver its ambitious vision¹, by rapidly decarbonising its operations, driving environmental, social and economic benefits and firmly establishing itself as a leader in Sustainability. As part of Kingston’s Climate Action Plan¹, the Council has started to make some progress to reduce emissions from council operations, for example from its vehicles through electrification of waste fleet, street lighting LED upgrades, and some commitments to refurbishments and retrofits. However, the projected emissions trajectory laid out in this report demonstrates that there is a need for the Council to go further faster, as it is not projected to meet its target with existing plans. This will require key decisions to be taken about the direction of travel. This report sets out the Council’s carbon baseline for Scopes 1 and 2, to allow the targeting of interventions where they will drive the greatest impact on carbon emissions, enable informed decisions, and underpin progress monitoring through a robust dataset. The report goes on to discuss interventions that align with the strategy and outlines the recommended overall approach to net zero.

Purpose of this report

The purpose of this report is to:

- identify the Council’s current and forecast emissions position for Scope 1 and 2
- outline additional steps the Council needs to take to reduce Scope 1 and 2
- outline a strategy to underpin the decisions that the Council will need to take to reach its goal of net zero by 2030.

Limitations on scope

The Council will have achieved net zero in 2030 if it has brought its net Scope 1 and Scope 2 operational emissions to zero, whether this be through complete elimination of emissions or reducing and then offsetting. For the purposes of this report, 'council operations' is taken to refer to any operation taking place that is directly influenced by the Council, and therefore **this report covers Scopes 1 and 2 emissions only**. This report does not include suppliers or services the Council works closely with e.g. schools, as these are Scope 3 emissions. Emissions from waste from the Council’s buildings and schools, staff commuting, goods and services supplied, as well as capital goods (i.e. construction) are not currently reported and, as Scope 3 emissions, will contribute to the 2038 borough target. Reporting for these emissions is under development, but outside the scope of this strategy.

¹Climate Action Plan

A glossary has been included in the back of this report for reference, and linked throughout.



Importance of Achieving Net Zero 2030

Significance of climate change

The Earth is heating up due to climate change, which means that we expect there will be long-term changes to global weather patterns and temperatures. Evidence has shown that the high levels of greenhouse gases in the atmosphere, such as carbon dioxide, are a leading cause of increasing global temperatures and the increased risk of natural disasters, putting communities across the globe at increased risk of storms, flooding, drought and other adverse weather events. Human activity is widely agreed to be a key driver for climate change as human activities increase the concentration of GHGs released into the Earth's atmosphere, oceans and biosphere.

Net Zero Carbon

Net zero carbon means achieving a balance between the greenhouse gases put into the atmosphere and those taken out. For the Council, that means reducing emissions as much as possible through being more efficient and then, if required, offsetting what's left through interventions like re-forestation and carbon sequestration projects.

85% of the public recognise climate change is real and is happening, and the majority say the government and local Councils are not doing or spending enough.

Source: BEIS Public Attitude Tracker, IPSOS MORI 2021

Impact of climate change on the Borough

The effects of climate change will be experienced locally in the Borough, with higher temperatures, prolonged hot and dry periods, heavier rainfall events and stronger winds anticipated. These changes will impact the Borough's communities as well as local biodiversity and wildlife in its natural spaces, such as Tolworth Court Farm Fields, Kingston's largest nature reserve.^{1 2}

The Council therefore recognises the importance of reducing its carbon emissions to net zero and has committed to leading the way for the Borough to achieve net zero by 2038 by ensuring the Council's own estate and operations are net zero by 2030.

Reducing Council emissions to net zero will make the Borough more sustainable and bring a number of benefits:

- Reduced pollutant emissions, improving local air quality
- Accelerated investment in sustainable infrastructure, allowing residents to benefit from the global energy transition
- Improved building safety, longevity and energy efficiency, leading to cost reductions for the Council
- Increased fuel security
- Creation of new jobs
- Reduced water pollution improving local aquatic biodiversity

By achieving Net Zero 2030, the Council can lead the way to a more sustainable and environmentally friendly future for Kingston and London more broadly.

¹ Find out about climate change – www.kingston.gov.uk ²

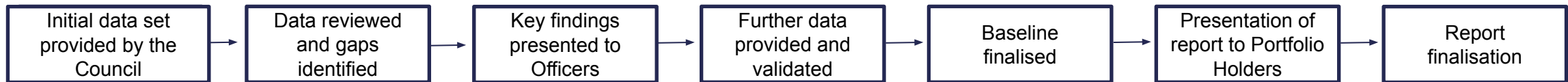
Approach

Context

The Council needs to deploy a clear strategy to achieve its Net Zero 2030 ambitions. This document outlines a recommended approach the Council can take on the first step of this journey to achieve Net Zero 2030 as an organisation. The Council is a complex organisation, delivering a wide range of activities and services, ranging from recycling, street cleaning, regeneration and development, to benefit administration, corporate activities and social care. Delivery of these services requires a range of support functions, including buildings, and vehicles, each with their own emissions and impact on the environment. This strategy therefore looks at how the Council can reduce its emissions.

Approach

Over four weeks, the following approach has been taken to ensure relevant stakeholders have been engaged and all relevant and available data has been leveraged for the report:

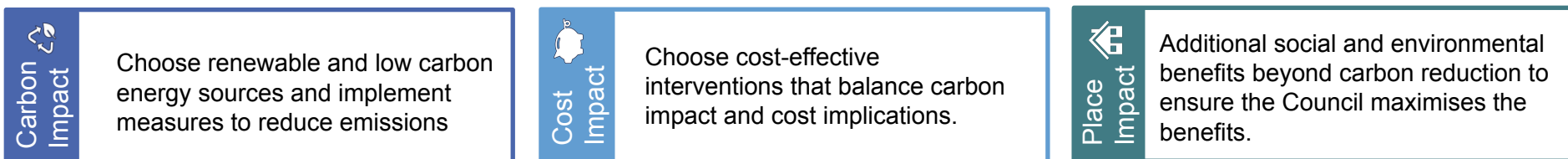


Methodology

This report sets out a Net Zero 2030 Strategy for the Council, of 'invest and achieve', driven by:

- 1) An emissions model for the Council's operations that includes:
 - Current emissions (2022 as the baseline)
 - Future emissions (committed and those 'in discussion')
 - Delta between future emissions and net zero target
- 2) Recommended interventions required to reduce emissions to net zero by 2030.

The model has been built based on data supplied by the Council, including the 2022/23 annual energy use and emissions, deep retrofit assessment across the estate, and responses to data requests as needed. Any data taken from government sources has been referenced. The recommended approach takes into account the following principles to ensure the Council realises the full benefits of a net zero estate:





Baseline: Emissions Today

Understanding the current state of the Council's emissions – its baseline emissions - is a critical step in achieving net zero. The baseline gives a view of the biggest areas of emissions to target interventions and a source of truth for progress monitoring going forwards. In 2019, the Council's emissions baseline was set at 6868 tCO₂e, and a revised baseline in 2022 at 5823 tCO₂e. Based on new fleet information, we have revised the FY22 baseline to 5628 tCO₂e (5894 tCO₂e when accounting for Scope 3) for modelling in this report.

FY22				
Category	Scope 1 tCO ₂ e	Scope 2 tCO ₂ e	Scope 3 tCO ₂ e	Total tCO ₂ e
Electricity use - buildings		1360		
Gas use - buildings	2086			
Street Lighting		887		
Transmissions and Distribution losses			206	
Water use			7	
Business Travel			53	
Council Owned Fleet	1295			
Total	3,381	2,247	266	5894

Methodology

Scope

The 2030 net zero target for the Council covers its operational Scope 1 and 2 emissions, the subjects of this report. Business Travel is an exception – it is classified as Scope 3 but is within the remit of the 2030 target. As Scope 3, Business Travel is not covered by the measures in this report, but an indication of its level is included for reference above.

Assumptions

There are some areas of reporting in this baseline that are based on weaker data. Fleet data have previously been under-reported due to inconsistent information availability, leading to challenges with a robust total figure. This underscores the need for best practice data management for the Council to confidently reach zero emissions.

Fleet proxy: There has been a proxy fleet number included of 71 tCO₂e to reflect an additional three vehicles in the Housing team identified, not included in previous baselines.

Validation

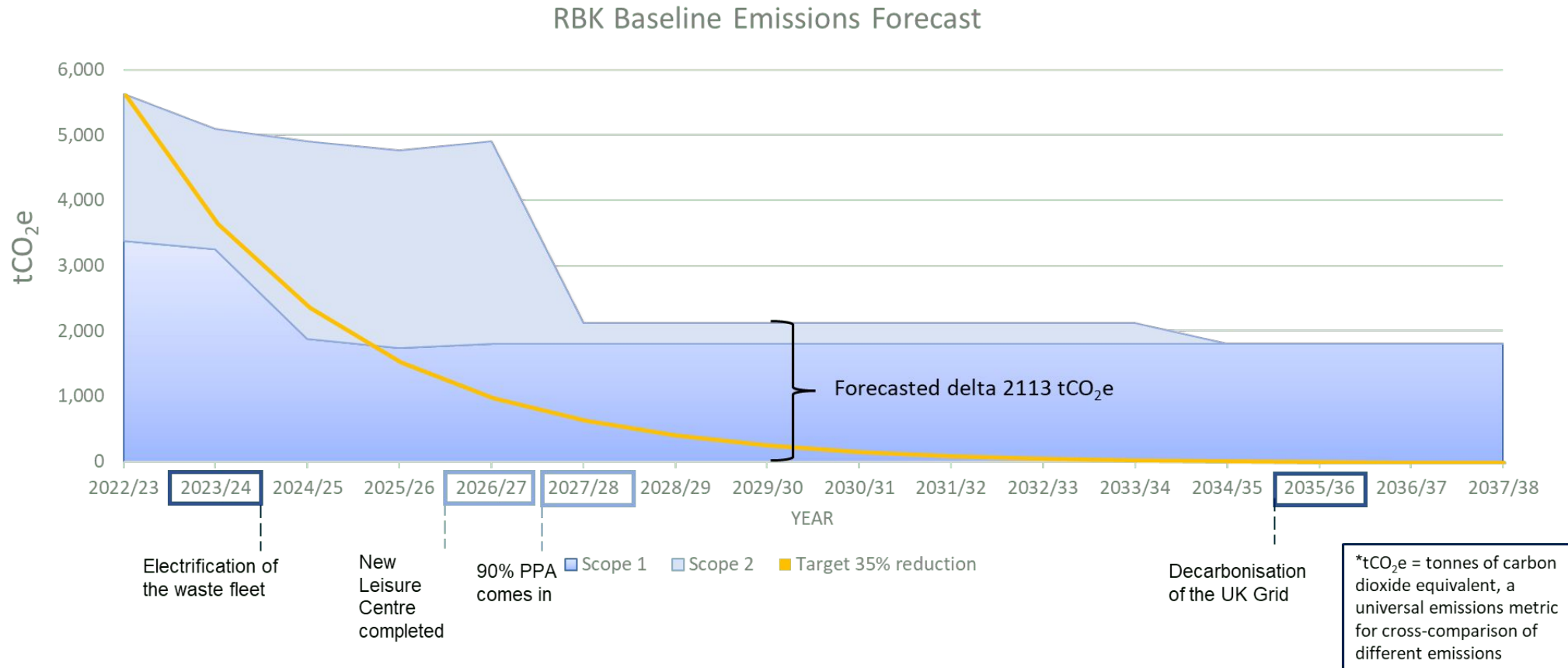
All emissions data, excluding assumptions, has been provided by the Council. Relevant stakeholders have been engaged to validate this data where it relates to different sections of the organisation.



Baseline: Emissions Forecast

By plotting the current trajectory of the Council's emissions, a significant gap between the target emissions reduction and current forecast is clear. Though there is a reduction in emissions projected by existing plans for disposals, retrofits and energy saving measures, this will not be sufficient to achieve the goal of net zero in 2030. This is in part because some measures planned change the scope rather than the absolute value of emissions (i.e. electrification of vehicles moves emissions from Scope 1 to Scope 2), and there are other changes to the council estate planned which will increase emissions (the opening of the new Leisure Centre).






The forecasted gap of 2113 tCO₂e * will need to be addressed through further estate plans, to meet the Council's target 2030 level of 276 tCO₂e as planned, and further final measures taken to cover these residual emissions.





Closing the Gap: Potential Interventions

Key:

- 
Building efficiency
- 
Electrification of assets
- 
Lower carbon energy sources
- 
Renewable agreements
- 
Using energy efficiently

The Council has identified a number of potential interventions that could be incorporated into its Net Zero 2030 Strategy. This table shows all of the interventions and observations about their development stage. Interventions have been grouped into outcome focused decarbonisation categories to reflect and target the breadth of carbon contributing aspects of council operations. Further information on the categories and interventions can be found in [Appendix 2](#).

Category	Intervention	Observations on the Council's current position
Building efficiency	Deep retrofit of buildings	The Council has 5 retrofit projects in capital stages, with an anticipated 200 tCO ₂ e reduction. A deep retrofit assessment has been done for 50 assets, which would enable a 571-1274 tCO ₂ e reduction.
	Implement external building standards	The Council is looking to subscribe to the Building Research Establishment Environmental Assessment Method (BREEAM) global green construction rating system, it is considering plans to achieve BREEAM Excellent as standard and with appetite to achieve BREEAM Outstanding as the norm.
	Disposal of assets	The Council has plans to dispose of four under-utilised assets, with other disposals in discussion e.g. Guildhall 2
Electrification of assets	Introduce a no gas policy	The Council has a no gas designed into new buildings statement outlined in the Climate Action Plan, but this could be a stronger no gas policy across the estate.
	Transition to electric vehicles	The Council is electrifying its waste fleet, which constitutes 90% of its non-contracted vehicle use. This will lead to a recategorization of 1224 tCO ₂ e as Scope 2, to be classed as net zero depending on the PPA level.
Lower carbon sources	<u>Connect to future District Heat Networks (DHN)</u>	The Council has been working with third parties to develop proposals for a DHN.
	Install renewable energy (solar panels)	The Council has projects in development to install solar panels in car parks to provide a renewable energy source.
	Wait for National Grid decarbonisation	The National Grid is set to decarbonize between 2035-2038, meaning that any electricity used will be net zero.
Renewable agreements	Commit to an Energy Framework for purchasing electricity and gas (from 2024)	The Council is looking to award new energy contracts via a Flexible Energy Framework.
	<u>Purchase Renewable Energy Guarantee of Origin (REGOs)</u>	The Council has considered the possibility of REGOs to increase the amount of renewable energy that they're accounting for.
	Commit to a Power Purchase Agreement (PPA)	The Council plans to procure renewable energy via a PPA which will provide the Council with renewable and zero carbon electricity.
Using energy efficiently	Behaviour change and demand management	The Council can train colleagues to be aware of their energy usage and align usage to avoid peak times where large proportions of electricity on the National Grid come from non-renewable sources.



Approach to Net Zero 2030 for the Council

Available options

There are three key options that the Council can take (further details available in appendix 3):

- **Do Nothing** – Halt all planned interventions and do not achieve net zero by 2030.
- **Continue on Current Trajectory** - Continue on current trajectory by implementing planned interventions and offset any remaining carbon emissions
- **Invest & Achieve** - Implement comprehensive interventions to achieve Net Zero 2030 without the need to significantly offset carbon emissions

Proposed approach

The most feasible approach for the Council to reach its net zero target by 2030 is to “Invest & Achieve. This approach has been proposed based on how it balances carbon and cost impact as well as wider place benefits (see adjacent for advantages and disadvantages in relation to each impact area). It involves exploring interventions across all decarbonisation categories ([page 28](#)) and selecting a combination that would eliminate all Scope 1 and 2 emissions. Whilst initial investment is required, this would avoid the need for offsetting which could cost around £150,000 a year¹, this cost is rising rapidly alongside increasing energy and operational costs for key assets.

The exact interventions that the Council chooses should take into account the following:

1. How can the Council improve its current operations?
2. How can the Council ensure its estate is sustainable and future proof?
3. How can the Council make its electricity net zero?

Over the following pages, we set out the options around these questions and provide a recommendation for the specific interventions the Council should prioritise and provides a balance across the decarbonisation categories so the Council addresses all of the key areas that contribute to emissions. The discussions aim to enable councillors to make strategic decisions that best help the Council get to net zero by 2030.

The remaining two approaches were considered in the development of this report but were deemed unfeasible as they do not balance carbon, cost and place impacts appropriately. Further information on why these approaches are not feasible can be found in the appendix.

Carbon impact

The combination of interventions are designed to have the biggest impact on carbon emissions so that emissions can be cut completely. This will allow the Council to reach net zero by 2030 without the need to carry out significant offsetting.

Cost impact

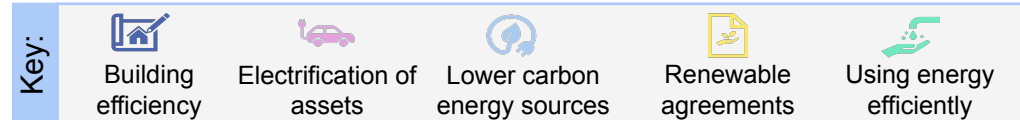
This approach has a large cost prior to 2030 to ensure that all relevant interventions are in place in time. Despite the large initial cost, there will be no need to offset, which would be a significant cost to the Council after 2030. Some interventions may also reduce operational costs by ensuring assets are built better to use energy more efficiently and reduce energy demand.

Place impact

This approach maximises the benefits to the Council and community. These include job creation to implement interventions and improved air quality as a consequence of fewer emissions.

¹ Carbon Price Tracker | Ember (ember-climate.org)

Improving Current Operations



Improving the Council's current operations

To achieve net zero, the Council should seek to improve its estate. This includes buildings such as Guildhall offices, leisure centres, and the Council's fleet. The Council should focus on removing Scope 1 emissions via the removal of gas from the estate and reduce Scope 2 emissions by reducing energy demand by making buildings more energy efficient. There are 4 potential interventions that can be used to improve the estate, some of their advantages and disadvantages are considered below:

Retrofit of buildings

- The Council has assessed c. 50 of its assets for deep retrofit, which could reduce 571-1274 tCO₂e emissions.
- In addition to carbon reduction, retrofitting improves building lifespan and operational costs. It also fosters local growth through jobs.
- Retrofit options range along a scale from degasification to deep retrofit
 - **Degasification** - Electrification of heating through heat pumps
 - **Smart retrofit** - degasification, plus streamlined material interventions and smart building tech
 - **Deep retrofit** – degasification, plus comprehensive material intervention to reduce emissions to lowest level

For consideration

Disposal of assets

- The Council should look to dispose of any under-used buildings as these will unnecessarily contribute to the estate's carbon emissions and operational costs.
- The Council currently has 3 assets in the final stages of disposal (4% of predicted 2030 emissions), Sessions House planned to be leased (1%), and Guildhall 2 under discussion (10%) .
- The Council should take a holistic view of assets, considering emissions, building use, financial implications, and community significance, in disposal decisions.

For consideration

Transition to electric vehicles

- The Council owned fleet accounts for 1,295 tCO₂e of total emissions, 26% of projected 2030 emissions.
- Transitioning from traditional petrol and diesel vehicles to electric vehicles will shift fleet emissions from Scope 1 to Scope 2.
- 95% of the fleet are already in the process of transitioning, as the waste vehicle unit is electrified.
- This intervention will need to be paired with an additional intervention (see [page 11](#)) to eliminate any Scope 2 emissions by using electricity generated from renewable sources.

For consideration

Connect to future DHNs

- The Council is working in conjunction with third parties to look at the possibility of installing a Combined Heat and Power (CHP) DHN, which have the potential to reduce carbon emissions by 50% compared to traditional gas heating and electricity generation.¹
- Approximately 5 council buildings would be able to connect to the DHN, which would cover the centre of Kingston.
- Whilst the Council should connect to the DHN, this may not be possible before the 2030.

For consideration

Recommendation summary

All four interventions will have a significant impact on the Council's current estate and would lead to a large reduction in emissions, therefore the above interventions are recommended for implementation to improve the Council's current estate.

¹ [Citigen London CHP plant \(edina.eu\)](http://Citigen London CHP plant (edina.eu))



Future-Proofing the Estate

Key:



Building efficiency



Electrification of assets



Lower carbon energy sources



Renewable agreements



Using energy efficiently

Future-proofing the Council's estate

The Council also needs to plan for a more sustainable future, to ensure that the corporate estate remains at net zero beyond 2030. To do this, the Council could introduce a combination of external standards and internal policies to remove Scope 1 emissions by ensuring that no gas appliances are installed in any new construction projects. The Council can also look at reducing future Scope 2 emissions by building to reduce energy demand in the first instance. The advantages and disadvantages of the interventions below should be considered:

Introduce a no gas policy



- The Council could implement a complete no gas policy to reduce and eventually eliminate all future Scope 1 operational emissions.
- This policy should build on the existing policy of no new buildings designed with gas to significantly reduce gas demand.
- Replacements for gas boilers reaching their end of life should be low or no carbon, with possible replacements for boilers including DHNs and electric heating methods.
- Planning will be required so that the Council can meet requirements for timely boiler replacements etc.

For consideration

Implement external building standards



The Council could employ external construction standards to reinforce the no gas policy and keep the estate at net zero. It is proposed the Council have a default standard, but it is recognised there may be some deviations dependent on individual business cases. A summary of standards can be found below with additional detail in [Appendix 2](#).

BREEAM Standards	Passivhaus	NABERS
<ul style="list-style-type: none"> • The Council has plans to construct developments to BREEAM "Excellent" standards, this means that the Council's developments will be the top 70% of buildings assessed. • Adhering to BREEAM standards puts a focus on reducing carbon emissions, adapting to climate change, and designing low impact buildings¹ • BREEAM standards are suitable for all council projects, including new builds and refurbishment projects. 	<ul style="list-style-type: none"> • The Council can use Passivhaus Standards to lower energy demand and carbon emissions through enhanced insulation, ventilation, and construction quality. • These improvements also enhance air quality, cut maintenance costs, and minimise heating emergencies by relying on simpler technology.¹ • Passivhaus standards can be used to reduce carbon emissions but can be expensive to implement. 	<ul style="list-style-type: none"> • NABERS is a performance-based rating system that provides a rating for office spaces, helping owners understand their building's performance versus other similar buildings. It currently offers two products, namely NABERS Energy Ratings and Design for Performance (DfP) • The Council can look to certify their buildings with NABER standards to accurately measure and know their building's energy performance.
<i>For consideration</i>	<i>Not recommended</i>	<i>Not recommended</i>

Recommendation summary

To future-proof the Council's estate, a series of policies for building standards needs to be developed, including a no gas policy. The no gas policy can then be complemented by external standards such as BREEAM standards to reduce the overall environmental impact of council buildings and reduce Scope 1 emissions.

¹A Guide to Passive Houses: Designs, Costs and Benefits | OVO Energy ² How BREEAM Works - BRE Group



Transitioning to Net Zero Electricity

Key:



Building efficiency



Electrification of assets



Lower carbon energy sources



Renewable agreements



Using energy efficiently

Transitioning the Council's electricity supply to net zero

The Council needs to consider the impact of its electricity supply on carbon emissions. Once Scope 1 emissions have been removed by electrification, this is the next step to ensuring that significant reductions in overall emissions. The Council should remove Scope 2 emissions by ensuring that all electricity comes from renewable or non-carbon resources. A selection of net zero options are outlined with their key advantages and disadvantages detailed below:

Commit to a PPA

- The Council is in the process of signing a Power Purchase Agreement (PPA) with a consortium of local councils to secure renewable energy at a pre-negotiated price for 15- 20 years.
- This will allow the Council to secure electricity at a cheaper tariff of up to 14% below market rate.
- A PPA that covers the majority of the Council's energy needs is recommended to balance cost and carbon benefits with risk¹, if the Council procures too much energy, this can then be sold e.g. to schools.

For consideration

Install renewable energy (solar)

- Could install rooftop photovoltaics on Council owned buildings, photovoltaic canopies in car parks or ground-mounted solar panels if suitable sites can be found.
- Rooftop solar has cheaper upfront costs but there is limited space for implementation and operational costs can be expensive. Rooftop solar could be used to demonstrate leadership.
- Ground-mounted solar costs more upfront but more scalable than rooftop solar and has cheaper running costs. This would likely need to be installed outside of Kingston.

For consideration

Purchase REGOs

- Renewable Energy Guarantees of Origin (REGOs) allow the Council to purchase renewable energy from the National Grid.
- If the Council was to buy REGOs, then technically it would be purchasing renewable energy however, it would not be increasing the amount of renewable energy produced, the existing renewable energy would just be directed to the Council.
- REGOs therefore have limited benefit and do not demonstrate sustainability leadership.

Not recommended

National Grid decarbonisation

- The UK has committed to decarbonising the National Grid by 2035. If this is achieved, the Council's electricity use will be net zero by 2035.
- Whilst this is a significant change for the UK and will bring many benefits, this change will be happening after the Council's 2030 target.
- This intervention is also outside of the control of the Council as it is reliant on central government policy and implementation, externalising risk.

Not recommended

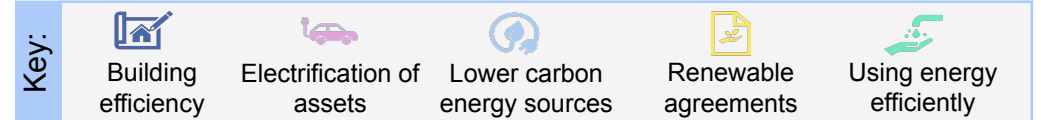
Recommendation summary

Committing to a PPA would be the most appropriate solution to decarbonising the Council's electricity as this would ensure that up to 90% of the Council's electricity is renewable. If the Council was to implement solar panels, this should be in conjunction with the PPA and are subject to feasibility. REGOs and waiting for decarbonisation of the National Grid are not recommended.

¹[Power-Purchase-Agreements-PPA-An-Introduction-to-PPAs.pdf](#)



Recommendations



Summary of recommendations

The following interventions are recommended for consideration for implementation, they will help the Council to achieve net zero by 2030.

Improving Current Operations:

- **Disposal of assets** that are under-used and no longer required to reduce unnecessary Scope 1 and Scope 2 emissions, beyond Guildhall 1 and Sessions House.
- **Smart retrofit** of current assets contributing to Scope 1 and Scope 2 emissions.
- **Transition fleet to electric vehicles** to reduce Scope 1 emissions from the Council's fleet.
- **Connect to future DHNs**, assuming a low carbon impact of under 100g/kw to at least halve Scope 1 emissions from connected buildings.¹

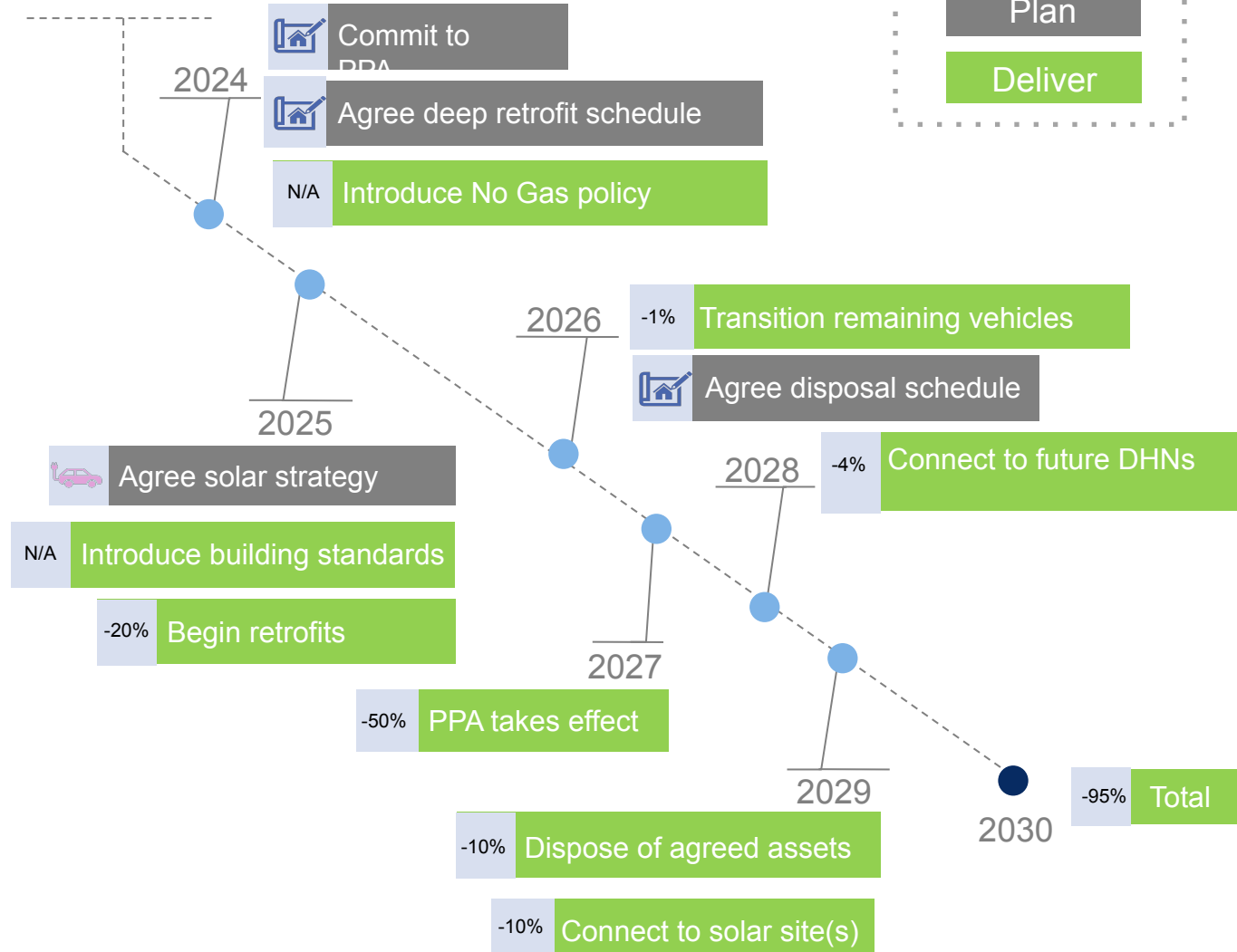
Future-Proofing the Estate:

- **Introduce a no gas policy** for heating replacements in addition to the existing commitment to no gas in new council buildings to cut down Scope 1 emissions.
- **Implement BREEAM Excellent standards** to ensure any new buildings do not unduly increase Scope 1 emissions (but recognise there may be some use of Passivhaus dependent on individual business cases).

Transitioning to Net Zero Electricity:

- **Commit to a PPA** to ensure a set percentage of the Council's electricity comes from renewable sources and reduce Scope 2 emissions.
- **Install renewable energy (solar panels)** to complement the PPA and reduce remaining Scope 2 emissions.

Proposed timeline to Zero

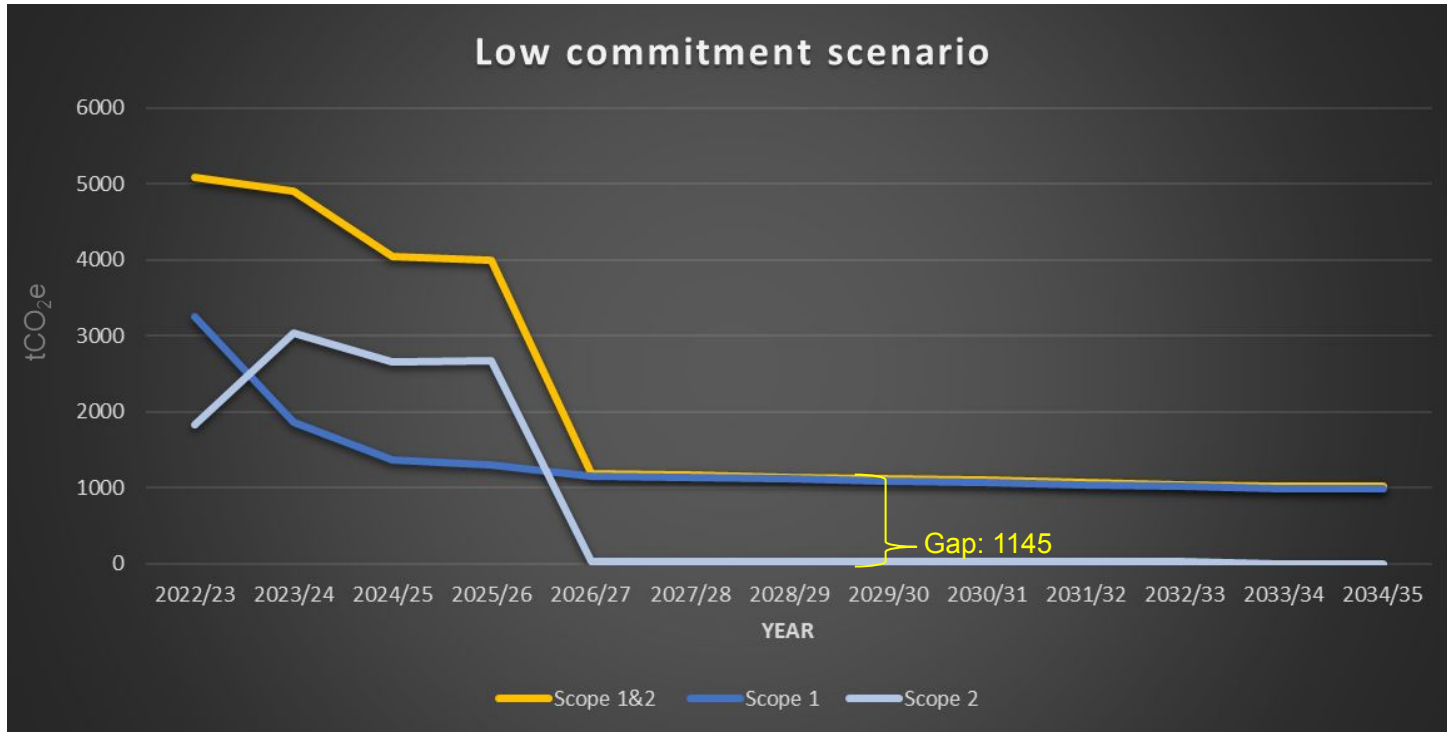


¹ Citigen London CHP plant (edina.eu)



Emissions Reduction Forecast (1/4) – Low Commitment

In a low commitment scenario, the Council goes some way to reducing the emissions gap but fall short of taking on complex measures. The Council commits to a 90% PPA and disposes of some assets in discussion, and retrofits parts of the estate as they reach lifecycle ends.



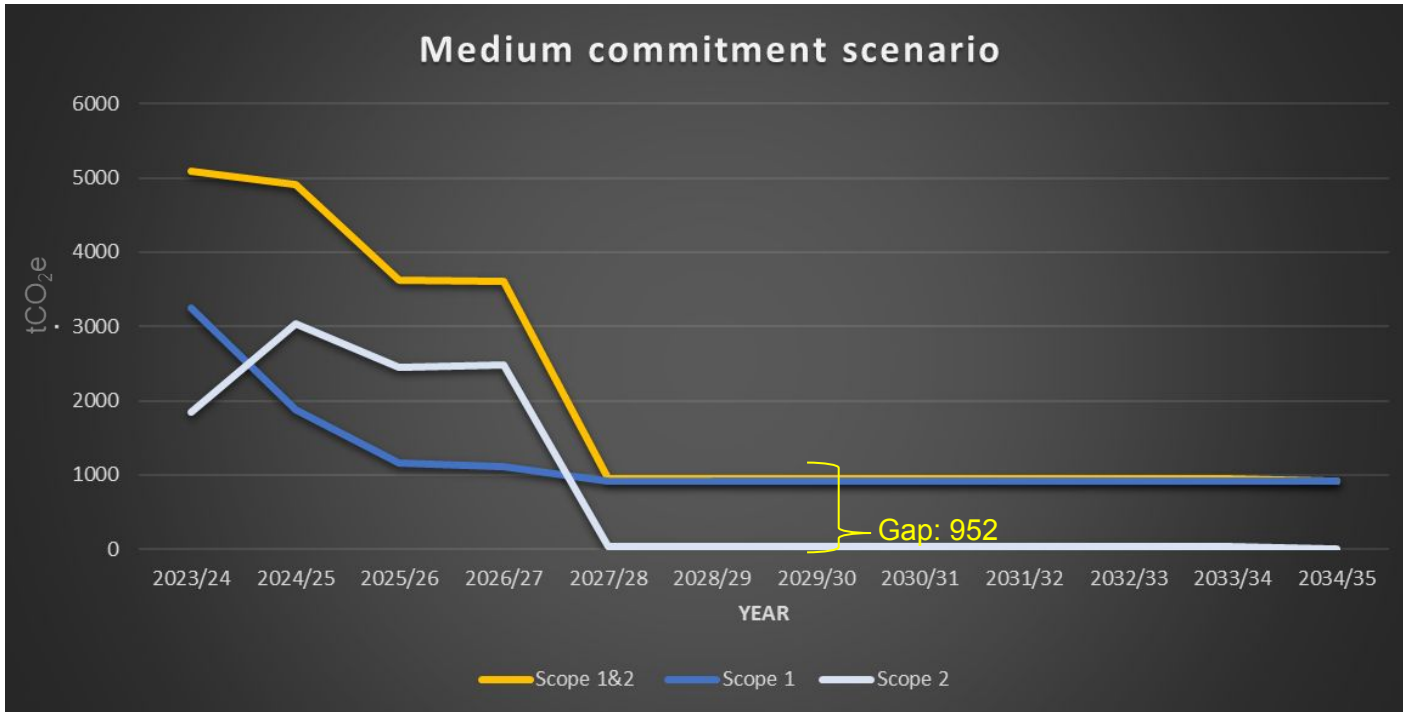
Group	Intervention	Included	Detail	tCO ₂ e 2030 impact
Improving current operations	Deep retrofit	—	35 assets at end of life	442
	Disposal of assets	✓	Guildhall 1, Sessions House	151
	Transfer to EV	✗	No further fleet	0
	Connect to DHN	✗	No	0
Transition to Net-Zero electricity	PPA	✓	90% coverage	994.5
	Ground-mounted solar	✗	No	0
Future-Proof f estate	No gas policy	✓	Yes	N/A
	BREEAM	✗	No	0

Total reduction vs do-nothing	4483
2030 gap	1145



Emissions Reduction Forecast (2/4) – Medium Commitment

In a medium commitment scenario, the Council accelerates some interventions and introduces measures beyond those planned already. The Council commits to a 90% PPA, and engages in further projects including accelerating the retrofit programme, electrification of remaining fleet, and commitment to the District Heat Network.



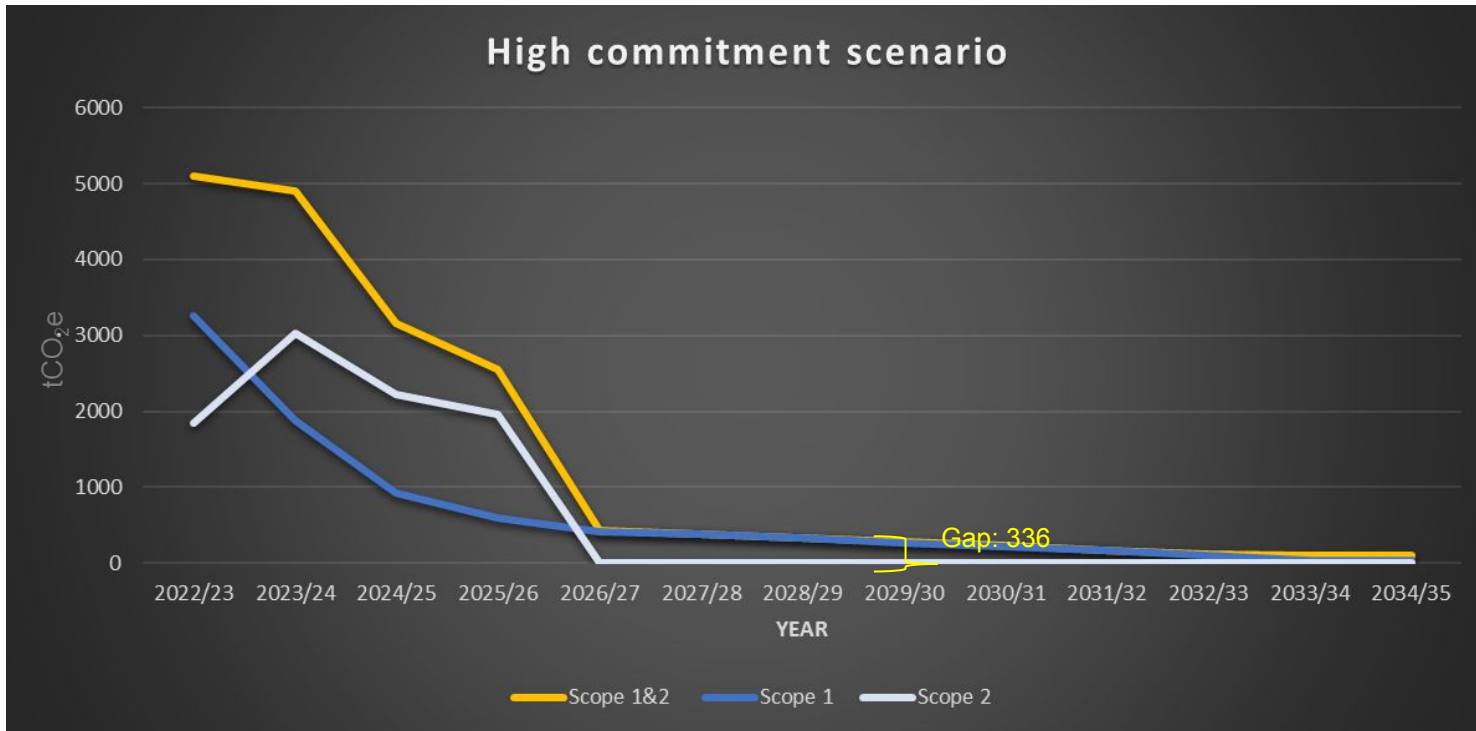
Group	Intervention	Included	Detail	tCO ₂ e 2030 impact
Improving current operations	Deep retrofit	—	35 assets, accelerated	571
	Disposal of assets	✓	Guildhall 1, Sessions House	151
	Transfer to EV	✓	All fleet	71
	Connect to DHN	✓	Yes	129
Transition to Net-Zero electricity	PPA	✓	90% coverage	1970
	Ground-mounted solar	✗	No	0
Future-Proof estate	No gas policy	✓	Yes	N/A
	BREEAM	✗	No	0

Total reduction vs do-nothing	4676
2030 gap	952



Emissions Reduction Forecast (3/4) – High Commitment

In a high commitment scenario, the Council expands planned measures and commits to wider long-term change to achieve the smallest gap possible. The retrofit programme is expanded to all assets as they reach the end of their lifecycle, there is more concerted disposal where assets are under-used, and further electrification maximises the impact of the 90% PPA. **This is the recommended path for the Council to pursue further.**



Group	Intervention	Included	Detail	tCO ₂ e 2030 impact
Improving current operations	Deep retrofit	✓	66 assets, end of life	986
	Disposal of assets	✓	Guildhall 1, Sessions House, Guildhall 2	650
	Transfer to EV	✓	All fleet	71
	Connect to DHN	✓	Yes	54
Transition to Net-Zero electricity	PPA	✓	90% coverage	2343
	Ground-mounted solar	✓	Yes	~400
Future-Proof estate	No gas policy	✓	Yes	N/A
	BREEAM	✓	Yes	N/A

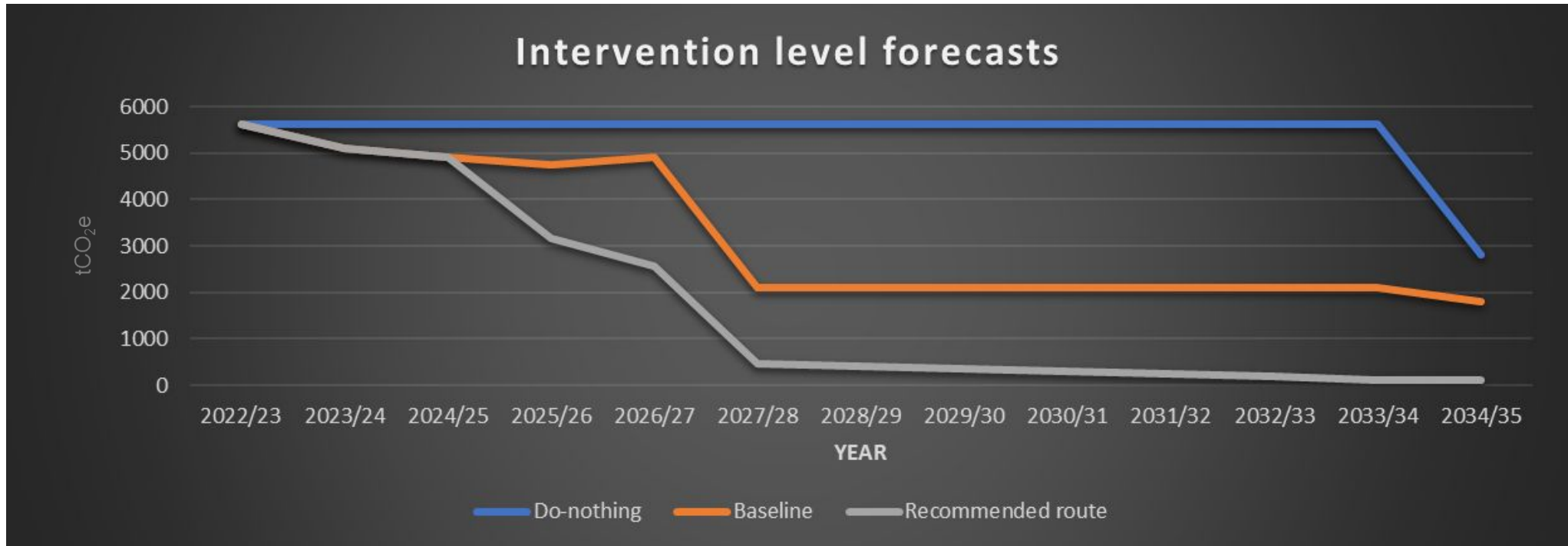
Total reduction vs do-nothing	5292
2030 gap	<336



Emissions Reduction Forecast (4/4) – Comparison vs Baseline

Impact of high investment

The recommended high investment route demonstrates an overwhelmingly stronger reduction in emissions when compared with both the scenarios of do-nothing (no activity brought to achieve net zero) and the baseline trajectory of emissions anticipated for the Council based on existing interventions planned.





Material Interventions Costs

Associated costs with recommended interventions

Of the eight recommended interventions in the high investment route, the three material levers with a major impact on emissions will be the most significant factors to cost. Below is an early indication of what this cost could be for the Council, to be scaled by appropriate emissions output. Total figures will require full business case development, and costing of the non-financial benefits of interventions - which forms the majority of the case for implementation.

Decarbonisation category	Intervention	Observations on the Council's current position	Carbon impact against baseline	Cost impact per tCO ₂ e	Estimated cost in-year over 20 year period ²
	Disposals	The Council currently has assets in the final stages of disposal, and further assets under consideration as needed.	650 tCO ₂ e 13%	£0	£0 per annum
	Renewables	Recent case studies of Power Purchase Agreements for local government demonstrate a real terms saving of 14% on electricity, with implementation costs of under £200k.	2,247 tCO ₂ e 38%	--£254 tCO ₂ e	-£572,000 total savings per annum
	Retrofit – degasification	Electrification of heating through roll out of heat pumps and minimal retrofit, typically using high temp heat pumps. Can either be installed in one hit or staggered to coincide with end of lifecycle on existing gas boilers. Assumed opex will increase by 25%+ vs gas.	2,086 tCO ₂ e 35%	£332 tCO ₂ e	£321,000 total cost per annum
	Retrofit – smart	Smart retrofit, including above degasification measures, plus cost effective fabric interventions, and investment in smart building tech including full suite of EMS/BMS, occupancy, lux and remote heat sensors. Assumed roughly net nil impact on opex.	2,086 tCO ₂ e 35%	£499 tCO ₂ e	£492,000 total cost per annum
N/A	Offsetting	Offsetting may not be feasible – it would need to take place within the Borough and the Council has limited ability to sequester emissions in borough. There is a more fundamental question about the appropriateness of a Council buying offsets out of borough, or indeed outside of the UK.	2,113 tCO ₂ e 35%	£69.19 tCO ₂ e ¹	£146,198 total cost per annum



Key Risks

There are some key risks and assumptions that the Council should consider on its journey to net zero. Further investigation of the proposed interventions will be required to understand the true risk, however a non-exhaustive list of key risks is detailed below.

Section	Risk	Action
General	<ul style="list-style-type: none"> Recent decisions and policies may not align with the Net Zero 2030 Strategy which could impact the path to net zero. 	<ul style="list-style-type: none"> Assess the impact of decisions against the path to net zero and consider the Net Zero 2030 Strategy when making any future decisions. Policies that conflict with this strategy should be identified and remediated.
	<ul style="list-style-type: none"> There is a financial risk of committing to net zero and the Council may not have the sufficient funds to achieve this goal. 	<ul style="list-style-type: none"> Investigate additional funding options and their requirements.
	<ul style="list-style-type: none"> The Council may not have adequate data to track and monitor its progress towards net zero. 	<ul style="list-style-type: none"> Identify all data gaps and determine where additional data can be sought. Ensure consistent and quality data collection to create robust data sets.
Improving current operations	<ul style="list-style-type: none"> If Council operations are not electrified through retrofit, transition to electric vehicles etc., then Scope 1 emissions will remain at 2030. 	<ul style="list-style-type: none"> Develop a prioritisation matrix to identify areas that may significantly block the path to 2030.
	<ul style="list-style-type: none"> Connection to DHNs may not be possible prior to 2030. 	<ul style="list-style-type: none"> Investigate the feasibility of connecting to the DHN prior to 2030, and if not possible investigate mitigations.
Future-proofing the estate	<ul style="list-style-type: none"> Planned and future developments may increase the Council's carbon emissions, impacting its ability to reach net zero. 	<ul style="list-style-type: none"> Identify projects that may increase emissions and develop mitigating actions. Implement a policy to ensure that all future projects are carbon neutral.
	<ul style="list-style-type: none"> Emergency replacements and repairs of boilers etc. may mean that the installation of gas cannot be avoided. 	<ul style="list-style-type: none"> Plan ahead to ensure that all emergency replacements do not require gas.
Transitioning to net zero electricity	<ul style="list-style-type: none"> The PPA may not be signed in time for net zero by 2030 	<ul style="list-style-type: none"> Explore alternative PPA options and partners.
	<ul style="list-style-type: none"> The PPA may either not cover or exceed the Council's energy requirements leading to either carbon emissions or unnecessary cost. 	<ul style="list-style-type: none"> Evaluate expected energy requirements and develop a mitigation plan for each scenario e.g. complement with solar energy if the PPA doesn't cover all energy needs or sell to schools if the PPA exceeds energy needs.
	<ul style="list-style-type: none"> There may be limited capacity to install ground-mounted solar panels in-borough. 	<ul style="list-style-type: none"> Investigate the feasibility of rooftop solar on council buildings.
	<ul style="list-style-type: none"> The timing of decarbonisation of the National Grid may impact policies and decisions beyond 2030. 	<ul style="list-style-type: none"> Consider National Grid decarbonisation when making decisions. Build contingencies for the Borough's net zero by 2038 ambition, if the National Grid cannot decarbonise by 2035 due to energy security.



Key Assumptions

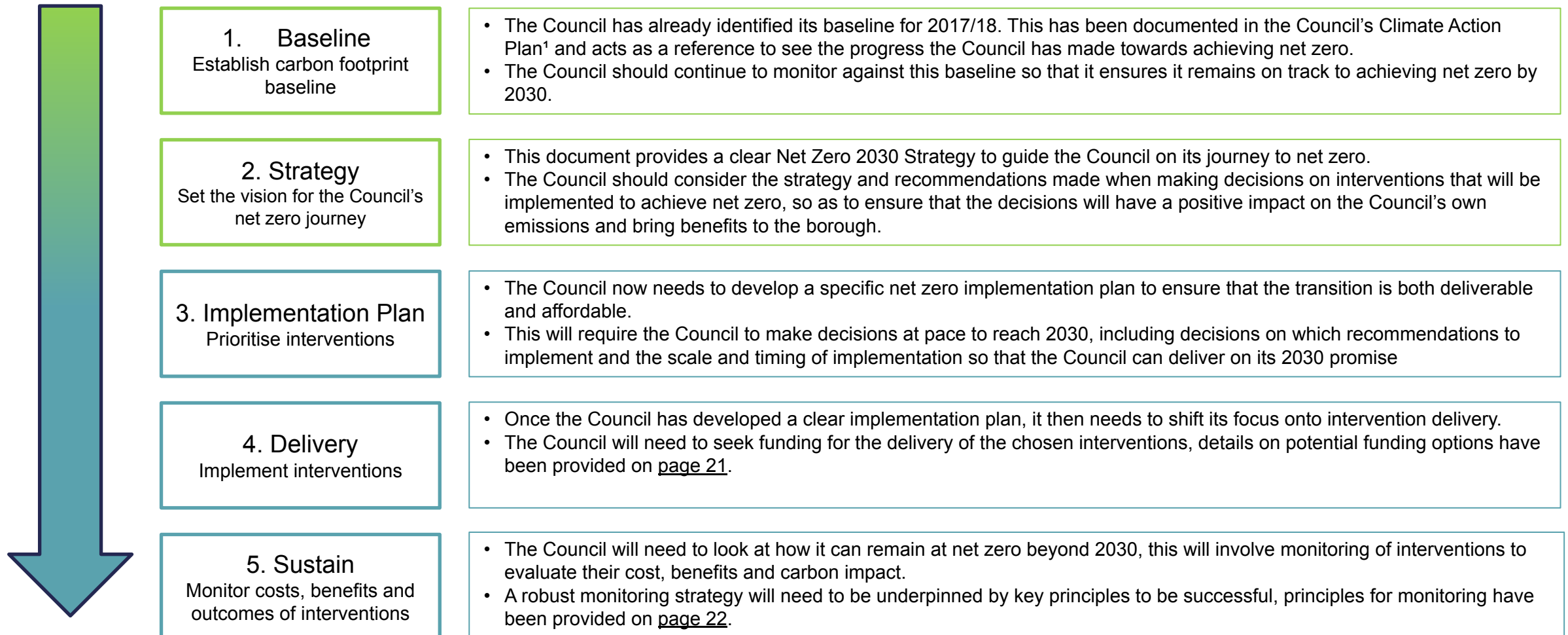
The assumptions made in this report on specific figures are outlined below. The majority of these represent a low level of materiality in total emissions terms. Where consultancy figures are referenced, these are based on work with multiple other comparable local authorities.

Section	Assumption	Detail	Source(s)
Baseline	Additional fleet vehicle emissions	<ul style="list-style-type: none"> A fleet proxy of 71 tCO₂e to account for 3 housing vehicles additional to the Council baseline. This is a proportional increase based on existing fleet. 	<ul style="list-style-type: none"> Council figures - 2022 baseline
Baseline forecast	New Leisure centre emissions	<ul style="list-style-type: none"> A leisure centre proxy of 250 tCO₂e to account for the new leisure centre coming back online, assuming the new centre opens in 2027. 	<ul style="list-style-type: none"> Council figures - previous leisure centre emissions Public domain - developer proposal for the new leisure centre
Commitment scenarios	Retrofit impact on future emissions	<ul style="list-style-type: none"> Figures for retrofit of all assets and assets for which proposals are being taken forward 	<ul style="list-style-type: none"> Council figures - deep retrofit assessment
	District heat network impact on future emissions	<ul style="list-style-type: none"> District Heat Network (DHN) emissions impact based on public domain information on which council buildings are in the proposed heat zone, and figures on the emissions of these buildings. 	<ul style="list-style-type: none"> Council figures - deep retrofit assessment Public domain – DHN proposal
	PPA impact on future emissions	<ul style="list-style-type: none"> PPA emissions impact calculated using best estimate of electricity demand in 2028 and consultancy figures. 	<ul style="list-style-type: none"> Consultancy figures - market tested average
	Solar panels impact on future emissions	<ul style="list-style-type: none"> Solar panels emissions impact calculated using consultancy figures. 	<ul style="list-style-type: none"> Consultancy figures – market tested average
Key lever costs	Retrofit; PPA costs	<ul style="list-style-type: none"> Annual cost of degasification and smart retrofit based on the size of the Council's corporate estate Annual cost of PPA based on existing energy demand 	<ul style="list-style-type: none"> Consultancy figures – market tested average Council figures – annual electricity budget
	Offsetting costs	<ul style="list-style-type: none"> Annual cost of offsetting based on the best estimate of Council emissions in 2030, and international carbon prices. 	<ul style="list-style-type: none"> Public domain – Ember national carbon cost figures



Pathway to 2030

Now that the Council has established its Net Zero 2030 strategy, the Council needs to focus on developing an implementation plan for delivery and solidify the correct direction of travel to sustain net zero beyond 2030. By following this strategy and implementing the remaining steps below, the Council will demonstrate its leadership, positioning itself as on the forefront of achieving net zero.



¹Climate Action Plan - for upload to website (kingston.gov.uk)



Approach to Funding

Funding options

Implementing the proposed interventions will bring some additional costs to the Council, however there are a number of different ways that the Council could fund these interventions so that it can achieve net zero by 2030.

Funding from grants:

The Council should look into what grants it may be eligible for as these can be used to fund implementation of some interventions. Examples of government grant schemes include the Public Sector Decarbonisation Scheme which seeks to fund heat decarbonisation and energy efficiency measures.¹

Carbon offsetting and insetting as income generation:

The increasing demand for carbon offsets may provide the Council with the opportunity to channel investment into emissions reduction. This would involve external organisations paying the Council to offset their emissions through a carbon offsetting scheme, allowing the Council to raise money for its own carbon reduction interventions. Carbon insetting can also be used and involves investment into local offsetting projects with the aim of removing emissions and create positive value.

Partnering with the private sector:

The Council can partner with private sector organisations to fund some of its interventions. The Council is currently partnering with Thames Water and other third parties to develop proposals for DHNs.

Collaboration with other local authorities:

The Council could collaborate with other local authorities to share the cost of implementing interventions. The Council is a part of Renewable Power 4 London (RP4L), a consortium of London Councils who are currently exploring PPA options.

Developing a business case

The Council will need to develop a business case in order to obtain funding from some of the adjacent options. Best practice in Government decisions making requires a business case to be developed in line with Green Book guidance.

Green Book business cases follow a 5 case model to ensure all relevant considerations are made when making a decision:

Strategic Case	Establish the case for change and strategic fit with policy and other programmes
Economic Case	Identify the critical success factors for the programme and indicate the preferred way forward
Commercial Case	High level assessment of possible deal and supply side interest
Financial Case	High level assessment of potential affordability
Management Case	High level assessment of potential achievability

The Council should also consider the financial and non-financial benefits (e.g. improved health and social outcomes) of its chosen interventions to ensure that the business cases encompass all of the benefits.

¹Public Sector Decarbonisation Scheme - GOV.UK (www.gov.uk)



Monitoring Principles and Tools

Principles

The UK Government's Greenhouse Gas Protocol contains guidance principles for organisations monitoring their emissions over time. The protocol recommends the following¹:

1) Organisations choose and report on a base year to report on emissions over time.

This base year should be the earliest year that verifiable emissions data is available for, and can either be a single year, or a multi-year average (e.g. 2017-2019)

2) Organisations develop a base year recalculation policy which clearly explains the basis and context for any recalculations.

If applicable, you should state any significance threshold applied for deciding on historic emissions recalculation.

3) Organisations should consider recalculating base year emissions in the following cases:

- Structural changes that have a significant impact on base year emissions
- Discovery of significant errors, or a number of cumulative errors, that are collectively significant.

Current approach

Monitoring: the Council currently uses the Local Government Association's Carbon Accounting Tool, which has enabled the Council to develop its carbon baseline. The Council has also been provided with a tailored Excel tool to keep track of annual data.

Recommended future steps

It is recommended that an integrated, ESG-focused solution is adopted by the Council on a long-term basis. There are a range of monitoring options available on the market to ensure comparable data and robust reporting on an annual basis. This will take insights beyond carbon emissions to a more holistic view of sustainability within the Council and insights that will drive decisions for the Borough's 2038 target.



Normative



Basic manual carbon monitoring

Fully integrated ESG data



Case Studies

City of London		PPA
<p>Background:</p> <ul style="list-style-type: none"> City of London is exploring options to procure an off-site PPA. This PPA would be supplied with a renewable energy source. 	<p>Programme:</p> <ul style="list-style-type: none"> The programme has involved developing a PPA strategy and supporting business case. 	
<p>Projected Outcomes: ✓</p>		
<p>Reduced emissions: Reduced Scope 2 emissions from the City of London.</p>		
<p>Financial saving: Long-term cost savings due to the nature of the agreement.</p>		
<p>Economic benefit: Protection against long-term energy commodity price volatility.</p>		

Confidential Council		Retrofit
<p>Background:</p> <p>The Council committed itself to be 'Leader of Place' in the climate space in 2023, aiming to reduce its carbon emissions to zero by 2035 and for the borough by 2042.</p>	<p>Programme:</p> <ul style="list-style-type: none"> The retrofit programme in progress is aiming to retrofit and remove gas from the Council's top 10 highest emitting buildings by FY25, and by all buildings by FY30 	
<p>Projected Outcomes: ✓</p>		
<p>Reduced emissions: In the first year of the programme, there was a 2% decrease in scope 1 emissions and 26% decrease in scope 2</p>		
<p>Increased local jobs: The retrofit programme is expected to bring in significant in job creation benefits over the next 25 years in the local area.</p>		
<p>Secured External Funding: The Council has secured external support funding to fund a significant portion of their implementation</p>		



Conclusion & Looking Ahead

Next steps to achieve net zero by 2030

The Council has made some initial progress on its journey to Net Zero 2030, however it will need to implement further measures to achieve its 2030 goal. Implementing the recommended interventions will allow the Council to meet its Net Zero 2030 ambition and demonstrate leadership through building the foundations towards the borough's journey to net zero by 2038. There are three main areas of focus when looking at interventions, these are improving the current estate, future-proofing the estate, and transitioning to net zero electricity. Targeting these areas as outlined in this report will reduce the Council's Scope 1 and Scope 2 emissions.

Now that the Council has a defined strategy for achieving net zero by 2030, it needs to:

- make decisions on the scope and timing of interventions so that it can plan its investment and achieve the net zero 2030 target
- develop a detailed Net Zero 2030 Implementation Plan, underpinned by this strategy, so that the Council can lead the way to a sustainable future for the Borough as a whole
- develop the approach to monitoring the impacts of the interventions, to ensure that all benefits are realised.

Looking ahead to 2038

Reducing operational Scope 3 emissions:

In parallel to the journey to Net Zero 2030 through the proposed interventions highlighted in this report, the Council should start to look at how it can reduce its own Scope 3 emissions. This will cover a number of activities that emit carbon including those related to supply chain, houses and embodied carbon. It is strongly recommended that the Council develop a plan for Scope 3 emissions, this will allow the Council to continue to build on the work to eliminate Scope 1 and 2 emissions and become truly net zero.

Leading the way to Net Zero 2038:

The Council now needs to lead the way for the borough to achieve net zero by 2038. We recognise that the Council has already begun taking steps to reduce the borough's emissions, this has included improving the energy efficiency of 66 council homes and establishment of two permanent School Streets (temporary traffic restrictions around school drop-off and pick-up times to reduce vehicle emissions), among other activities.¹ However, more will need to be done to ensure the borough reaches net zero by 2038, this will involve collaboration with schools, businesses and residents to work together to achieve net zero.

Conclusion

The Council remains committed to achieving net zero by 2030 for its own emissions and leading the way to Net Zero 2038 for the borough. This Net Zero 2030 Strategy lays the foundations for achievement of both 2030 and 2038 goals: providing clarity on the current emissions position, detailing a holistic approach to interventions, and proposing a path to emissions reduction which will build a greener community better equipped to succeed for 2038.

¹ [Climate Action. report on programme delivery. \(kingston.gov.uk\)](https://www.kingston.gov.uk/ClimateAction/report-on-programme-delivery)

Appendix 1

Glossary



Seizing the Moment, Shaping the Future





Glossary

Term	Description
Net Zero	This involves reducing Scope 1 and 2 emissions to virtually zero, leaving only residual emissions behind.
Offsetting	Creating carbon sinks that remove carbon emissions from the atmosphere
Carbon Emissions	Carbon emissions are not only carbon dioxide, but other gases containing carbon including methane. When talking about emissions, all carbon emissions regardless of the specific gas are measured in tCO ₂ e, that is tonnes of carbon dioxide equivalent, for ease.
GHGs	Greenhouse gases (GHGs) trap heat in Earth's atmosphere, allowing sunlight to enter but preventing the heat from leaving. They have maintained a habitable climate, but an imbalance in recent years poses a threat to which species can survive and where.
Retrofit	Retrofitting refers to the process of upgrading or modifying existing buildings to improve their performance or make them more energy efficient. It is typically performed in older buildings to bring them up to current standards and reduce their carbon footprint.
Degasification Retrofit	This type of retrofit removes all gas from buildings. One key element is the electrification of heating through the roll out of high temperature heat pumps and minimal retrofit.
Smart Retrofit	A smart retrofit goes one step beyond degasification, it includes the installation of cost effective fabric measures and investment into smart building tech, including EMS/ BMS, occupancy, lux and remote heat sensors.
Deep Retrofit	A deep retrofit takes a more extensive and holistic approach than a basic retrofit and can include measures such as climate control and heat recovery systems, renewable energy installation and improving building airtightness
Rooftop Mounted Solar Panels	Roof mounted solar panels are panels that are installed on the roof of a building to generate electricity from sunlight.
Ground Mounted Solar Panels	Ground-mounted solar panels are solar panels that are installed at the ground level. They are installed on frames or poles that are attached to the ground.
REGOs	REGOs also known as Renewable Energy Guarantees of Origin are certificates which provide transparency about the proportion of electricity that suppliers source from renewable energy.
District Heat Network	A district heat network is a heat network that supplies heat to more than one building. Heat is generated centrally and then distributed through a network of pipes to many different buildings, offices, factories or other facilities
Carbon Insetting	Carbon insetting is the practice of offsetting carbon emissions inside your own supply chain or sector. It is a way to compensate for emissions that you are unable to mitigate within your normal operations - or are too costly to mitigate - but can be mitigated in other places in the sector
Energy Management System (EMS)	EMS is a system that collects and analyses various forms of energy data, including energy consumption, energy loss and energy efficiency.
Building Management System (BMS)	BMS is a computer-based system installed to control and monitor a building's electrical equipment such as ventilation, energy, lighting, fire systems and security systems

Appendix 2

Decarbonisation Categories



Seizing the Moment, Shaping the Future



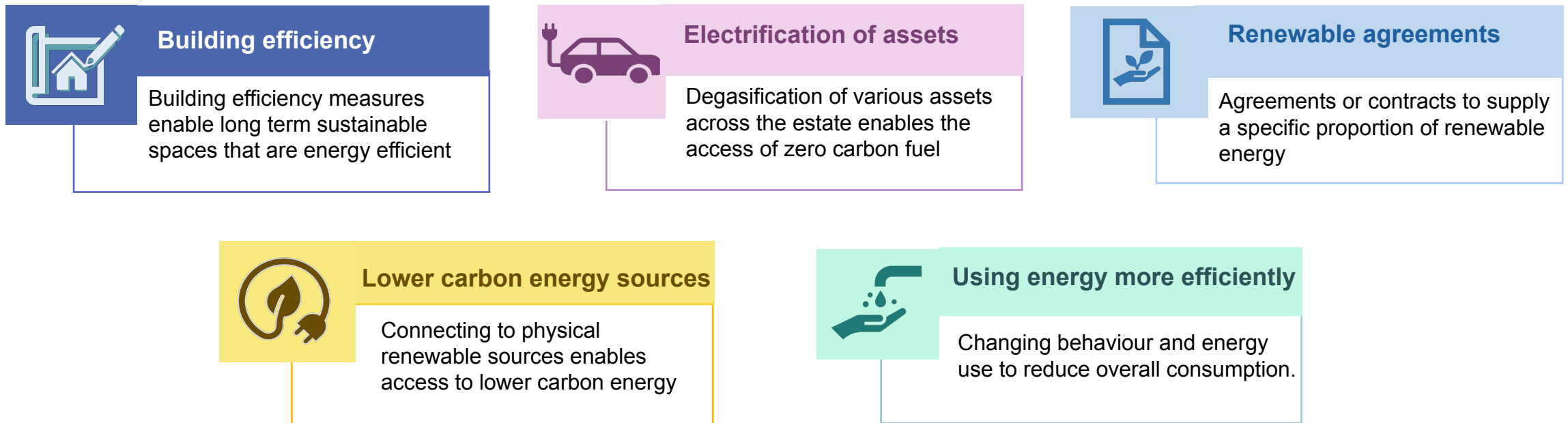
THE ROYAL BOROUGH OF
KINGSTON
UPON THAMES



Closing the Gap: Decarbonisation Categories

The Council emitted 5894 tCO₂e in 2022 and current trajectories forecast that the Council will emit 4898 tCO₂e annually by 2030. As outlined on [page 7](#), the Council already has a number of planned interventions to reduce carbon emissions, however there is still a significant delta in emissions. The Council needs to implement additional interventions to reduce the remaining emissions to zero by 2030.






The Council has several committed and 'in discussion' interventions to reach Net Zero 2030. These interventions are in different stages of development, with varying levels of carbon, cost and place impact. However, there is a need to consider additional interventions in order to reach the net zero target. Interventions have been grouped into outcome focused decarbonisation categories to reflect and target the breadth of carbon contributing aspects of council operations as set out below:



Further detail on the specific interventions within each of these categories can be found on the next page.








Potential Interventions (1/3)

Key:	 Building efficiency	 Electrification of assets	 Lower carbon energy sources	 Renewable agreements	 Using energy efficiently
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Intervention	Summary
Deep retrofit of buildings	Energy efficiency in existing buildings can be improved through retrofitting. The extent to which a building is retrofitted depends on the building's current state. A deep retrofit takes a holistic approach, this involves taking measures such as climate control and heat recovery systems, renewable energy installation and improving building airtightness. The Council currently has 5 retrofits in capital raise stages with benefits expected to be realised from 2023 onwards A deep retrofit assessment has also been done for a further 50 assets, which would enable a 571-1274 tCO ₂ e reduction.
Implement external building standards	<p>Setting standards for future construction and refurbishment projects will ensure that the Council maintains a level of consistency when ensuring that its estate is energy efficient. The Council can either set its own policies outlining building standards or comply to existing frameworks and certifications.</p> <p>There are currently two different external standards that the Council is incorporating into its new buildings: Passivhaus and BREEAM (Building Research Establishment Environmental Assessment Method).</p> <p>Passivhaus:</p> <ul style="list-style-type: none"> Improves energy efficiency and reduces carbon emissions from buildings <p>BREEAM Standards:</p> <ul style="list-style-type: none"> The Council plans to construct its buildings to the BREEAM Excellent Standard (top 70% of all assessed buildings) Standards also focus on energy efficiency and sustainability
Disposal of assets	Disposal of underused buildings is a significant steps for the Council in reducing unnecessary emissions, whilst also offering the benefit of reducing Council operational expenses. When it comes to disposing of buildings, it is recommended to focus on assets that are unfeasible to maintain, whether due to high costs or emissions.
Introduce a 'no gas' policy	Degasification of the estate will ensure that the council no longer relies on unsustainable gas supplies. Heat generated from gas boilers is one of the main sources of carbon emissions nationally in the UK, and taking a step towards banning all gas appliances will accelerate the commitment towards net zero. While the Council has already proposed several interventions, such as replacing gas boilers with heat pumps and transitioning to the electrification of buildings, reflecting their commitment to degasification and dedication to achieve net zero by 2030, it is also imperative to avoid installing gas appliances while planning future developments. This approach will effectively eliminate gas consumption within the corporate estate, aligning with broader sustainability goals.



Potential Interventions (2/3)

Key:	 Building efficiency	 Electrification of assets	 Lower carbon energy sources	 Renewable agreements	 Using energy efficiently
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Intervention	Summary
Transitioning to electric vehicles	Electric vehicles (or zero emission vehicles) are an alternative to traditional petrol and diesel powered vehicles. Beyond the environmental benefits they offer eliminating a major source of carbon emissions, they also hold the potential to significantly reduce costs and enhance overall efficiency in the realm of all council related transportation activities. As the council makes the move towards generating electricity that becomes progressively cleaner, electrification of areas previously dominated by fossil fuels would then emerge as a crucial council-wide tool for reducing emissions.
Connect to future DHN	DHNs are an alternative to the traditional model of heating. DHNs generate heat centrally and distribute to buildings through water in highly insulated pipework connected to buildings. DHN allows cheaper, lower carbon sources of heat generation that can be added over time without additional, later upheaval such as digging up roads, or making changes in people's homes ¹ . The Council is working in conjunction with 3 rd parties to develop proposals for a DHN.
Install renewable energy (solar panels) on site	<p>There are various renewable energy sources that local authorities can install on-site or within wider borough areas. These include:</p> <ul style="list-style-type: none"> • Solar panels: One domestic sized solar panel provides approximately 0.005 MW of electricity. • Wind turbines: average size turbine capacity is 0.68 MW • Biogas: The average capacity for anaerobic sites is 142.7 MW² <p>Solar panels are the most feasible option for the Council and installation options are currently being explored.</p>
Wait for National Grid decarbonisation	The Government has plans to power the UK with clean electricity by 2035 by decarbonising the National Grid (subject to energy security). The UK will see a shift to renewable and low-carbon energy sources such as wind power and nuclear energy, instead of traditional fossil fuels. ³ This means that by 2035, all of the Council's Scope 2 emissions will be eliminated as all of its electricity will be net zero.
Commit to an Energy Framework for purchasing electricity and gas (from 2024)	Energy Frameworks would provide an opportunity to develop a flexible procurement strategy that will enable the council to adjust their buying strategy as a response to market changes. The Council is looking to award new energy contracts via the LASER Flexible Energy Framework for 2024-2028. A pre-requisite of these contracts is that they must align to the Climate Action Plan commitment to procure 100% renewable energy by 2030.

¹ [What is district heating? A low carbon solution for the UK's homes - Energy Saving Trust](#) ² [Top 30 UK Local Authorities by Renewable Capacity \(2018\) GreenMatch](#) ³ [net-zero-strategy-beis.pdf \(publishing.service.gov.uk\)](#)



Potential Interventions (3/3)

Key:



Building efficiency



Electrification of assets



Lower carbon energy sources



Renewable agreements



Using energy efficiently

Intervention	Summary
Purchase REGOs	REGOs are Renewable Energy Guarantees of Origin whilst RGGOs are Renewable Gas Guarantees of Origin. These are certificates that provide transparency about the proportion of electricity supplied to them which come from renewable sources. Their purchase does not bring about new sources of renewable energy, rather they are distributed proportionately to the levels of renewable energy existing in the UK Grid.
Commit to a PPA	<p>Power Purchasing Agreements (PPA) are longer-term contracts between electricity generators and buyers. Committing to a PPA will entail several benefits for the Council, some of which are:</p> <ul style="list-style-type: none"> • To ensure that the majority of the Council's electricity supply comes from renewable sources. • To reduce energy costs as the Council would be buying electricity directly from renewable energy generators. • A guarantee that the electricity purchased has been produced from new renewable sources that have been added to the grid to meet the Council's energy needs. <p>The Council is working with a consortium of local authorities to investigate the possibility of procuring renewable energy via a PPA. There are alternative options to this if this does not happen at the pace required e.g. could explore setting up an individual PPA or joining with a public sector partner e.g. NHS (Kingston Hospital) or Kingston University.</p>
Behaviour change and demand management	<p>The energy landscape in the UK is highly dynamic, influenced by a multitude of factors, including fluctuations in demand and availability driven by the time of day, seasonal variations, and international supply considerations. To effectively manage this dynamic landscape, the Council is exploring various strategies including demand management. On the supply side, it's advantageous to procure energy during periods of lower demand, which can be more cost-effective. On the demand side, optimizing energy usage means integrating sources with varying availability, with a focus on promoting the effective utilization of renewable resources.</p> <p>The Council can also encourage behaviour change, this involves simple everyday actions, such as turning off lights upon leaving a room, adjusting heating temperatures, or opting for public transportation over personal vehicles when feasible.</p>

Appendix 3

Available options to get to Net Zero 2030



Seizing the Moment, Shaping the Future





Available Options to get to Net Zero 2030

There are three approaches that the Council can take on its journey to Net Zero 2030. However, only Invest & Achieve is recommended as it: ensures the Council will reach the target, reduces the need to offset, and allows the Council to demonstrate leadership in sustainability.

Option	Description	Carbon impact	Cost impact	Place impact	Recommendation
1. Do Nothing	This option involves halting all ongoing work to achieve net zero by 2030. The Council would not achieve its net zero goal. This approach does not demonstrate leadership in sustainability and the Council and Borough would not benefit from the considerable environmental, social, and political effects of being net zero.	This option has no positive carbon impact. The Council would continue to emit carbon into the atmosphere and would not achieve its public commitment of bringing operational emissions to net zero.	This is the cheapest option as there is only the cost of halting planned interventions to consider.	This approach does not have a positive impact on place as the Borough will lose out on the benefits of its Council being net zero. This option does not demonstrate leadership in sustainability.	Not recommended <i>Will not achieve net zero 2030</i>
2. Continue on Current Trajectory	Continue with current planned interventions but do not plan to implement any others. The remaining emissions should then be offset through in-borough offsetting initiatives. The Council would achieve net zero by 2030 with this option, however it would face significant offsetting costs.	This approach has a limited carbon impact, with around 2250 tCO ₂ e a year to offset as the Council would still be emitting carbon into the atmosphere.	The Council would need to pay to implement its current planned interventions prior to 2030 but it would also incur offsetting costs post-2030, making this option costly in both the short- and long-term.	The Borough will benefit from offsetting initiatives but not from the planned interventions, which focus on improving the longevity of buildings and in turn, reducing Council operating costs.	Not recommended <i>Will not achieve net zero 2030</i>
3. Invest & Achieve	Implement comprehensive interventions to achieve Net Zero 2030 without the need to significantly offset carbon emissions. This involves continuing to implement current interventions as well as investigating the feasibility of additional interventions proposed in this report. This approach has the maximum carbon impact and place benefits.	This option has the most significant carbon impact as it will reduce the Council's carbon emissions down to net zero by 2030, without the need to significantly offset.	This approach has a large cost prior to 2030 to ensure that all relevant interventions are in place in time. However, the Council will avoid significant offsetting costs and may experience some reduction in operational costs as a result of deep retrofit and other interventions.	Reaching net zero will deliver benefits to the community environment, including improved air and water quality resulting from reduced carbon emissions; improved building longevity leading to cost reductions; and a boost to the local economy through job creation as a result of the increased investment. ¹	Recommended <i>Will likely achieve net zero 2030</i>

¹ Climate Action Plan