

Policy & Sustainability Committee

10.00 am, Tuesday, 20 April 2021

Council's emissions reduction plan

Executive/routine Wards Council Commitments	18
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1. Recommendations

It is recommended that the Policy and Sustainability Committee:

- 1.1 Agree the Draft Council Emissions Reduction Plan as set out in Appendix 1.
- 1.2 Note the final draft with supporting implementation and investment plan will be published alongside the City Net Zero Strategy in October.
- 1.3 Agree the proposed Council carbon budget and that this be used to monitor future progress.
- 1.4 Note that city approaches to offsetting will be consulted upon as part of the 2030 Net Zero Strategy consultation.
- 1.5 Note that the Council's organisational emissions are updated annually and reported to the Scottish Government through the Public Bodies Climate Change Duty Reporting (PBCCD) since 2010/11.
- 1.6 Agree to allocate £60,000 of the £300,000 sustainability fund allocated within the Council's 2021/22 revenue budget to recruit a Funding Development Officer, to maximise external funding in support of further activities to reduce the Council's emissions.
- 1.7 Agree to allocate £40,000 of the £300,000 sustainability fund allocated within the Council's 2021/22 revenue budget to roll out a Climate Literacy Training programme across the organisation.

Andrew Kerr

Chief Executive

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Council's emissions reduction plan

2. Executive Summary

- 2.1 The report sets out an initial pathway to net-zero for the City of Edinburgh Council by 2030 by targeting the Council's major emissions sources; energy (buildings and lighting), waste, fleet and transport.
- 2.2 The plan sets out the Council's strategic approach to reducing its corporate emissions and estimates the impact of carbon reduction projects (both planned and potential) on the Council's current and future carbon footprint.
- 2.3 This Council Emissions Reduction Plan reflects the Council's carbon reduction commitment as a signatory of the City Climate Compact. A final version with supporting implementation and funding plan will be published in October.
- 2.4 The report does not reflect the wider work of the Council that has an impact on the city emissions. A separate report focussing on city-wide emissions ("2030 City target monitoring approach") is also provided to the April Policy & Sustainability committee.

3. Background

- 3.1 The City of Edinburgh Council declared a Climate Emergency in 2019 and committed to work towards a target of net zero emissions by 2030 for both city and corporate emissions.
- 3.2 In February 2021, the new Council's Business Plan had sustainability at its core, with "Becoming a sustainable and net zero city" being one of the three strategic priorities, alongside "Ending poverty by 2030" and "Wellbeing and Equalities". The present report contributes to Outcome 8: "On track to deliver our 2030 net zero target".
- 3.3 Since 2010/11, the Council has publicly reported its organisational emissions annually to the Scottish Government through Public Bodies Climate Change Duty Reporting (PBCCD). The Council's carbon footprint scope is presented in Appendix 1 of the plan.

- 3.4 In 2019/20, the Council achieved a 62 %¹ reduction compared to a 2005/06 baseline, substantially exceeding its previous target of achieving a 42 % reduction by 2020/21. This target is now superseded by the new more ambitious net zero by 2030 target.
- 3.5 In December 2020, the Council signed the Edinburgh Climate Compact launched by the Edinburgh Climate Commission, along with five other signatories representing the health, finance, construction, education, arts and culture sectors. Signatories pledged to deliver key commitments outlined at Appendix 2.
- 3.6 The Council's Emissions Reduction Plan presented in this report sets out the strategic approach and key actions the organisation will take to ensure, subject to the appropriate funding, it will be a net zero organisation by 2030. In doing this, the Plan also sets out how the Council is delivering against its Climate Compact commitments.

4. Main report

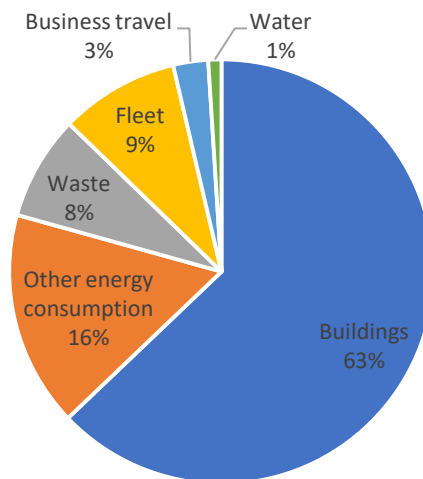
- 4.1 Achieving net zero emissions and transitioning to a low carbon economy represents the greatest challenge of our times. This reflects the complexity and breadth of activity needed to tackle carbon emissions and as such, while this report lays out the City of Edinburgh Council's approach and key actions that will be taken forward, it does not and cannot have all the answers today. As such the Council Emissions Reduction Plan (CERP) will be periodically reviewed and refined as more clarity is obtained from our operational projects and in terms of the grid decarbonisation trend and future low-carbon HGV technologies.
- 4.2 The CERP has been developed to cover the next nine years up to 2030. It focusses on the Council's key corporate emissions sources (energy in buildings, waste, fleet and travel) and sets out an initial pathway to net-zero by 2030. The CERP does this by estimating the impact of carbon reduction projects (both planned and potential projects) on the Council's carbon footprint.
- 4.3 This first draft Council Emissions Reduction Plan sets out the proposed strategic direction alongside immediate and potential actions to reduce the Council's emissions. The final draft which will be published alongside the City Net Zero Strategy in October will include more detail on estimated costs for near-term actions and how these would be met, and a proposed approach to longer-term investment.
- 4.4 The CERP introduces carbon budgets for the Council to measure progress. These correspond to the total emissions that can be emitted in a three-year period and are based on a linear reduction pathway. The 2017/18 to 2019/20 carbon budget has been retrospectively determined for illustration purposes based on cumulated historic emissions.

¹ Since the last November Committee report, diesel and petrol figures have been revised, increasing the emission reduction from 60 to 62 %. Changes have been submitted on time for the Public Bodies Climate Change Duties Report in November 2020.

Period	Cumulated carbon budget (tCO _{2e})
2017/18 to 2019/20 <i>(cumulated historic emissions)</i>	345,728
2020/21 to 2022/23	180,416
2023/24 to 2025/26	120,277
2026/27 to 2028/29	60,139
2029/30 to 2030/31	6,682
From 2030/31	0

4.5 The Council's organisational emissions are attributable to five key areas. The draft emissions reduction plan provided at Annex 1 presents the direction of travel and the scale of the effort required in those five key areas:

- Buildings (63 %)
- Other energy consumption such as lighting (16 %)
- Waste (8 %)
- Fleet (9 %)
- Business travel (3 %)
- Water (1 %)



Council's 2019/20 carbon footprint broken down by key sectors

4.6 Each sector is addressed through a dedicated chapter which includes the thematic strategic approach that is being adopted to achieve net zero emissions as well as a phased plan indicating the key milestones and associated resources required where known. Each chapter also includes key projects and programmes and their estimated carbon savings. Potential projects have also been quantified in order to illustrate how they would contribute to the net zero target and give an understanding of the scale of the effort required to bridge the gap to net zero emissions.

- 4.7 It should be borne in mind that in some cases, an initial estimate has been provided to quantify potential carbon savings, in anticipation of further data becoming available over the coming period. For example, the future outcomes of the Enerphit pilots are needed to more accurately quantify the potential achievable energy reduction in the overall building's estate.
- 4.8 The CERP also indicates how procurement and staff engagement will contribute to the common net zero goal, in line with Edinburgh Climate Compact commitments in the "Influence and Leadership" section.
- 4.9 Becoming a net zero organisation will have significant capital and revenue implications for the Council, and the Council will re-visit these annually through its budget processes, as further carbon and cost analysis of proposed projects and programmes is undertaken.
- 4.10 Some of the potential interventions will require further resources and we will seek to lever external resources wherever possible in order to maximise impact. Costed proposals for further actions to reduce the Council's emissions will be brought forward to the appropriate Committees following approval of this plan.
- 4.11 In developing its approach to investment, the Council will focus on investing in readiness through work to develop the projects and programmes proposals that will deliver the greatest emissions reductions; carrying out feasibility studies and developing pilots to test delivery models; and then scaling and accelerating delivery towards net zero across all Council emissions.
- 4.12 Across all activity, the Council will seek to maximise external funding and revenue generation opportunities. A new Funding Development Officer post is being sought to provide dedicated capacity for identifying funding opportunities and co-ordinating the development of bids. This will help ensure the Council is able to access the additional resources required to invest in readiness and ensure the Council is well-placed to draw down substantial additional resources as soon as new funding streams are announced.

Offsetting as part of the Council plan

- 4.13 Offsetting is technically complicated and requires political and policy decisions, including the definition of quality principles and verification standards. Approaches to offsetting at the city level and will be consulted upon as part of the 2030 Net zero Strategy consultation before being brought back to the Policy and Sustainability committee for further consideration prior to the strategy publication in October.
- 4.14 Any Council organisational approach to off-setting will need to consider and be informed by the city-wide approach and it is recommended that the Council's approach to off-setting is given further consideration by Committee in October.

Measuring success and performance

- 4.15 The Council will continue to publicly report its organisational emissions annually to the Scottish Government through the Public Bodies Climate Change Duty Reporting (PBCCD). The boundary was set with accreditation from the Carbon Trust Standard

(see detail in Appendix). The reporting arrangements for the monitoring of Council emissions are summarised in the table below. A reporting calendar for city-wide emissions can be found in a parallel P&S committee report (2030 City target monitoring approach).

Report	Key dates	Schedule
Carbon Disclosure Project	July 2021	Annual
Public Bodies Climate Change Duties report	November 2021	Annual
Council Business Plan report	<i>A report on the Planning & Performance framework will be submitted to Committee in June and will confirm frequency and publication dates</i>	

5. Next Steps

- 5.1 Council's emissions will continue to be reported annually through Public Bodies Climate Change Duties statutory report, with the next deadline being November 2021.
- 5.2 This draft plan will be periodically reviewed and refined as more projects are scoped out and more clarity is obtained in terms of the grid decarbonisation trend, future technologies or offsetting mechanisms and accounting, as well as greater visibility around the impacts of COVID, the future Deposit Return Scheme and other uncertainties.
- 5.3 Council activity which does not impact the Council's own organisational emissions, but contributes to reducing the City's footprint, will be detailed within the city-wide 2020 strategy due for publication in Autumn.

6. Financial impact

- 6.1 Becoming a net zero organisation will have significant capital and revenue implications for the Council. A £300,000 sustainability fund has been allocated as part of the Council's 2021/22 revenue budget to provide additional capacity to develop a strategic approach to meeting these challenges. This report recommends allocating £60,000 of this to recruit a Funding Development Officer to maximise external funding by providing dedicated capacity for identifying funding opportunities and co-ordinating the development of bids. It also recommends that a further £40,000 is allocated to roll out a Carbon Literacy Training programme across the organisation.
- 6.2 While many of the short-term actions outlined in the plan have resources assigned, for example £500,000 has been allocated towards developing approaches to building

retrofit and many actions are supported by external funding, some of the potential additional interventions outlined in the plan will require further resources. The final draft of this plan, which will be published in October, will include more detail on estimated costs for short to medium-term actions and how these would be met, and a proposed approach to longer-term investment.

- 6.3 Going forwards, the Council will re-visit the financial implications of actions required to reduce its emissions annually through its budget processes, as further carbon and cost analysis of proposed projects and programmes is undertaken.

7. Stakeholder/Community Impact

- 7.1 Consultation has taken place with Commercial and Procurement Services, Fleet, Street Lighting, Human Resources, Corporate Property and Waste Services in compiling this report.
- 7.2 While the financial challenges in achieving net zero emissions will be significant, it should be noted that investing in carbon reduction projects often results in wider co-benefits such as the creation of local jobs, improved air quality and public health, or reduced congestion.
- 7.3 This report has been assessed in respect of the three elements of the Climate Change (Scotland) Act 2009 Public Bodies Duties. In summary, the proposals in this report will help to mitigate and adapt the Council and city to climate change, improve social justice, economic wellbeing and environmental good stewardship.

8. Background reading/external references

- 8.1 Public Bodies Climate Change Duties report 2019/20

9. Appendices

- 9.1 Appendix 1 - City of Edinburgh Council's Emissions Reduction Plan

An illustration on the left side of the page depicts a sustainable community. At the top, a large rainbow arches over a landscape. In the background, there are two wind turbines, one white and one green, and a house with solar panels on its roof. In the foreground, a white bus is shown. To the left of the bus, a person is riding a bicycle. In front of the bus, a man and a woman are walking. To the right of the bus, a child is riding a scooter and an adult is pushing a stroller. The entire scene is set against a light green background.

CITY OF EDINBURGH COUNCIL'S EMISSIONS REDUCTION PLAN

DRAFT, APRIL 2021



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Foreword

Climate Change is one of the most pressing issues of our time – and one we must all play our part in tackling.

That is why, as an Administration, we made sustainability one of our key organisational priorities and set a target for Edinburgh to be a net zero city by 2030.

We're under no illusion that this will be a hugely ambitious target to meet but there is also much to gain as a city from being at the forefront of climate action and supporting a truly green recovery from the pandemic.

Ahead of the publication of the City Net Zero Strategy, we will lead by example as we work to become a net zero organisation by 2030 and deliver on the City Climate Compact, which requires organisations who sign up to take action to reduce their own emissions.

Every step we take to become a net zero organisation will also be an opportunity for the city; creating market demand, stimulating green industries and jobs and contributing to sustainable, healthier and happier communities.

We know we don't have all the answers yet, and there's a long way to go – but the Council Emissions Reduction Plan lays out the strategic approach we will take to tackle our own emissions, which largely

come from our buildings, our fleet and our waste.

We will make sure that we don't create new emissions problems by investing now in net zero buildings; we will invest in the improvement of services, capital investment and infrastructure to deliver our net zero objectives; we will invest in our readiness, skills and knowledge to deliver change; learn from pilots and prototype projects; and we will plan to speed up the actions required to meet our target.

As a major land and asset owner and developer in the city, this plan rightly provides a focus on our buildings. As we review and improve our estate to net zero standard, we'll also be thinking about how these buildings best serve the city while aligning our retrofit plans to the development of '20 minute neighbourhoods' and sustainable places.

We've made outstanding progress on reducing our waste emissions, largely thanks to the opening of Millerhill waste plant, but we'll continue to make progress by further improving waste services for citizens and promoting the reduce, reuse, repair and recycle approach to minimising unnecessary waste. We'll also continue to build on the progress we have made decarbonising our light fleet with a focus on our larger vehicles.

Funding will, of course, continue to be a challenge but we are already investing in our Emissions Plan and will work to ensure we are well placed to benefit from funding opportunities from the Scottish Government, UK Government and other national bodies looking to invest in net zero action.

In the end, the success of this plan will be an organisational effort supported by the everyday actions and choices of all colleagues, which is why we're also investing in developing the skills and knowledge of our teams.

We look forward to continuing this journey towards becoming a net zero organisation by 2030 – leading the way for our city to do the same.

Councillor Adam McVey

**Leader of the City of Edinburgh Council
Convener of the Policy and
Sustainability Committee**

Councillor Cammy Day

**Depute Leader of the City of Edinburgh
Council
Vice Convener of the Policy and
Sustainability Committee**

Glossary

Term	Meaning
Carbon Dioxide (CO₂)	A naturally occurring gas and one of the most abundant greenhouse gases in the atmosphere. Carbon dioxide is also a by-product of industrial processes, burning fossil fuels and land use changes.
Carbon Dioxide Equivalent (CO₂e)	Universal unit of measurement used to compare the relative climate impact of the different greenhouse gases. The CO ₂ e quantity of any greenhouse gas is the amount of carbon dioxide that would produce the equivalent global warming potential.
Carbon Footprint	A carbon footprint is the sum of all emissions (in CO ₂ e), which were produced by an individual or organisation in a given time frame. Usually a carbon footprint is calculated for the time period of a year.
Circular economy	A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. Looking beyond the current take-make-waste extractive industrial model, a circular economy aims to redefine growth, focusing on positive society-wide benefits. <i>(Source: Ellen MacArthur Foundation)</i>
Climate Change	Climate change is a large-scale, long-term shift in the planet's weather patterns or average temperatures.
Greenhouse gas (GHG)	Human generated emissions which contribute to the greenhouse effect, trapping heat from the sun
Grid decarbonisation	Decarbonising the grid means decreasing the emissions per unit of electricity generated. The electricity grid will decarbonise over time thanks to the UK generating more and more energy from wind power and at the same time closing coal power plants.
Landfill	Disposal of waste material by burying it under layers of earth.
IPCC	Intergovernmental Panel on Climate Change, a research group created by the World Meteorological Organization and the United Nations Environment Programme, responsible for surveying and synthesising scientific work on climate change.
CCC	Committee on Climate Change.
Business as Usual Scenario	A description of what would most likely occur in the absence of a carbon reduction project, also referred to as the 'baseline scenario'.
Carbon neutrality	When CO ₂ emissions caused by humans are balanced globally by CO ₂ removals over a specified period (Source: IPCC SR15). This does not apply to other greenhouse gases.
Net-zero emissions	According to the Scottish Government, a situation in which any greenhouse gas emissions put into the atmosphere are balanced out by the greenhouse gases removed from the atmosphere, so that the "net" effect is zero emissions. Edinburgh has committed to 'net zero' emissions by 2030. To achieve this, we must reduce the emissions we produce to a minimum and capture any greenhouse gases we cannot avoid emitting through initiatives like tree planting.
Offsetting	Designs the process of trying to reduce the damage caused by releasing carbon dioxide into the environment by doing other things that remove carbon dioxide, for example, by planting trees". <i>(Source: Cambridge Dictionary)</i>

Introduction

Following the publication of an Intergovernmental Panel on Climate Change (IPCC) report,¹ which sent a clear call for climate action to avoid the consequences of global warming of 2°C, the City of Edinburgh Council declared a Climate Emergency in 2019 and committed to work towards a net zero emissions target by 2030 for both city and corporate emissions.

This first draft Council Emissions Reduction Plan sets out the proposed strategic direction for addressing the Council's major emission sources and the proposed actions the Council will take.

The final draft will include more detail on estimated costs for near-term actions and how these would be met, alongside a strategic approach to longer-term investment.

This approach is centred around acting now to ensure efficient service delivery also considers opportunities to reduce emissions; investing in skills and capacity to test new approaches; and maximising

external funding to roll out change at scale and pace.

There are a number of drivers for the Council to take climate action:

- **Democratic:** The climate crisis has become an unescapable topic, and our children and our communities are asking us to act.
- **Social:** Tackling climate change provides an opportunity to secure cleaner air, safer travel routes, cheaper energy, green jobs, thriving wildlife and healthier more sustainable communities, bringing economic and social benefits to Council staff and the communities they serve.
- **Ethical:** Scotland was one of the first nations to sign up to the UN Sustainable Development Goals (SDG) (*Figure 1*) which were adopted to solve global challenges such as poverty, inequality, war, environmental degradation, as well as climate change. Tackling climate

change is 'the right thing to do' and contributes to the UN SDGs.

- **Financial:** The PCAN Achieving Net Zero report² has developed an economic case that supports the change required to meet the 2030 target, based on allocating current spending differently. This work has identified a set of interventions that illustrate what it would take to meet the 2030 net zero target for the city and states that the majority would be cost-effective
- **Legal:** The City of Edinburgh Council has a duty to comply to the Public Bodies Climate Change Reporting under the Climate Change (Scotland) Act. With a net zero emissions target by 2045, Scotland has one of the world's most ambitious climate change legislation. The Government "expects Scotland's public bodies to lead by example in combating climate change and making a

¹ Global Warming of 1.5 C. An IPCC Special Report on the Impacts of Global Warming of 1.5 C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global

Response to the Threat of Climate Change. Sustainable Development, and Efforts to Eradicate Poverty. <https://www.ipcc.ch/sr15> Accessed. 2019 Oct;1.

² [A Net-Zero Carbon Roadmap for Edinburgh, Robert Fraser Williamson, Andrew Sudmant, Andy Gouldson & Jamie Brogan, 2020](#)



Figure 1: UN Sustainable Development Goals

valuable contribution towards achieving our emissions reduction targets.”³

This plan focusses on the Council’s own operations. It shows how we aim to lead by example to accelerate action across the city. The journey to net zero emissions will be challenging, but we know climate action has the potential to deliver wider social, health and economic co-benefits and positively impact communities and realise the opportunities to reduce inequalities as we build back better and greener.

More specifically, the electrification of the fleet can yield vehicle maintenance and

fuel costs savings. In the same way, the upgrade of lighting and traffic signals to LED deliver electricity savings, but also maintenance savings (including fuel savings) as this technology needs to be replaced less often.

The investment we make in decarbonising and retrofitting the Council Estate will improve energy efficiency but – done at the scale required to deliver a net zero organisation, would also have wider city benefits for green supply chains, green jobs and a green recovery.

Achieving net zero emissions and transitioning to a low carbon economy is a

journey and as such the approach laid out in this report will be periodically reviewed and refined to reflect the organisation’s deepening knowledge and learning from the phased approaches.

The Council publicly reports its organisational emissions annually to the Scottish Government through the Public Bodies Climate Change Duty Reporting (PBCCD) since 2010/11. The Council also

³ “Protecting Scotland’s Future: The Government’s Programme for Scotland 2019-20”. Published 3 Sep 2019.

participated in the Carbon Disclosure Project (CDP)⁴ or the first time in late 2020. CDP is an international non-profit organisation for companies and cities' environmental reporting. It is the largest climate change focused data collection and assessment programme in the world.

The most recent carbon footprint for the City of Edinburgh Council is presented in *Figure 2*. Total 2019/20 emissions amounted to 73,503 tonnes of CO₂e⁵. This is equivalent to the emissions generated by around 37,000 return flights between Edinburgh and London, or by 9,000 average UK citizens annually.

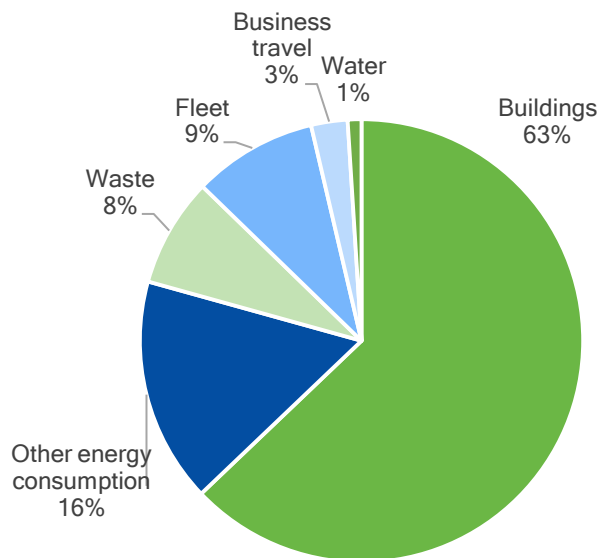


Figure 2: 2019/20 carbon footprint broken down by sector.

Council's emissions decreased significantly by 62% compared to 2005/06, surpassing the Council set target of achieving a 42% reduction in emissions by 2020/21⁶. This is mainly due to the large reduction in Council waste going to landfill, following the waste reprocessing facilities at Millerhill becoming fully operational in 2019/20.

Figure 3 shows that future emissions are forecast to plateau in a business as usual scenario. Projections are based on various

parameters including expected grid decarbonisation, population growth by age categories⁷, and historic Council's emissions trend.

This Council Emissions Reduction Plan aims to lay out how the Council will act, across its major emissions sources, to make the necessary reductions to deliver a net zero organisation by 2030.

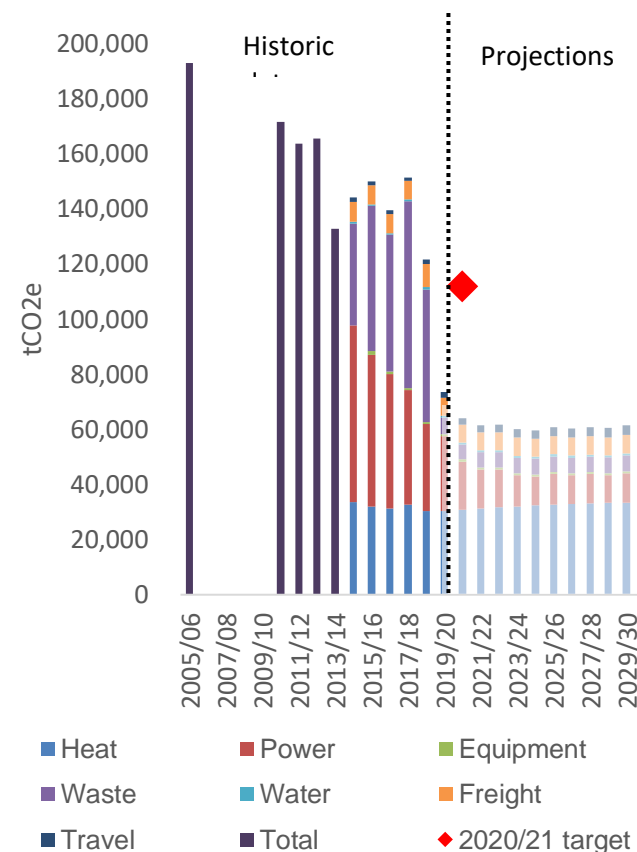


Figure 3: City of Edinburgh Council's carbon footprint: historic and future emissions.

⁴ <https://www.cdp.net/en/cities>

⁵ Note that the unit used throughout this document is tonnes of CO₂ (carbon dioxide) equivalent (abbreviated as CO₂e), meaning that

all greenhouse gases are taken into account. Refer to the Glossary for more details.

⁶ Public Bodies Climate Change Duties Report 2019/20, November 2020

⁷ For example, Age group "over 75 years old" is expected to impact on emissions from care homes. [School rolls projections](#) are used to model future schools' emissions.

Carbon Budget

This plan sets targets based on 2019/20, rather than on 2017/18 as with the City target. This takes account of the fact that there was a 40% drop in Council emissions due to the waste diversion from landfill to the Millerhill Energy from Waste plant between 2018/19 and 2019/20.

The scale of the effort required to bring Council operational emissions down to zero corresponds to an annual reduction of roughly **6,700 tCO_{2e} per year, or 9% per year**, following a linear target pathway by 2030. The CERP will however, evaluate

progress through a carbon budget that operates on three-year phases.

The proposed carbon budgets are indicated in *Table 1*. They outline the total emissions that can be emitted over a three-year period and are based on a linear reduction pathway. This approach provides more measured assessments of progress, taking account of fluctuations that can exist in single year achievements for example, due to weather. The 2017/18 to 2019/20 carbon budget has been retrospectively determined for illustration

purposes based on cumulated historic emissions.

Carbon dioxide remains in the atmosphere between 300 and 1000 years, reducing one tonne of CO₂ in 2021 does as much for the stock of carbon in the atmosphere as stopping a source 30 times as large in 2051. As well as planning for net zero emissions this plan also seeks to maximise the actions that can be taken now to minimise the cumulative impact of greenhouse gas emissions.

Table 1: Proposed cumulated 3-years carbon budgets

Period	Cumulated carbon budget (tCO _{2e})
2017/18 to 2019/20 <i>(cumulated historic emissions)</i>	345,728
2020/21 to 2022/23	180,416
2023/24 to 2025/26	120,277
2026/27 to 2028/29	60,139
2029/30 to 2030/31	6,682
From 2030/31	0

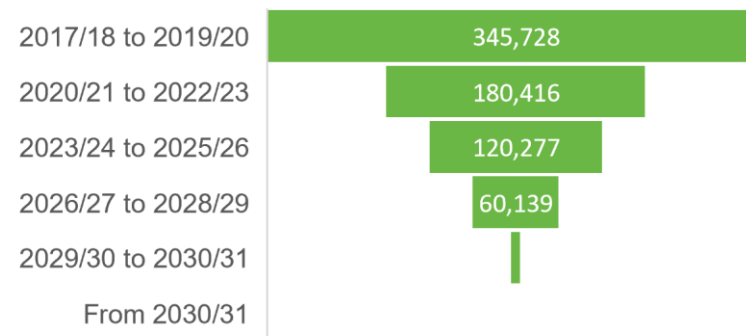


Figure 4: Proposed culminated 3-year carbon budgets

Methodology

The Council's current draft emission reduction plan aims to provide foundation to achieve net zero emissions by 2030. It presents the scale of the effort required in five key sectors⁸:



Buildings (63%)



Other energy consumption (16%)



Fleet (9%)



Waste (8%)



Business travel (3%)

The net zero ambition has been embedded in numerous Council strategies and programmes currently being developed and which impact the City's footprint, as

well as the Council's. Most of these large-scale projects, such as the City Centre Transformation Strategy⁹ or the energy-efficient retrofit of 20,000 Council homes¹⁰, are expected to reduce city-wide emissions – which will contribute to the city-wide net zero target, rather than Council's operational emissions and so are not detailed further in this plan.

As a result, this emission reduction plan only estimates carbon savings for projects that will impact on the Council's carbon footprint scope (*Appendix 1*) and where we have sufficient data to carbon cost the project. Three types of projects have been evaluated:

- **“Committed projects”** – which are already underway, or clearly scoped.
- **“Potential projects”** - interventions that would help bring emissions further down, but for which a business case has not been developed yet.

- **“Data not available/ innovation and offsetting”** – which covers projects that cannot be carbon costed as yet, but are expected to contribute to emissions reductions; plus any remaining emissions which will require additional projects, innovation and/or off-setting to remove.

These are presented, for each sector, in a waterfall chart with “committed projects” in solid green, “potential projects” in hatched green, and “data not available/ innovation and offsetting” in orange.

As the Council rolls out its Carbon Scenario Tool and data becomes available, we will revisit this analysis and expect to be able to show further estimated reductions.

⁸ NB: Water consumption is not included in this plan due to its small proportion in the Council's carbon footprint (1%).

⁹ <https://www.edinburgh.gov.uk/roads-travel-parking/city-centre-transformation>

¹⁰ [Housing Sustainability Update, Housing, Homelessness and Fair Work Committee, November 2020](#)



Buildings Energy Consumption

Table 2: Scotland's Climate Change Plan update - Key commitments relevant to buildings

Scottish Government's commitments
Commitment to ensure LHEES ¹¹ are in place for all local authority areas by the end of 2023. Duty on local authorities to consider the designation of heat network zones and assess the suitability of their own estate to connect to heat networks.
Invest £95 million to decarbonise the public sector estate New Net Zero Carbon Standard for new public buildings
New Build Zero Emissions from Heat Standard will be introduced from 2024 by which point all new builds will have to have zero emissions heating systems
Accelerate efforts to use 100% renewable electricity on the Scottish public estate.
Bring forward the review of the existing Energy Efficient Standard for Social Housing to conclude in 2023.
Invest £1.6 billion in heat and energy efficiency over the next Parliament, using this to leverage in UK Government and private finance to see, as a minimum, the rate of zero emissions heat installations in new and existing homes and buildings double every year out to 2025.

Building energy consumption and efficiency is the key component of the Council's plan to reach net zero by 2030, representing 63% of the Council's corporate carbon footprint.

Building Emissions mainly includes gas and electricity; with gas oil and LPG¹² contributing to only 1% of the total corporate carbon footprint.

A key chapter of the recently published Climate Change Plan update¹³ published by the Scottish Government focusses on buildings and the main commitments is listed on *Table 2*, with the future implementation of a Net Zero Carbon Standard for new public buildings¹⁴.

The Council Estate:

- There are more than 600 buildings, in the Council Estate (*Table 3, p10*). Only about 400 of those buildings are heated, the rest being, for example, monuments.
- Primary and Secondary Schools are the largest component of the Council's Estate.
- 35 of these are PPP/DBFM¹⁵ and are unlikely to return to Council ownership before 2030.
- 40% of the Council's operational estate was built within the last 50 years, and 30% is over 100 years old.
- Edinburgh Leisure accounts for 16% of the Council's building footprint.

¹¹ Local Heat and Energy Efficiency Strategies

¹² Liquefied Petroleum Gas

¹³ [Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update, Cabinet Secretary for Environment, Climate Change and Land Reform, Dec 2020](#)

¹⁴ No target date specified yet

¹⁵ Public Private Partnership and Design Build and Facilities Management

- Domestic buildings account for 4% (this covers housing concierge, communal heating etc.)

Table 3: Repartition of Council buildings –* The 665 buildings are spread across 282 sites - 254 Council operational sites and 28 PPP/DBFM sites

	No of Buildings	Floor area (m2)
Edinburgh Leisure	52	69,152
PPP/DBFM	35	211,348
Council Properties	578	639,999
TOTAL	665	920,499

The Council's overall energy emissions have reduced by 40% between 2014/15 and 2019/20, largely thanks to electricity grid decarbonisation. The electricity grid is expected to decarbonise further with the development of renewable energies. This could reduce electricity emissions by almost 10,000 tCO2e compared to 2019/20 based on BEIS projections.¹⁶

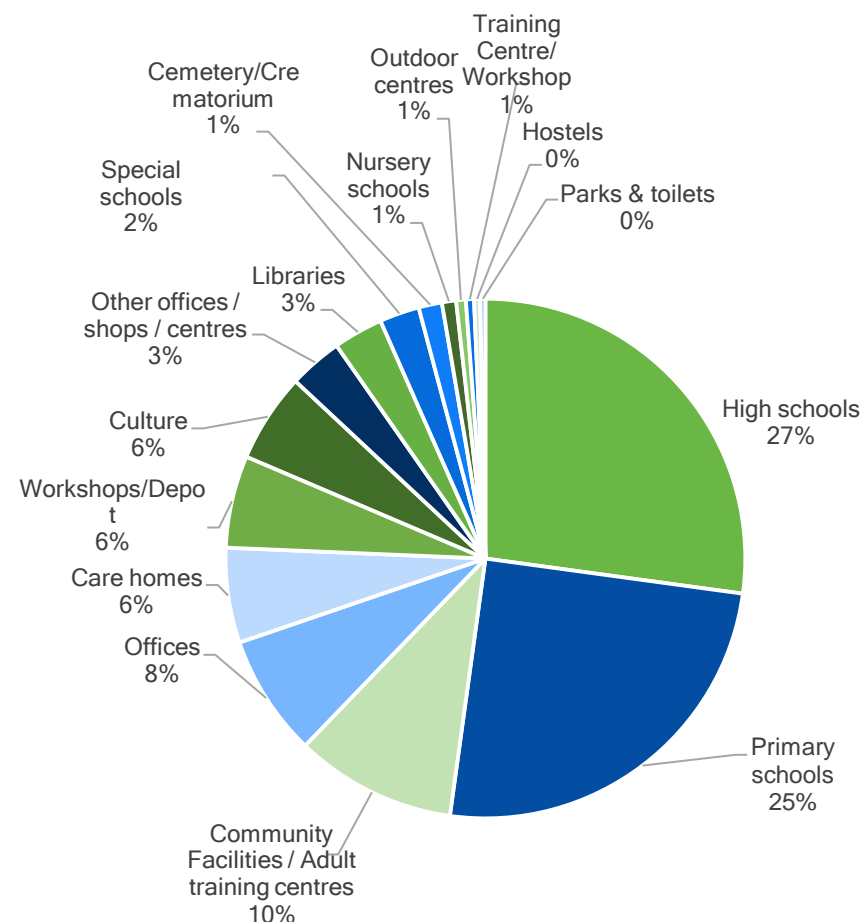


Figure 5: Breakdown of buildings emissions per building type (Includes PPP2 schools but excludes PPP1 schools)

¹⁶ [Treasury Green Book supplementary appraisal guidance on valuing energy use and greenhouse gas \(GHG\) emissions.](#)

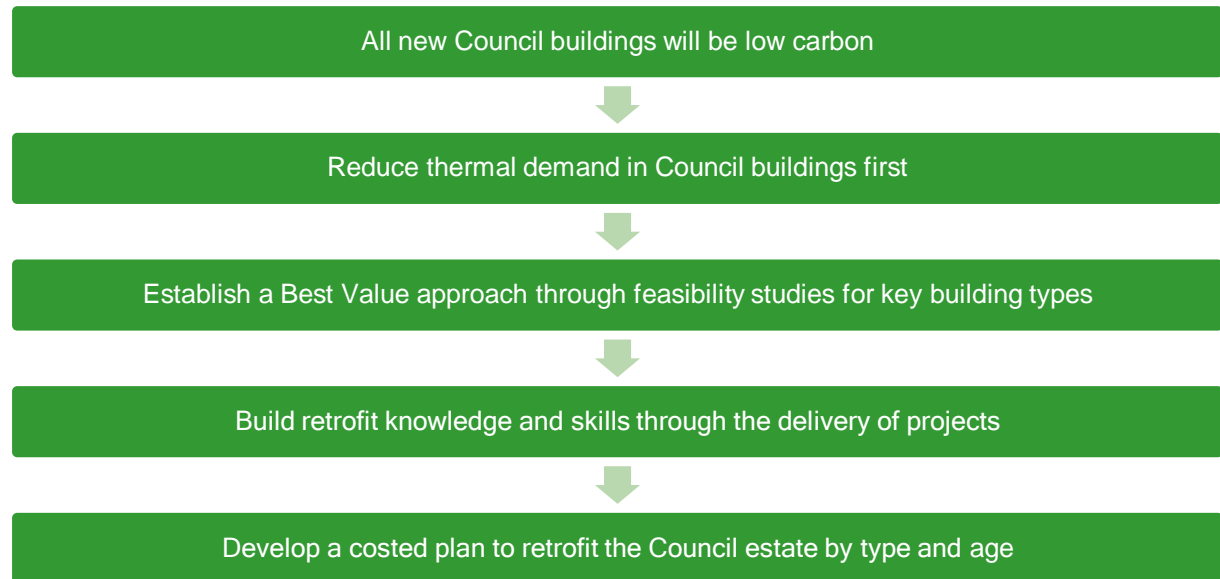
Strategic Approach to Building Emissions Reduction

In acting to reduce emissions from its operational estate, the Council will work with its public sector partners to deliver a place-based approach to public service delivery, ensuring a reduced estate supports a 20 minute neighbourhood model where citizens can access local services within a 10 minute return journey by foot.

In implementing this strategy, the Council will look to use its best assets more efficiently and repurpose existing buildings where possible, with the context of seeking to reduce the size of the estate overall.

Where new buildings are required, the Council will 'lock out' future emissions by committing to ensuring all new builds use alternatives to gas boilers for heat and are built to the highest standards, enabling Edinburgh to become an exemplar early adopter of the Net Zero Carbon Public Sector Buildings Standard. Where new buildings are required, the Council will 'lock out' future emissions by committing to ensuring all new builds use alternatives to gas boilers for heat and are built to the highest standards, enabling Edinburgh to become an exemplar early adopter of the Net Zero Carbon Public Sector Buildings Standard.

In re-configuring existing buildings to support 20-minute neighbourhoods, the Council will bring forward a programme of deep energy retrofit of its operational estate, seeking opportunities for collaboration with public sector partners to secure economies of scale and maximise local job creation. This will require significant



levels of resource and the Council's approach will be to invest in feasibility studies to scope retrofit requirements across the varied set of building types; build knowledge, skills and supply chains through carrying out pilots; and bring forward a costed plan seeking external funding to deliver a phased programme of retrofits, prioritised by building age and type.

Council programmes contributing to net zero

Several key programmes will contribute to the Council's net zero target:



Decarbonisation across the Operational estate:

Passivhaus standard is the default standard on all new builds across the operational estate. For existing buildings,

we aim to roll out a Passivhaus Enerphit-informed approach focussing on reduction of thermal demand through improving building fabric.

This represents a step change in approach to Asset Management Works (AMW) in the Council and will require significant upscaling of works being undertaken. Interventions will prioritise reducing energy consumption by targeting issues such as insulation, air leakage, ventilation and glazing (a fabric first approach) in addition to the traditional objectives such as improving condition. To optimise the level of intervention and approach, buildings will be analysed on an individual basis.



Low carbon heat: We are adopting a focus on Passivhaus Enerphit to reduce demand across Council buildings to facilitate the adoption of low carbon heat. The designation of heat network zones, including a new requirement on the public sector to assess the suitability of its own estate to connect to heat networks, as well as the development of Local Heat and Energy Efficiency Strategies (LHEES) will become a statutory duty for local authorities by 2023.

Assessing the options for delivering low carbon heat will become central to future strategy for Council buildings. This may involve either local plant and/or connection to heat networks. Low carbon heat will be adopted as the default option for new builds in place of other systems such as gas boilers, and suitability for all replacement works of heat generation plant will be considered. Furthermore, the feasibility of localised heat networks for operational buildings will be examined where they offer the potential to deliver efficiencies on individual plant replacement.



Expansion of Solar PV Estate: This involves the installation of solar PV on all appropriate new build Council properties based on right sizing for projected electrical load and availability of roof space. In addition, right sized solar PV will be installed as standard as part of any suitable roof replacement works.

This will align Solar PV works with roof warranties and should also reduce installation costs. The additional carbon reduction initiatives below will be further developed as part of the wider emissions reduction plan and brought for political consideration as appropriate:



Adopting a Circular Economy Approach to manage the Council's Operational Estate: A circular economy approach will allow assets (equipment, plant, fabric, etc) which still have residual value to be identified, recovered and where possible reused instead of them being disposed of. The reuse of assets will not only lead to cost savings but will reduce the carbon footprint of these assets, as well as saving embodied energy. It should also be noted that requirements for Environmental and Sustainability Management are already embedded in the Council's future Repairs and Maintenance contract deliverables.



Investment in 'energy efficiency/demand reduction' innovations and technology to minimise energy use and to reduce overheating: Some energy saving Building Management Systems (BMS) initiatives are already being carried out. This would be an extension to the existing initiatives but on a more granular level and is suggested to look into low-cost 'quick wins'. 'Smart' technology can enable better and more efficient control of energy use in our operational buildings.



Embracing the '20-minute neighbourhood' principle: The Council Business Plan places 20 Minute Neighbourhoods at the centre of its approach to improving locally available services, co locating public sector services and reducing the need to travel to access support. This will have many gains for the City emissions target but also for the Council – particularly where it too results in a strategic reduction in the Council estate as part of re-configuring it to better meet communities' needs.

Currently there are a number of buildings in the operational portfolio which are redundant/closed or are under-utilised. These buildings still require energy to maintain them, especially during the winter months. Re-purposing these buildings or decreasing their number where appropriate will lead to a reduction in annual energy expenditure and therefore a reduction in carbon.

Table 4 presents a first estimation of the carbon savings resulting from the key programmes listed in this chapter.

The future outcomes of the first pilot study¹⁷ will help to refine the potential achievable energy reduction in the overall building's estate¹⁸. It should be noted that the school estate is set to expand due to expected population growth and this is reflected in the future emissions projections.

Table 4: Estimated impact of interventions on buildings emissions

Interventions	Working assumptions	tCO2e
Edinburgh Solar Co-op - Phase 2	Installation of solar panels on six public buildings - total installed capacity of 0.9 MW (assumed generation of 788 MWh/year, 20% grid export)	-62
Estate Remodelling	Estate reduced 50,000m2 by 2030. Estimated savings based on operational estate benchmark consumption figures	-2,070
Replacement new builds delivered to Passivhaus Standard with ASHP ¹⁹	84,100m2 of new build delivered to replace existing assets	-2,935
Expansion of estate	38,000m2 delivered as new/expansion of existing estate	+247
Enerphit based retrofit	Enerphit based retrofit works carried out on half of the retained/existing estate by 2030 (circa 260,000m2) with a targeted space heating demand reduction of 60%	-3,726
Electrification of heat (via ASHP) and conversion to electricity of other fossil fuel loads	ASHP installed on properties that have undergone an Enerphit based retrofit	-3,467
Electrical efficiencies	Electrical efficiencies through improved control, efficient lighting etc. Estimated at an average of 5% of retained load.	-148
Expansion of solar PV Estate	4000 kWp of additional solar PV by 2030 (estimation)	-294
Grid electricity decarbonisation	Medium decarbonisation	-9,783
Total reduction		-48%

¹⁷ Asset Management Board, 17 November 2020, Addressing the Net Zero Operational Carbon Target across the Operational Estate

¹⁸ The first pilot only takes two building to feasibility stage only.

¹⁹ Air Source Heat Pump. Note that the electrification of heat with ASHP will lead to an increase in electrical load, compensated by large gas savings.

As outlined previously, buildings will be analysed on case by case basis and it is anticipated that in some cases, retrofit will not be a viable option due to high costs or technical constraints. The modelling shows that carrying out Enerphit based retrofits on half of the existing estate by 2030 - which would equate to around 15 properties retrofitted per year - would deliver carbon savings of around 4,000 tCO₂e. Pilot works are at an early stage and no funding is yet available for these retrofits. The introduction of Mechanical Ventilation with Heat Recovery (MVHR) may lead to increased electrical use in some properties but insufficient detail is available at this stage to calculate the potential impact of this.

The carbon savings associated with the installation of ASHP18 in Enerphit retrofitted buildings have also been modelled with cost models to follow.

It is also anticipated that a degree of non-technological interventions (such as energy efficiency awareness campaigns) will be required to reduce energy demand in the first place. This will be addressed through the Council engagement and behaviour change programme, as detailed in the Staff Engagement section.

The potential for cost increases when switching from natural gas to electricity present a challenge nationally and locally as too, does the capacity of the city's grid infrastructure. The Council is working closely with Scottish Power Networks as a strategic partner in planning the approach to retrofitting the Council's estate and this will also form a part of the City Net Zero Strategy.

The diversity of the Council estate is also a challenge as it makes a one size fits all approach impossible. Retrofitting to a high standard will help to manage energy cost pressures; however, retrofitting the whole estate to a high standard would require significant investment and is therefore subject to the availability of external funding and development of the required skills and supply chains. The Enerphit pilot will ensure the Council can take an evidence-based approach to understanding the operational and financial implications of retrofitting the Council estate.

Case study: Currie High School, the first Passivhaus-designed high school in Scotland



The new school building will be designed in line with the guiding principles of the Scottish Government's Learning Estate Strategy and will be ready in 2024. The campus will be the first Passivhaus-designed high school in the country, setting a rigorous energy standard which reduces the amount of energy needed for heating by up to 90%. It also lowers the total amount of energy used by around 70% and minimises carbon emissions.

Education, inclusion, outdoor learning and sustainability, digital learning and community access are the core elements of this new community school.

In the modelling shown on Figure 6, remaining emissions illustrated by the orange bar include Edinburgh Leisure, PPP and DBFM buildings, for which no interventions have been modelled as yet, as well as emissions from operational buildings which are assumed to be not viable for retrofitting to Enerphit standard, for example due to the age of the building or other technical constraints.

Numerous projects such as the development of heat-networks projects and net zero developments at Granton, Bioquarter, Fountainbridge and Meadowbank; energy-efficient pilots in communities or the Sustainable Housing Strategy will have significant impact on city-wide emissions rather than Council emissions, hence their absence in the present carbon analysis.

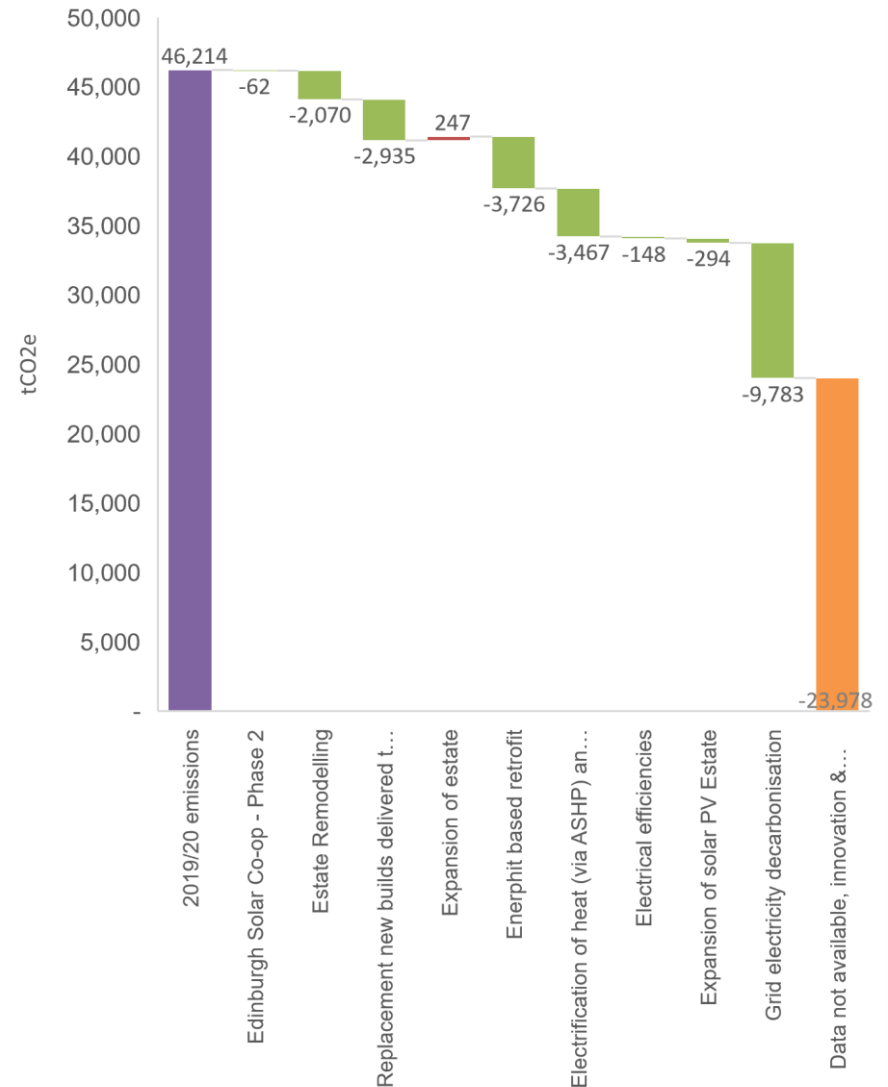


Figure 6: Estimated impact of interventions on buildings emissions. Note that interventions are interrelated: Enerphit based retrofits are necessary to facilitate the deployment of LZC primary plants. Then, large savings from grid electricity decarbonisation can

Table 5: Buildings Phased emission reduction plan

Action	
Phase 1 – 21/22	Enerphit pilots: Identification of two key properties of differing types taking them to Enerphit Retrofit Plan stage with associated mechanical, electrical and plumbing work to deploy LZC primary plant. Feasibility will be costed allowing decision to commence full design and deliver subject to funding. The Pilot will develop Enerphit based methodology for building refurbishment and develop knowledge on best value balance between demand reduction and adoption of low carbon heat.
	Pilot study to include a high-level desk exercise to give an indication of cost across the estate.
	In-house Staff Passivhaus House Design training and knowledge transfer (included as part of Pilot exercise).
	Utilise initial funding to initiate first tranche of Enerphit feasibilities to ERP stage for additional buildings (8-10 buildings). Subject to funding to proceed to design this will allow a potential first tranche of buildings delivered on site in 2022/23.
	Seek budget for delivery of Enerphit based retrofit.
Phase 2 – by 22/23	Develop proposal for enhanced asset management works programme based on Enerphit methodology.
	Deliver first Passivhaus building (2021/22); plus first Passivhaus Primary School (2022/23).
	Start construction works on Enerphit Pilot buildings and the First Tranche (budget depending).
	Work with stakeholders, funders and supply chain to set the groundwork for a step change in approach to asset management works.
Phase 3 – by 2030	Report on outcomes from Enerphit Pilot and set 2030 plan and funding requirements. Test delivery of Enerphit based retrofit approach.
	Move to delivery of wide scale Enerphit based building retrofits.
	Scale up in house resource and supply chain for delivery.



Other energy consumption

In addition to powering and heating operational buildings, 16% of the Council's energy bill also includes a range of energy users from street lighting, stair lighting, alarms, park and ride, trams, through to traffic signals, as illustrated in *Figure 7*.

These emissions are directly tied to emissions from the grid, which are forecast to decrease by themselves as a result of grid decarbonisation. Based on BEIS projections, this could lead to a decrease of around 8,000 tCO_{2e}. Should grid decarbonisation rate improve, these emissions will drop to close to zero by 2030.

Two projects will contribute to the net zero target:

The street lighting LED replacement programme is already underway with completion expected by November 2021. This is expected to reduce emissions by around 450 tCO_{2e} using projected grid electricity carbon factors in 2030²⁰.

Traffic signal LED optic replacement: Currently the council has 610 traffic signal installations, 230 of these are still tungsten Halogen optics which are required to be upgraded to LED optics. Not only will the new signals consume about 80% less energy, they are also more reliable and need to be changed less frequently, reducing emissions from vehicle mileage (about 1,350 miles a year, not captured here), maintenance costs, and waste arising.

These interventions are summarized in *Table 6*. The budget for the street lighting LED replacement programme covers the full duration (3 years) and represents full costs including project management and the introduction of the new CMS (Content Management System).

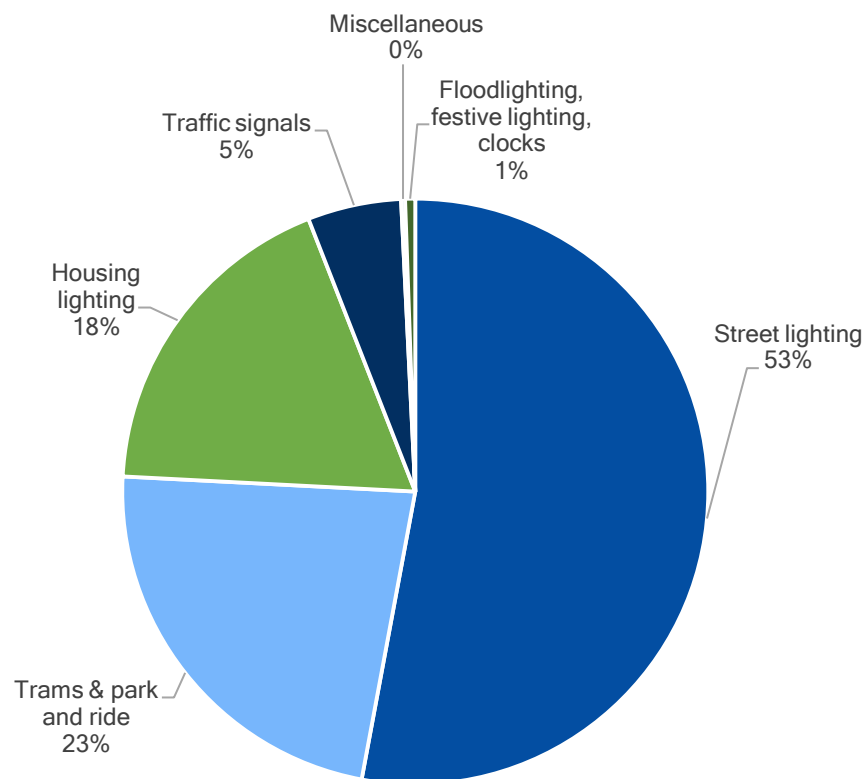


Figure 7: Breakdown of energy consumption, excluding operational buildings

²⁰ Using 2020/21 emissions factors, savings amount to more than 1,000 tCO_{2e}

The resource identified for the traffic light signals replacement is an estimate based on basic upgrade works and doesn't take into account all civil works or traffic management costs.

These costs will be partly covered by funding from other projects if traffic signals replacement is part of future active travel schemes or development works.

Table 4: Estimated impact of interventions in 2030, Other energy consumption

Interventions		Resources	tCO ₂
Street lighting LED replacement programme	LED replacement programme (completed in Nov 2021)	£24.5 m (over 3 years)	-447
Replacement of traffic light signals with LED	Replacement of 230 incandescent traffic light installations	£6.5m (estimate)	-58
Grid electricity decarbonisation	Medium decarbonisation	n/a	-7,819
Total reduction			-68%

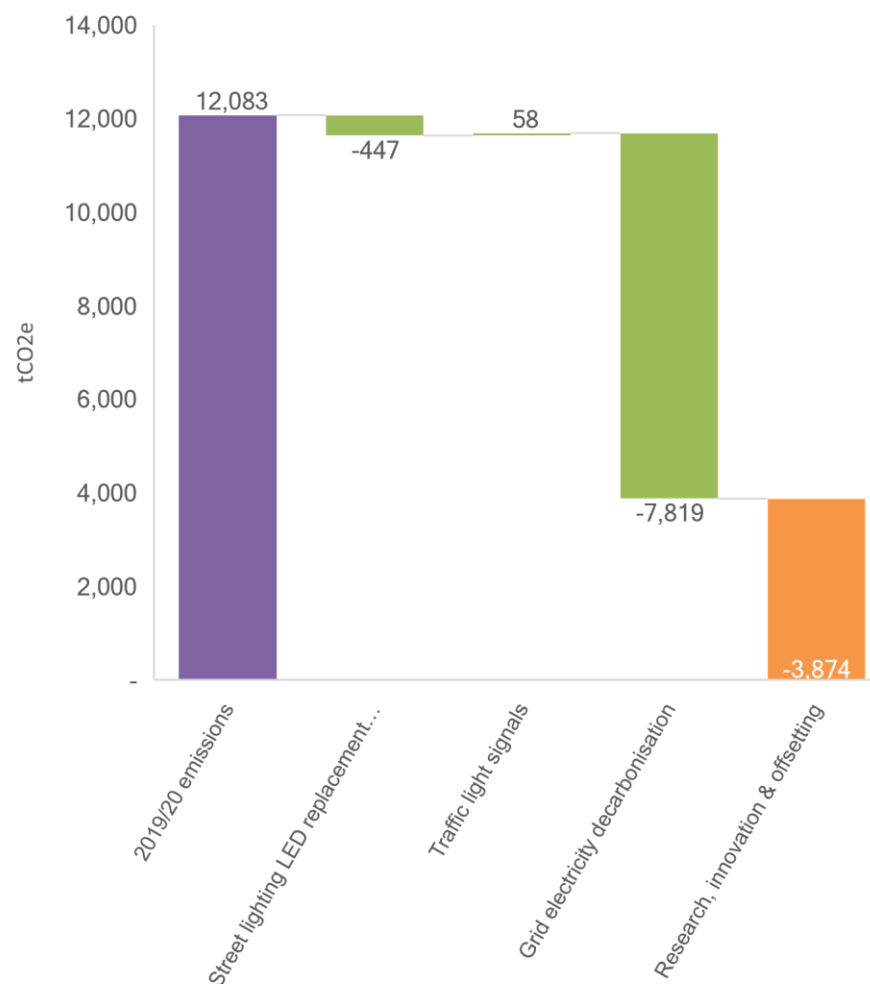


Figure 8: Estimated impact of interventions in 2030, Other energy consumption

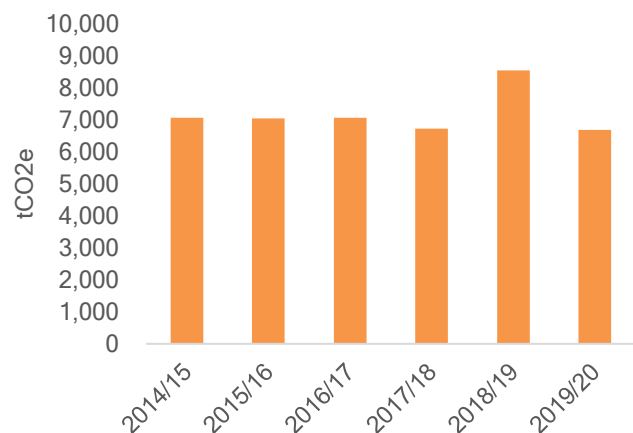


Fleet

Transport emissions are Scotland’s largest emission source and this area represents a key priority as progress has been historically very slow compared to other sectors.

Although the Council’s fleet emissions represent only 10% of the corporate carbon footprint, tackling these is critical in demonstrating that the Council is taking steps to be an exemplar organisation. However, Council fleet emissions have only decreased by 5% since 2014/15.

Figure 9: Historic fleet emissions



It is Scottish Government’s ambition that the public sector leads the way to decarbonise their vehicle fleet, as mentioned in various key documents such as the latest Climate Change Plan update²¹.

Table 5: Scotland’s Climate Change Plan update - Key announcements

Scottish Government’s ambition	Target year
Majority of new buses are zero emissions	2024
Need for any new petrol and diesel light commercial vehicles in public bodies phased out.	2025
Conditions created to phase out the need for all new petrol and diesel vehicles in Scotland’s public sector fleet.	2030
Need for new petrol and diesel cars and vans phased out	

²¹ <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/>

Strategic Approach to Fleet Decarbonisation

In acting to reduce emissions from its fleet, the Council will first act to reduce miles travelled across all vehicle types and reduce the number of vehicles required, by re-designing services and optimising routes. It will then take a phased approach to replacing remaining vehicles with low emission alternatives, focusing on electrification first and working with partners to develop the required supporting infrastructure.

Over the longer-term, an approach to very heavy fleet will be developed to take account of emerging technologies and circumstances where electrification is not a viable option. The Council will also take steps at every stage to ensure journeys are made by the most sustainable vehicle possible, including for example by e-cargo bike where appropriate.

Council programmes contributing to net zero

Electrification of the Council's cars and vans fleet will reduce fleet emissions by around 19% but will not be enough to reach net zero. Reducing mileage travelled is a cost-effective way of further reducing

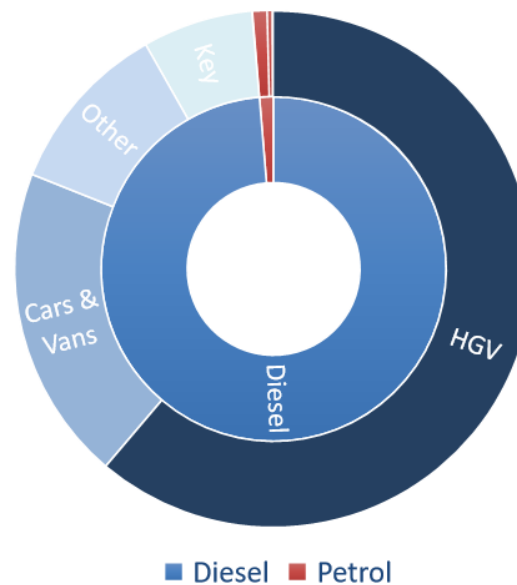
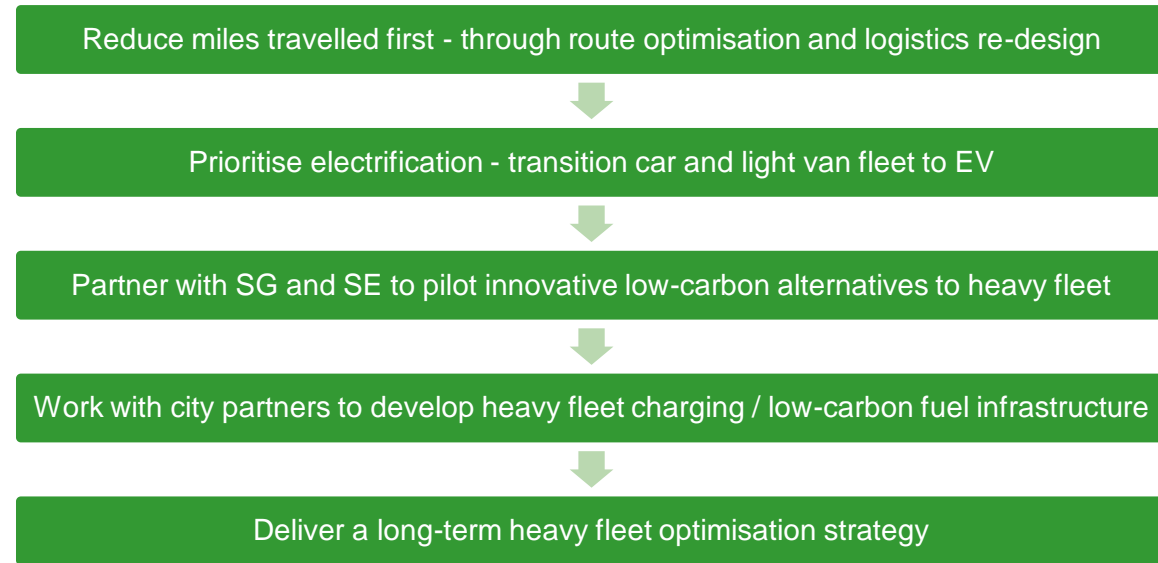


Figure 7 and Table: Main fuel users, Council fleet (2019/20 data)

	Diesel	Petrol
Cars and vans	20%	25%
HGV	62%	0%
Key	7%	70%
Other	11%	6%
Total (litres)	2,530,054	33,250

these emissions – for example, the optimisation of the communal service route (12 refuse vehicles) could reduce emissions by at least 87 tonnes of CO₂e in 2030. Route optimisation of the Council’s Passenger Operations service (75 minibuses) could also reduce emissions by a further 21 tonnes.

More than 98% of the Council’s fuel consumption is diesel, of which HGV are the largest consumers (62%), as indicated on Figure 10. To deliver net zero the Council must replace larger vehicles with low-carbon alternatives (hydrogen, electric, biofuel). Technologies are currently less developed than for cars but are developing quickly and the Scottish Government is committed to support local authorities to “green their bus, HGV and other vehicle fleets and encourage them to embrace this change” and to “continue to work to establish a Zero Emission Heavy Duty Vehicle programme with Scottish Enterprise to support innovation in the Scottish supply chain for HGVs.²²” The Council will actively pursue opportunities to participate in this work and pilot new innovations for heavy fleet.

The emissions reduction plan assumes a replacement of around half of these larger vehicles (HGV, 4x4, mini-buses, refuse vehicles etc. based on current knowledge of replacement options per vehicle type) with an increased electricity consumption should they be replaced by electric vehicles.

In addition to fleet, 70% of the petrol consumption comes from non-road vehicles such as chainsaws, lawnmowers and other equipment. The Council will bring forward a plan to upgrade these with non-fossil fuel alternatives. The carbon impact is expected to be marginal as petrol represents about 2 % of the total fuel

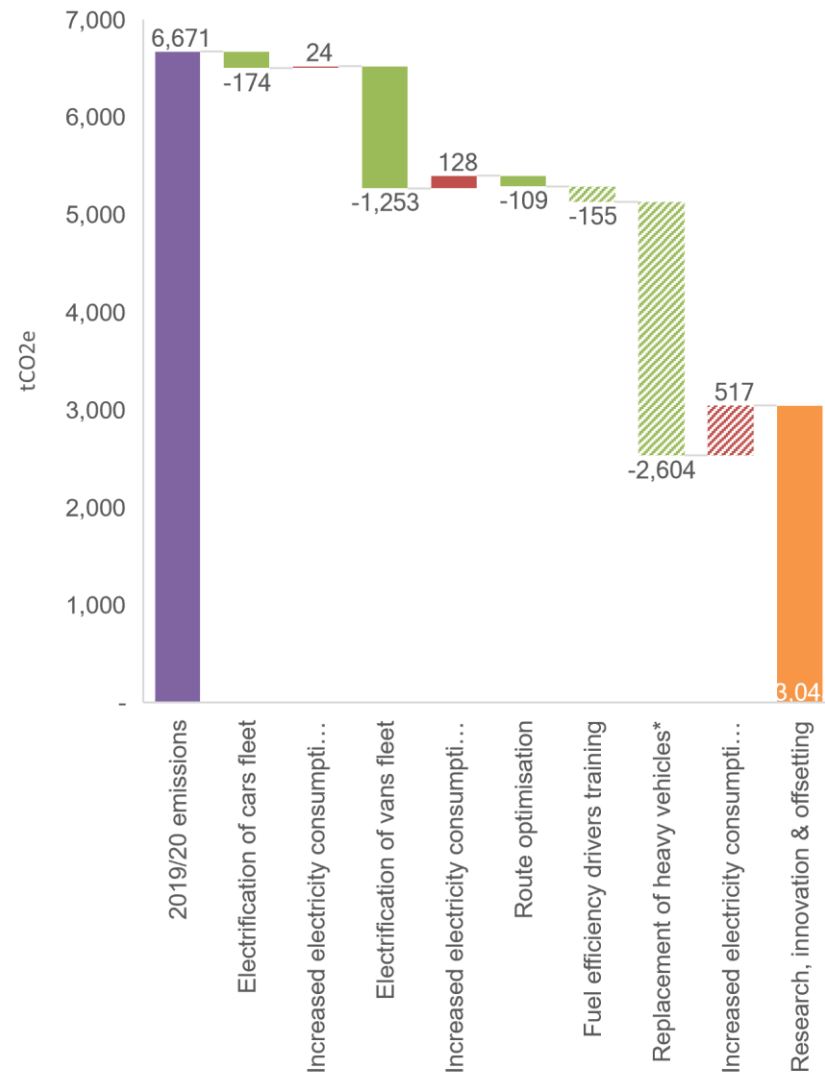


Figure 8: Estimated impact of interventions on fleet emissions

²² “Protecting Scotland’s Future: the Government’s Programme for Scotland 2019-20”. Published 3 Sep 2019

consumption but there are also safety, noise reduction and air quality co-benefits for taking action in this space.

The interventions summarized in *Table 8* could reduce fleet emissions by 54%. Remaining emissions would come from larger vehicles for which low-carbon alternatives are being explored. The phased plan presented on *Table 9* aims to close that gap while dealing with current technological uncertainties around the most adequate type of fuel for heavy vehicles (hydrogen, electricity, biofuels).

Other challenges and barriers include ensuring that mobile workers have access to charging infrastructure in their private homes, ensuring that Council locations are equipped with charging points and ensuring that the electricity grid has sufficient capacity to withstand the increased electricity demand.

Work is ongoing to cost transitioning the full fleet to low emissions vehicles and further detail will be provided in the final version of this plan. As an example, an electric Refuse Collection Vehicle (RCV) – including charging infrastructure – costs an estimated £500k. For a fully hydrogen powered vehicle, costs can be as high as £600k. This compares with costs of around £160k for a diesel RCV. For smaller vehicles, cost differentials range from £5-12k for cars and small and medium vans. Large electric vans currently cost approximately three times as much as diesel, and electric minibuses cost double their diesel equivalent.

Following work to first redesign services and routes to reduce miles travelled and therefore the number of vehicles required, a costed fleet optimisation strategy will be brought forward. The Council will explore funding opportunities to meet these costs – taking account of potential savings from maintenance (30% estimate) and fuel costs (80% estimate).

Numerous other projects such as the tram network extension to Newhaven, the introduction of a Low Emission Zone, the installation of on-street EV charging infrastructure and the City

Centre Transformation Strategy will have significant impact on city-wide emissions rather than Council emissions, hence their absence in the carbon analysis.

Table 8: Estimated impact of interventions - Committed and potential (in italic) - Fleet-related emissions

Interventions		tCO _{2e}
Electrification of cars fleet	Calculations based on 2019/20 fleet cars fuel consumption	-174
Increased electricity consumption from EV car fleet	increased electricity consumption at 0.2 kWh/km	+24
Electrification of vans fleet	Calculations based on 2019/20 fleet vans fuel consumption	-1,253
Increased electricity consumption from EV van fleet	increased electricity consumption at 0.25 kWh/km	+128
Route optimisation	Route optimisation for communal collection (12 vehicles) – 87 tCO _{2e} Route optimisation of the Council's Passenger Operations service (75 minibuses) thanks to the use of new technology could - 21 tCO _{2e} .	-109
<i>Fuel efficiency drivers training</i>	<i>Expected savings of 6% in the long term (Energy Saving Trust).</i>	-155
<i>Replacement of heavy vehicles*</i>	<i>Assuming reduction in 50% of diesel consumption from diesel, buses, 4x4 (885,000 L)</i>	-2,604
<i>Increased electricity consumption from HGV fleet</i>	<i>Increased electricity consumption at 1.15 kWh/km</i>	+517
Total reduction		-54%

Table 6: Fleet – Phased emission reduction plan

Action	
Phase 1 – 21/22	Complete 100% electrification of car fleet (2021)
	Commit to 100% electrification of light van fleet and develop a business case for implementation with HR and trades unions
	Work with city partners to explore the potential for developing a joint approach to hydrogen solutions for very heavy fleet
	Work with Edinburgh Universities to scope the feasibility and cost of utilising biofuels during transition period and for any back-up capacity required
	Work with the Energy Savings Trust to develop and implement initial route optimisation strategies, including fuel efficiency drivers' training
	Ensure new technology is resourced to allow route optimisation and real time management information for the Council's Passenger Operations service to reduce kilometres travelled and emissions.
Phase 2 – by 24/25	Re-design CEC travel and logistics services to ensure co-ordinated and efficient vehicle utilisation across the city and maximise the use of zero emission vehicles
	Work with third sector partners to pilot the replacement of business journeys by car with e-cargo bikes and roll-out training in e-cargo bike use to target staff groups
	Work with public sector partners to develop a city-wide network of EV charge points/depots to service public sector fleet, to be made available on Chargeplace Scotland for members of the public to use out-of-hours, beginning with 50 additional chargers initially, with 20% being rapid chargers
	Begin the roll out of electric light van fleet at point of life-cycle replacement of existing vehicles
	Pilot the use of two electric RCVs, subject to identification of external resources, to inform the development of a fleet optimisation strategy
	Commission support to develop a fleet optimisation strategy for transitioning the light (<3.5t) and heavy (>3.5t) fleet to appropriate zero emissions alternatives – e.g. hydrogen, identify back-up requirements for e.g. power outage, and to inform further route optimisation activity
Phase 3 - by 2030	Commit to replace equipment such as lawnmowers and chainsaws with non-fossil fuel alternatives when appropriate
	Develop a business case for implementation of a fleet optimisation strategy to transition the remaining heavy fleet to zero emission solutions that deploy hydrogen, electric, bio-fuel, hybrid and other technologies as appropriate
	Secure external funding to transition the remaining fleet to zero emissions, including bio-fuel for back-up capacity where possible



Waste

Waste emissions represented as much as 40% of the Council's carbon footprint in 2018/19. This figure dropped significantly to 8% in 2019/20, after Millerhill plant became operational, diverting most of the residual waste from landfill to the Energy from Waste facility. Waste emissions have decreased by 84% since 2014/15.

For the purposes of this plan, emissions from waste refuse vehicles are included in the fleet category.

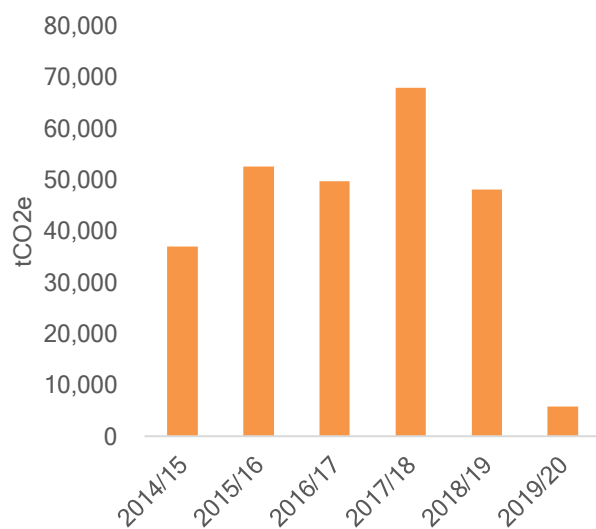


Figure 9: Historic Waste emissions

In the latest Climate Change Plan update, the Scottish Government set ambitious targets to reduce waste related emissions, as indicated in Table 10.

Table 7: Waste commitments – Scottish Government's Climate change plan update

Scottish Government's commitments	
Energy from Waste (EfW)	Consider measures to ensure new Energy from Waste plants are more efficient and how waste infrastructure can be 'future-proofed' for CCS technology.
Landfill gas	Double # of landfill gas capture sites that undertake investigative or development work by 2025 & provide funding to support this.
Reductions in waste	<ul style="list-style-type: none"> - Deposit Return Scheme by 2022 - Ban problematic single use items - Consult on a charge on single use disposable beverage cups + increase the carrier bag charge from 5p to 10p
Increased recycling rates	70% of all waste recycled by 2025 Consult on requirements to separately collect garden waste (by 2023), textiles and hazardous elements of household waste (by 2025). £70 m to improve local recycling collection infrastructure
Food waste	-33% from 2013 baseline by 2025
Biodegradable waste to landfill	Ban by 2025

Strategic Approach to Waste emissions reductions

As the Council provides the domestic waste service for the city, emissions from citizens' waste are included in the Council's carbon footprint. The Council will therefore take a two-fold approach, focusing on improving the waste collection and recycling offer to citizens, and supporting and encouraging citizens to adopt the 'reduce, re-use, recycle' hierarchy as part of promoting a local circular economy for the city.

In taking this forward, the Council will work with Scottish Government and other strategic partners to explore incentivisation models for both citizens and producers of consumer goods to reduce waste, seeking to invest savings from system changes such as the deposit return scheme in the redesign of services and use of SMART technology to improve recycling rates and service efficiency.

Council programmes contributing to net zero

The emission reduction plan considers two measures to reduce waste emissions:

- **Reduce total tonnages of waste arising** – in particular residual waste



(landfilled and incinerated), despite the projected increase in population.

- **Divert food waste from incineration to food waste recycling.** It is estimated that roughly one third of residual waste tonnages is food waste. Efforts could be targeted to ensure that this is properly sorted to be recovered through anaerobic digestion.

Reducing waste and improving recycling are in line with the waste hierarchy: “reduce,

reuse, recycle”. Actions are underway to remove single use-plastics in Council buildings and schools (by e.g. installing water coolers) and to shift to paperless working across all viable services.

Substantial reduction in paper and envelopes purchased have been achieved with carbon savings estimated at around 25 kgCO₂e/year. With most staff now working from home, these figures will increase further. Furthermore, the Council is using

Warp-it, a resource redistribution platform. Since the use of this tool in 2016, a total of 135 tonnes of waste have been saved from landfill, enabling savings of nearly £0.5M to date. This tool meets the Council's three key priorities:

- *Sustainability*, through waste reduction, diversion from landfill and fostering a "circular economy culture"
- *Wellbeing*, through the support of local groups and communities. The tool has already benefited third sector organisations and there is a potential to use this tool more widely in the city, encouraging third sector organisations and business partners to join, thus developing stronger relationships or new partnerships with other local organisations.
- *Poverty prevention and eradication*, through wider engagement with third sector organisations the potential to reuse, refurbish and redistribute high quality goods and unused items to poorer households.

It should be noted that households waste tonnages are also included in the Council's carbon footprint and dwarf the tonnages generated by Council buildings. Council-specific projects have a negligible impact on overall waste tonnages collected by the Council and are not illustrated on the waterfall chart on the following page (*Figure 13*)

However, Council based initiatives are cost-effective and key to supporting the Council's city leadership role, including in acting as an exemplar organisation in reducing its own emissions.

Projects that aim to reduce household waste tonnages and increase recycling are:



Communal Bin Review: Programme to review current bin locations and enhance capacity for recycling across all streams but in particular food and glass.



Waste Prevention activities: Pilot to improve segregation of materials for reuse at one or more household waste recycling centres



Food waste campaigns: Campaigns to encourage uptake of household food waste collection



Deposit Return Scheme: The UK and Scottish Governments are developing a deposit return scheme for selected drinks containers. This means that those containers are likely to be significantly diverted from Council waste and recycling streams. Recycling of these materials is expected to increase but will no longer contribute to local authority waste performance.

There are considerable areas of uncertainty in the coming years as a result of legislative changes in the waste arena which make setting targets very challenging. Future improvements are likely to rely heavily on

changes to consumer behaviour, development of new recycling markets, and changes to legislation which are either likely to have less impact than the changes undertaken to date or fall outwith the Council's control.

For example, the UK and Scottish Governments are reviewing the extended producer responsibility (EPR) legislation around packaging waste and potentially other waste streams such as mattresses. These are expected to support an overall reduction in carbon emissions but the impact of these and the scope of the latter are currently unknown.

As with the deposit return scheme, materials which are collected through retailer takeback will not count towards local authority performance measures. Furthermore, the increase of home working during the pandemic has led to an increase in the amount of household waste arisings. Although there is still no visibility around working patterns post-COVID, this trend is expected to continue after the pandemic, leading to an increase in emissions versus baseline. This will be addressed in the final plan when it is published in October.

A phased action plan is summarised in *Table 12* and includes the key milestones for the waste and cleansing services to reduce emissions. Significant resources are in place to support early actions on improving the service offer in high-density areas of the city and to carry out initial re-design work to reduce the number of vehicles required. For example, the Communal Bin Review budget amounts to £5 million.

The later stages of the phased action plan are subject to successful bids to the Scottish Government’s Recycling Infrastructure Fund. It is also anticipated that the Extended Producer Responsibility (EPR) for packaging materials will represent a potential source of funding towards a fundamental re-design of local authority waste collection, but the exact shape and scale of this is not clear yet. However the costs are likely to be significant with the use of smart bin sensors, for example, estimated to require £3 million²³ of capital investment with a spend to save return on investment period of eight years.

Waste is likely a sector where residual emissions will be impossible to fully eliminate as even if 100 % of waste tonnages were recycled or composted, emissions would be generated during the process. As such, it is technically impossible

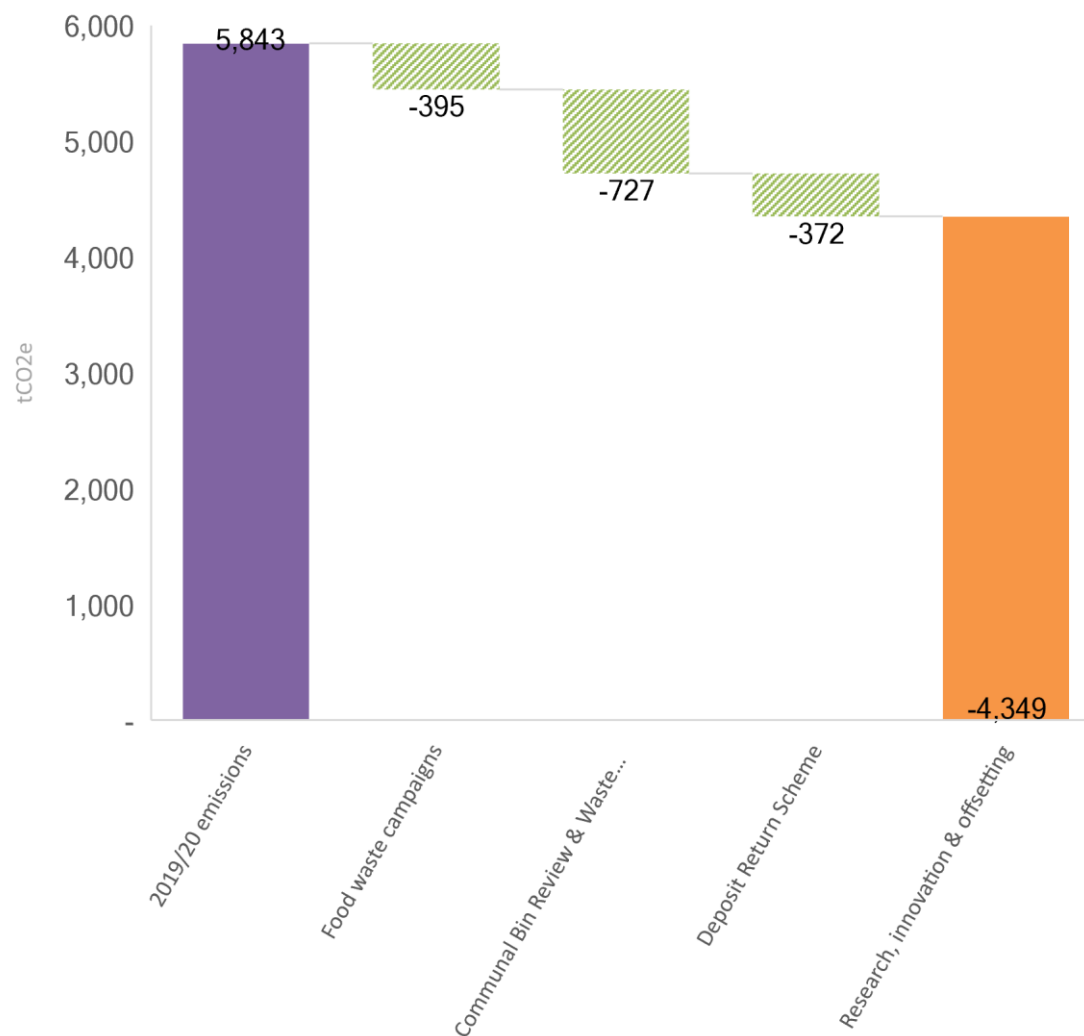


Figure 10: Estimated impact of interventions on Waste emissions

²³ Based on 11,000 bin sensors and 500 homes sensors. These costs can be partially funded by ERDF (£1.3 m)

to fully eliminate the orange bar on *Figure 13*, and this sector will probably rely on offsetting, reemphasising the need for other sectors to achieve larger reductions.

Table 8: Estimated impact of interventions - Waste-related emissions. Note that carbon savings are based on working assumptions.

Interventions	Working assumptions	tCO_{2e}
<i>Food waste campaigns</i>	Assuming current food waste tonnages in residual waste bins is reduced by 80% and recycled (AD) instead.	-395
<i>Communal Bin Review and Waste Prevention activities</i>	Assuming 10% reduction in incinerated waste, 5% reduction in landfilled waste Achieved thanks to waste prevention activities and communal bin review.	-727
<i>Deposit Return Scheme</i>	Assuming that 17 kt of waste will be diverted from Council waste collections and collected by the scheme instead. Rough estimate based on ZWS model.	-372
Total reduction		-26%

Table 9: Waste - phased emission reduction plan

Action	
Phase 1: by 22/23	Provide additional communal re-cycling bins for high-density properties over the next two years to deliver an increase in communal re-cycling bins across the city (Completed by 2023)
	Implement routing changes for kerb-side food waste collection to support reduction of the fleet by two vehicles
	Deliver an awareness raising campaign to encourage citizens to reduce, re-use and recycle (2021/22)
	Work with the third sector and Scottish Government to explore incentivisation models for increasing re-use and recycling of bulk items (2022/23)
	Improve the recycling infrastructure in schools and explore options to enhance facilities management capacity to support its use to divert further waste towards recycling as opposed to recovery (2021/22)
Phase 2 – by 24/25	Improve the city’s domestic recycling infrastructure through expanded household waste recycling facilities and capacity, and the use of smart technology such as RFID tags, bin sensors, near-field communication and smart phone apps, subject to successful bids to the Scottish Government Recycling Infrastructure Fund (2025)
	Review dry mixed recycling contract specifications at point of expiry to identify opportunities for requiring contractors to extract more value from materials (2025)
	Review the impact of the Extended Producer Responsibility and Deposit Return Scheme on the city’s domestic waste service requirements and bring forward service redesign proposals which ensure that at least 50% of any savings are re-invested in further actions to reduce the Council’s emissions
Phase 3- by 2030	Implement a new waste plan to deliver re-designed waste services that maximise the use of new and emerging technologies and are responsive to the changed needs and working patterns of the city post-Covid.



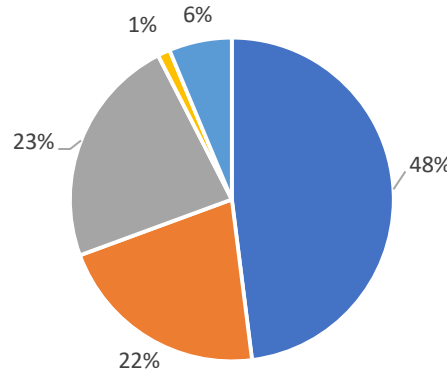
Business Travel

Business travel accounts for around 3% of the Council's footprint. It does not include employees' commuting to work, which appears in the transport section of the city's footprint. There are significant financial, health and wellbeing benefits associated with staff shifting from cars and taxis and in particular, to active transport such as walking and cycling for both business travel and commuting.

The Council has several schemes in place to support staff in making more sustainable transport choices, many of which have the potential to support shifts in both commuting and business travel behaviour. However, the travel data presented in this plan relates to business travel only, for the purposes of focusing on the emissions within the Council's organisational footprint.

Figures 14 and 15 show the Council's emissions from business travel broken down by transport type and by year.

The Council's business travel emissions have increased by 64% in the four years since 2016 and are 19 % higher than 2014/15 levels, mostly due to an increased use of black cabs. Data on trains and flights have only been available since 2019/20 and trend information will be available in future years, with lockdown restrictions from early 2020/21 expected to

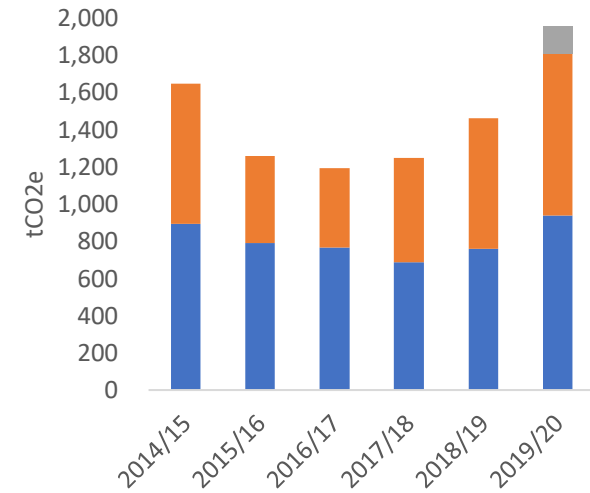


- Average Car - Unknown Fuel tCO2e
- Taxi (black cab) tCO2e
- Taxi (regular) tCO2e
- Rail (National rail) tCO2e

Figure 1411: Breakdown of business travel emissions

lead to a significant drop in these emissions.

At present, almost half (48%) of business travel emissions come from 'grey fleet mileage' where staff use their own car for business travel and claim back mileage costs), followed by taxis at 45%, with the majority of use relating to service provision by Health and Social Care and Communities and Families – for example transport for vulnerable adults or children with additional support needs. Grey fleet mileage also predominantly comes from these two directorates (88%) and from Place Management (17%, mostly in



- Grey fleet mileage
- Taxi
- Trains and flights

Figure 15: Historic business travel emissions

connection with inspection activities and site visits).

The Council's Business Travel and Accommodation Guidance requires staff to quantify and consider carbon emissions when choosing transport and to prioritise low emission modes. At the end of 2019, the Council agreed to review the guidance to consider extending its scope to Elected Members, but this has been delayed by the impact of Covid and travel by both Elected Members and staff has been significantly reduced during lockdown.

The guidance will now be reviewed and brought to Committee in October, alongside the final draft of the Council Emissions Reduction Plan.

Strategic approach to business travel

In acting to reduce emissions from business travel, the Council's approach is to adopt a 'sustainable first' model - whereby business travel policies, procedures, guidance and benefit schemes are centred around a sustainable travel hierarchy (Figure 16), and infrastructure and facilities are improved to make sustainable choices easier.

To build on these foundations, the Council will then bring forward a new travel and logistics service to support citizen's needs and reduce miles travelled by private car or taxi in connection with service provision and support.

To maximise the impact of all these measures, the Council will also focus on enabling activity, including staff engagement and awareness raising to encourage business travel behaviour change.

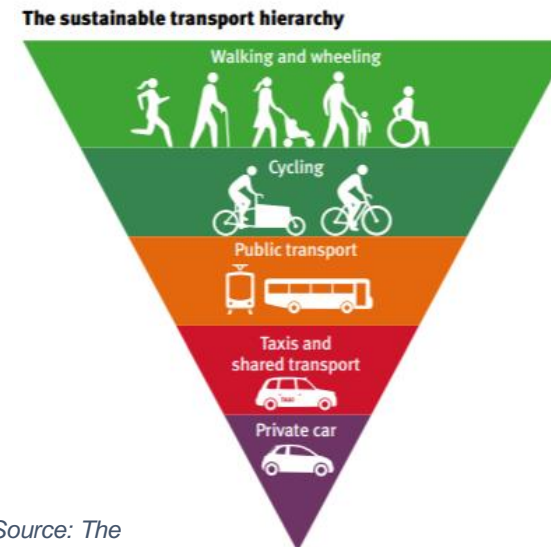
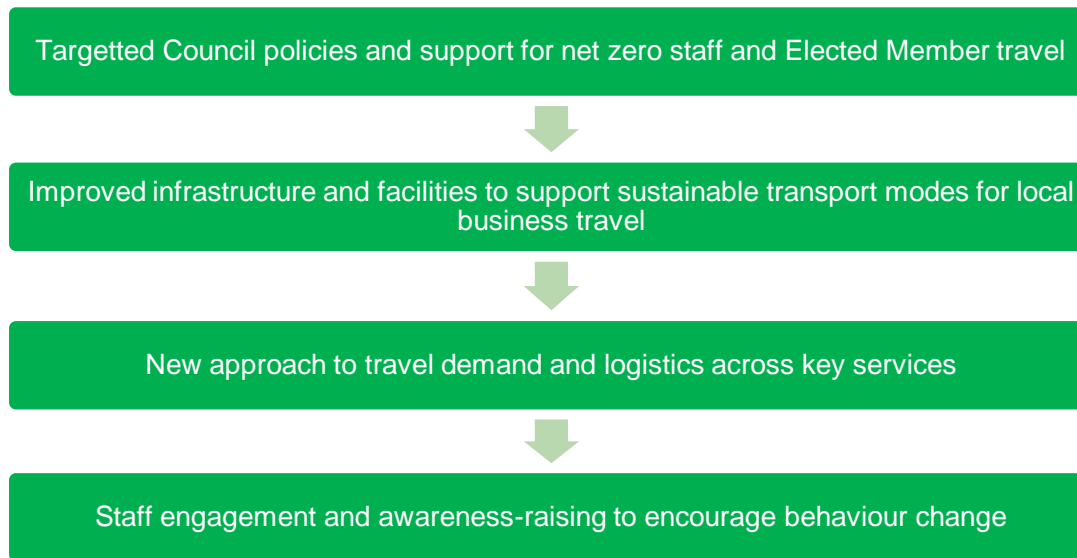


Figure 12: Sustainable transport hierarchy. Source: The City of Edinburgh Council - City Mobility Plan 2021-2030

Council programmes contributing to net zero

Supporting employees to make more sustainable transport choices in both their personal and professional lives is a key priority and the Council has recently put in place a number of new staff benefits schemes which will help facilitate this, including:



The extension of the cycle to work scheme from £1000 to £3000, which will allow employees to purchase electric bikes and make cycling an attractive option for a larger number of staff.



The new green car scheme, which will help employees to purchase electric vehicles and contribute to reducing grey fleet emissions, and to a larger extent, city-wide emissions.

In addition to these staff benefits schemes, employees also have access to pool bikes for business travel. Furthermore, supporting employees to work from home and make use of video conferencing is likely to help reduce grey fleet mileage, with these benefits continuing if home working persists at an increased level following the removal of current lockdown restrictions. Homeworking will be addressed as part of the Council's recovery plans and will be reflected in the final version of this emissions reduction plan.

The emissions reductions illustrated at *Figure 17* (p33), plus further emissions reductions which it is not currently possible to carbon cost, will be delivered through a phased emission reduction plan, set out at *Table 14* (p 34). The plan aims to build on current good practice, increase capacity, and engage staff in Phase 1; focus on service re-design and infrastructure development in Phase 2; and cement the use of electric vehicles in Phase 3.

A 50% reduction in grey fleet mileage has been assumed and this will be revisited in future years in light of current work on travel and logistics planning and redesign. Interventions that cannot be carbon costed but will contribute to reducing the emissions represented by the orange bar in *Figure 17*, include the revision of the use of Council parking spaces, the revision of the Council business travel policies, or the staff engagement programme.

In addition to the above actions, the work that the Council is doing around mobility with the City Plan 2030, the City Centre Transformation and the City Mobility Plan which put pedestrians at their core through the 20-minute neighbourhood model, aims to ensure the right infrastructure is in place to encourage business travel as well as commuting to be done on a sustainable way.

Lastly, this area of the footprint is heavily reliant on behaviour change and this will be supported by campaigns and work to develop carbon foot printing apps, as detailed in the Staff Engagement section of this plan.

Table 13: Estimated impact of interventions - Committed and potential (in italic) – Business travel-related emissions

Interventions		tCO _{2e}
<i>Reduction in grey fleet mileage</i>	<i>Reduction of 240,000 car km per year. Grey fleet mileage halved in 10 years - more use of fleet cars and more video conferences</i>	-485
<i>Use of electric taxi rather than diesel</i>		-870
<i>Increase in electricity consumption from electric taxi</i>		+89
<i>Reduction in number of domestic flights</i>	<i>60% reduction (less travel overall and train instead of plane)</i>	-25
<i>Reduction in number of short haul flights</i>	<i>20% reduction</i>	-7
<i>Reduction in number of long-haul flights</i>	<i>20% reduction</i>	-9
Total reduction		-67%

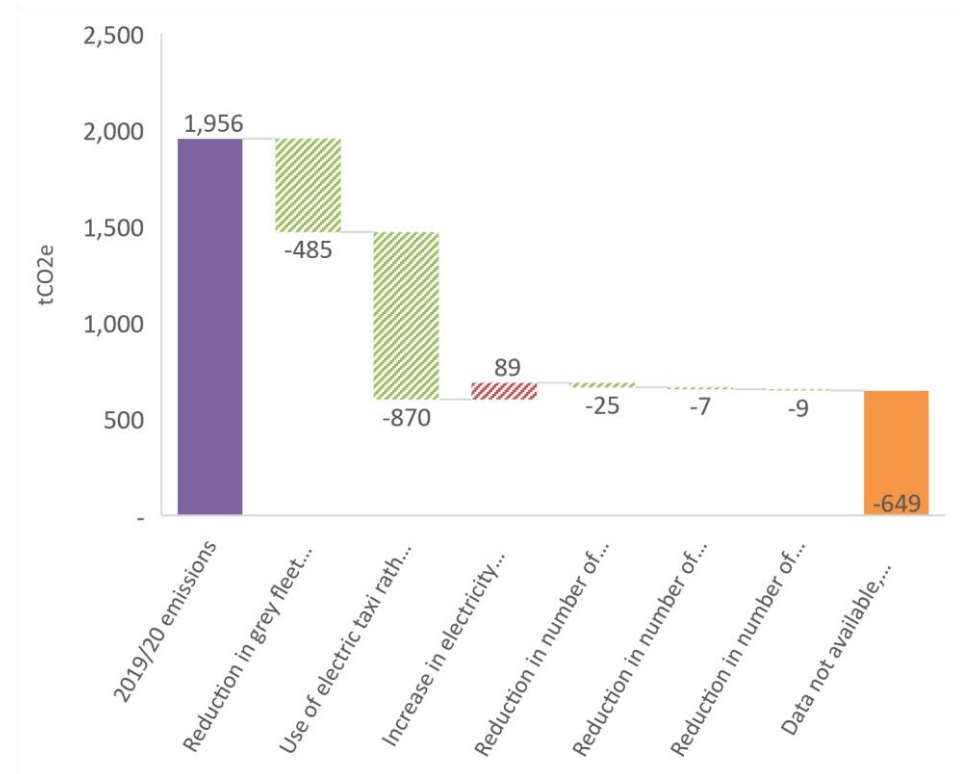


Figure 13: Estimated impact of interventions on business travel emissions

Table 104: Business travel - phased emission reduction plan

Action	
Phase 1: 21/22	Review Council business travel policies, procedures and guidance to ensure they are centred around a sustainable travel hierarchy that takes account of employees' operational base location and incentivises staff to consider the most sustainable mode of transport first. (Oct 2021)
	Re-establish Transport Allocation Panels to support citizens' needs and reduce miles travelled by private car and taxi in connection with service delivery
	Finalise a Sustainable Staff Travel Plan and create a new corporate Sustainable Travel Officer post, funded by Paths for All through the Smarter Choices, Smarter Places programme, to oversee its implementation and monitoring and explore additional grants to support improvement of active travel facilities at council sites.
	Deliver a staff engagement programme to raise awareness of new staff travel plan and policies, and encourage uptake of staff benefit schemes supporting sustainable transport modes; subject to Covid restrictions, to events such as Dr Bike sessions, ebike pools and sustainable transport subsidies.
Phase 2: by 24/25	Re-design the myTravel booking system to support the new Sustainable Staff Travel Plan and sustainable travel hierarchy
	Review the designation and use of Council parking spaces to encourage more sustainable transport choices
	Commit to phasing out air travel for business as part of an integrated approach to digital innovation in public sector strategic and operational delivery
	Work with third sector partners to pilot the replacement of business journeys by car with e-cargo bikes and roll-out training in e-cargo bike use to target staff groups
	Ensure the Active Travel Action Plan and Investment Programme delivers an active travel infrastructure which supports modal shift for business travel
Phase 3: by 2030	Deliver an EV charging infrastructure that takes account of grey fleet travel routes and demand to support the decarbonisation of grey fleet journeys
	Commit to 'EV only' for business travel by taxi



Staff Engagement

It is estimated that 16% of carbon savings identified in this report will require some degree of behaviour change:



Staff and school students saving energy at school and in public buildings.



Staff and Elected Members reducing the amount of flights they take.



Staff and Elected Members choosing sustainable travel modes when travelling for business.



Residents reducing the amount of waste they generate and recycling more.

Colleague engagement and empowerment is at the heart of our approach to

sustainability. Whilst it is challenging to quantify the impact of individual engagement activities on Council emissions, behaviour change is a key contributor to reaching the Council's 2030 net zero target, even more so for the City target.

Educating, informing and engaging colleagues on the implications specific actions and behaviours can have on Council and city emissions, will empower individuals to make informed choices and take action within the workplace and at home.

The proposed staff engagement programme presented on *Table 15* includes an objective to roll out 'Climate Literacy' training to 2,250 employees by 2025.

It is recommended that £40,000 of the £300,000 sustainability fund allocated within the Council's 2021/22 revenue budget be allocated to roll out a climate literacy programme. In addition to contributing to the Council's 2030 net zero

target, this training would also support the Council's learning and development objectives outlined in the new People Strategy (2021-2024) and the Workforce Plan which underpins it.

This programme also contributes to meeting the Council's commitments as a signatory to the Edinburgh Climate Compact (*Appendix 2*); specifically, to:

- Roll out climate literacy for staff, including the management team as a minimum
- Promote, support and enable employee choices and behaviours to contribute positively to a net-zero future.

Table 115: Staff Engagement programme

Phase	Action
Phase 1: 2021-22	<p>Sustainability Network: Collaborative network to harness existing assets and resources for members to enable teams to become more sustainable. Support promotion of best practice across council workstreams.</p>
	<p>Climate lunch and learns: Raising awareness and encouraging action on key issues, such as sustainable staff travel and waste reduction (Organise eight climate lunch and learns per year)</p>
	<p>Supporting colleagues to reduce emissions from energy and waste in the workplace: Promoting and encouraging re-use, repair and recycling.</p>
	<p>Awareness and engagement around procurement strategy: Support, decision making and scrutiny and enable to make informed choices and act on issues which help to reduce the council's emissions</p>
Phase 2: 2022-26	<p>Climate Literacy training for elected members and colleagues: Support, decision making and scrutiny and enable to make informed choices and act on issues which help to reduce the council's emissions</p> <p>Aim to train approx. 15% workforce, 2,250 employees by 2025.</p>
	<p>Carbon tracking app for colleagues: Our consultation and engagement work over the last year has made clear that people often do not understand their carbon footprint or the relative carbon value of the alternative 'choices' they have. This would support, decision making and scrutiny and enable individuals to make informed choices and act on issues which help to reduce the council's emissions. It would also build an understanding of work-based behaviours that could be supported to change with targeted organisational incentives or smart/digital reform. Aim for a 15% workforce adoption by 2025.</p>
Phase 3: by 2030	<p>Encouraging staff modal shift from vehicle use to active travel: Delivery of 20-minute neighbourhood hubs in communities will support inter-service commuting, by foot, bike or public transport.</p> <p>Promotion of Council Pool Bikes, Bicycle Mileage allowance and Cycle to Work scheme for short business trips to help reduce pollution and reduce the number of cars used in central Edinburgh and in other areas of the city.</p>



Procurement and Circular Economy

The annual Scottish public procurement spending power amounts to £11 billion and has a critical role to play in the climate emergency response. Emissions from purchased goods (i.e. 'consumption-related' emissions) are not included in the Council's carbon footprint, insofar as they are generated out-with the city's territorial emissions boundary. The calculation of procurement-related emissions is complex, and we are working with partners to understand these emissions better. The City Net Zero Strategy will still seek to address these emissions by including strategic action on developing a more circular economy within the city and shortening and decarbonising supply chains.

The Council has an established internal Sustainability Board which meets monthly to coordinate and prioritise an accelerated reduction in climate emissions, and the procurement team is represented on this board. The Council is a member of the Scottish Government Procurement and Climate Change Forum whose aim is to work towards the Government Commitment to mobilise the £11 billion of annual public procurement to support our climate emergency response. This includes consulting on legislation to require public bodies to set out how they will meet

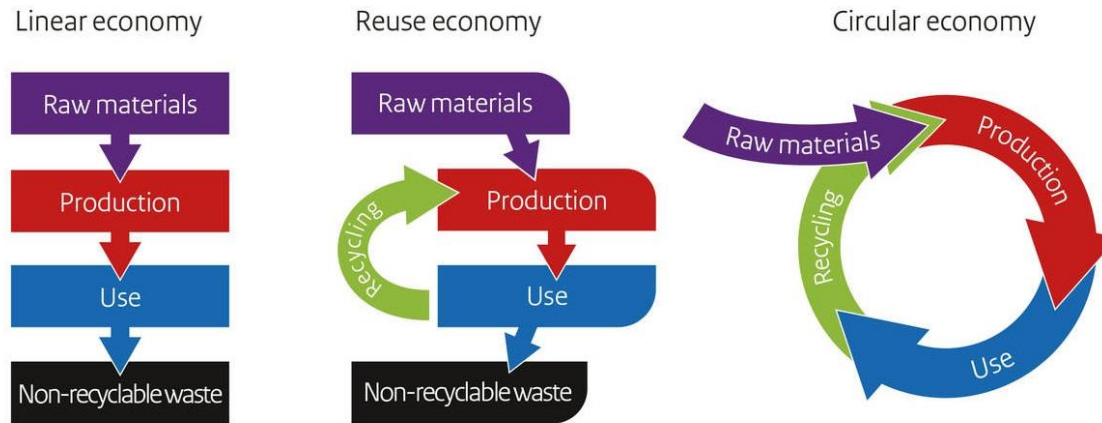


Figure 14: Explainer - from Linear to Circular economy (Source: <https://www.government.nl/topics/circular-economy/from-a-linear-to-a-circular-economy>)

our climate change and circular economy obligations and to identify and/or commission targeted activities or work streams which will help influence and empower our buyer, supplier and key stakeholder communities. The Council has also been working closely with the Scottish Government's Sustainability Team and Zero Waste Scotland to look at embedding the circular economy in Council practices.

The Council's new Sustainable Procurement Strategy, introduced in March

2020, puts sustainability at the heart of the procurement programme for the next five years and aims to contribute to the city's 2030 target.

The Council's procurement activity directly supports the delivery of Council services, and key Council projects and energy efficiency and carbon reduction is central to initiatives, such as the delivery of new Certified Passivhaus housing and schools, the retrofitting of existing Council estate, replacement of more energy efficient street

lighting and provision of EV charging points, improved public transport and cycling initiatives as well as pedestrian initiatives such as the George Street transformation and a collaborative House building framework with emphasis on highly energy efficient homes.

As a signatory of the Edinburgh Climate Compact, the Council has committed to engaging with the supply chain to drive emissions reduction (*Appendix 2*). This is embedded in the Council's Sustainable Procurement Policy which strives to ensure that "Edinburgh has a more sustainable supply chain".

The Sustainable Procurement Policy and objectives are addressed within every procurement plan (including a mandatory sustainability risk assessment of procurement projects), which is at the start of each procurement process. Thus, the policies and Council commitments build awareness and are discussed with stakeholders.

Sustainability is used as selection and award criteria, where for example the use of electric vehicles or local suppliers to reduce transport emissions are encouraged and scored accordingly. The Council is also working with fleet suppliers to ensure they have carbon neutral

commitments and specifying ECO 6 standards on new vehicles and a move to hybrid/electric vehicles.

The Council grant funds a number of organisations which as part of the circular economy commitment refurbish and repair items such as IT equipment and provide these items to those households most in need. It also funds organisations providing carbon reduction advice and promoting behaviour change in schools, organisations and to individuals.

In accordance with the Scottish Government's SPPN²⁴ 1/2021 "Taking account of climate and circular economy considerations in public procurement", the Council is working with a wide range of markets to stimulate the development of the circular economy and develop low emission supply chains and solutions for example in the Council's Hard Facilities Management the Council has worked with Zero Waste Scotland to develop the specification and evaluation documents to embed sustainable development aspirations in the service. Section 28 of the SPPN makes clear that there is a shared accountability with senior leaders and budget holders to engage early in the planning and development stage of the process with the Council's Commercial

and Procurement Services (CPS) on decisions as to whether to buy, what to buy and how to buy allowing sustainability and carbon emissions to be considered at this early stage.

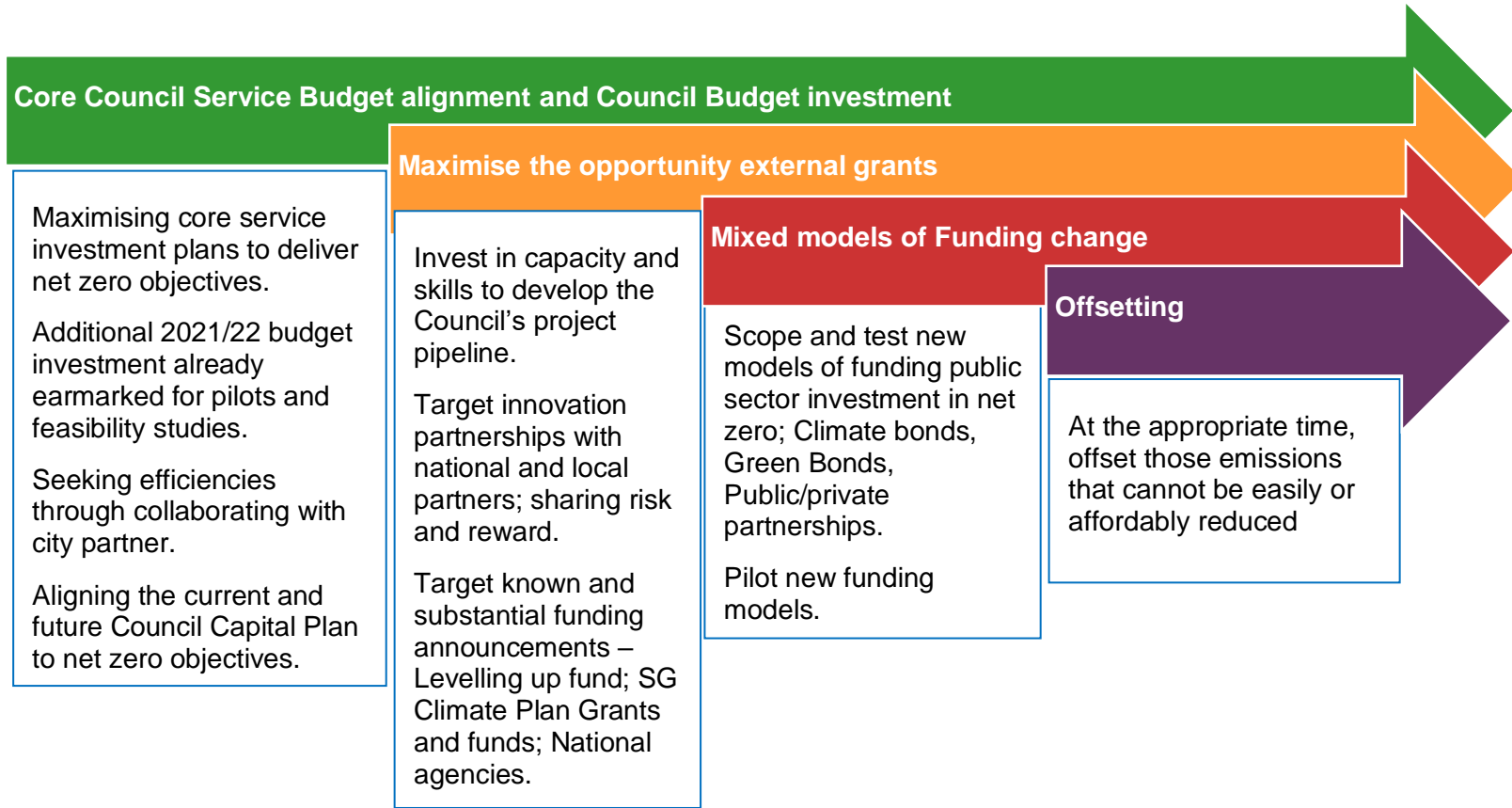
The Warp-it platform mentioned earlier also contributes to embedding circular economy principles within the organisation.

²⁴ Scottish Procurement Policy Note. SPPN provide advice to public sector

organisations and other relevant bodies on procurement policy



Investment Plan



Becoming a net zero organisation will have significant capital and revenue implications for the Council, and the Council will re-visit these annually through its budget processes, as further carbon and cost analysis of proposed projects and programmes is undertaken.

This first draft Council Emissions Reduction Plan is presented to set out the proposed strategic direction for addressing the Council's major emission sources and the current and proposed actions the Council will take. The final draft will include a detailed investment plan setting out funding requirements to inform the

Council's budget process, and the external funding streams to be targeted.

In developing its approach to investment, the Council will focus on investing in readiness through work to understand the projects and programmes that will deliver the greatest emissions reductions; carrying out feasibility studies and developing pilots

to test delivery models; and then scaling and accelerating delivery towards net zero across all Council emissions.

Wherever possible, programmes will be developed jointly with key public sector partners to achieve economies of scale and secure maximum co-benefits – for example through job creation from operational estate retrofit. This will be reflected in the City Net Zero Strategy due to be published in October.

Across all activity, the Council will seek to maximise external funding and revenue generation opportunities. We will work with Scottish Power Energy Networks to align their investment in the grid with the Council's plans, in order to support lower energy costs, maximise opportunities to return locally-generated energy to the grid, and secure income generation in support of increased spend-to-save initiatives.

There is also significant opportunity to increase capital and revenue resources through external funds, with several additional funding streams to support the transition to net zero recently being announced. These are detailed at Appendix 3 and include, for example Green Growth Accelerator; Solar PV Fund; Green Jobs Fund.

A new Funding Development Officer post is being sought to provide dedicated capacity for identifying funding

opportunities and co-ordinating the development of bids. This will help ensure the Council is able to access the additional resources required to invest in readiness and ensure the Council is well-placed to draw down additional resources as soon as new funding streams are announced. This will be funded from the £300,000 set aside by the Council in this year's budget to support the work of the Council Emissions Reduction Plan and the City Net Zero Strategy

In the interim, the Council has brought forward an additional £500,000 in 2021/22 to support additional feasibility work across its operational estate, which accounts for the greatest portion of Council emissions. This is in addition to £100,000 previously identified and will be used to expand and accelerate work to establish which approaches to energy efficient retrofit will deliver best value across the many differing building types which comprise the Council's estate.

The results of this work will then inform bids for external investment to support targeted retrofit pilots within a range of building types to both secure emissions reductions and inform the roll-out of further retrofit works across the wider estate. Further details are provided in the Energy chapter of this plan on *p9*.



Offsetting

The scale of the net zero challenge is such that it is very likely some residual emissions will remain, for example from waste management or from electricity as it is likely the grid will not be fully decarbonised by 2030. Therefore, the Council will need to identify and agree strategies for achieving net zero by balancing these residual emissions with carbon uptake activities (for example the purchase of offsets).

Spending on projects that reduce emissions as much as practically achievable should always be prioritized and offsetting should be used as a last resort. In this case, it is recommended that the Council should not rely on international offsetting and should aim for offsets that are as local as possible.²⁵

About three million mature trees would be required to offset the Council's total emissions in 2019/20. That would represent four times more trees than the City currently has. Thus, an offsetting strategy that would rely on tree planting only would require a lot of space, and in an urban location, opportunities for local offsets of this type are limited for both the Council and city partners. Therefore,

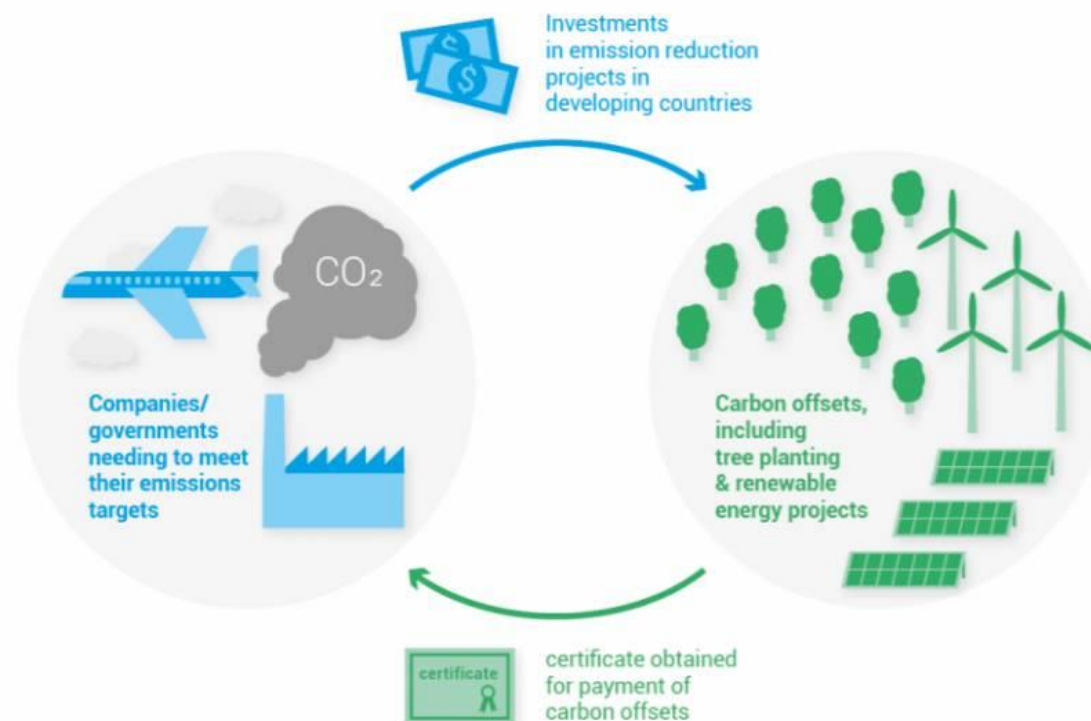


Figure 15: Explainer of carbon offsetting. (Source: <https://www.unep.org/news-and-stories/story/carbon-offsets-are-not-our-get-out-jail-free-card>)

according to the Royal Society, the best is to use a portfolio of approaches.

Furthermore, there is a need to consider if or when off-setting may be appropriate -

for example, where further emissions reductions would be technically possible, but would come at significant financial

²⁵ [SSN, Offsetting – its Role in the Roadmap to a Net Zero Carbon Scotland 2045](#)

cost- with this requiring careful consideration.

Therefore, it is recommended that the Council develops a policy position, strategy and budget for off-setting that clarifies when off-sets would be used and which quality principles must be met, including the standards of verification that will be applied.

Approaches to offsetting at the city level and will be consulted upon as part of the 2030 Net zero Strategy consultation before being brought back to the Policy and Sustainability committee for further consideration prior to the strategy publication in October. Any Council organisational approach to off-setting will need to consider and be informed by the city-wide approach and it is recommended that the Council's approach to off-setting is given further consideration by Committee in October.



Governance

The organisational chart at *Figure 20* illustrates the governance structure that will provide political oversight, strategic direction and delivery capacity for this plan to ensure it meets its overall objective of the Council becoming a net zero organisation by 2030.

The Policy and Sustainability Committee has responsibility for formally adopting this plan as the Council's Emissions Reduction Plan and will provide political oversight and scrutiny of progress. Progress will be reported to this Committee annually in autumn and will be accompanied by the Council's statutory Public Bodies Duties Annual Report, which will detail the Council's emissions for the previous financial year. Further detail is provided in the 'Performance Monitoring and Reporting' section below.

The Sustainability and Climate Emergency All Party Oversight Group (APOG) will act as a political sounding board and ensure Elected Members are able to engage in the development and review of the plan in more depth, and to explore any challenges relating to its delivery in collaboration with relevant officers. The APOG will receive bi-annual updates on progress and may wish to focus in on aspects of the plan on a thematic basis.

The Sustainability Board will provide strategic oversight and have operational accountability for the plan's delivery, the development of future iterations, and the coordination of wider Council projects and programmes in support of the plan's aims and objectives. The Sustainability Board will receive regular updates on progress and will have a specific remit for ensuring Council plans, strategies, and budgets, support the Council's ambition of becoming a net zero organisation by 2030.

The Corporate Sustainability Team will provide policy co-ordination and support, working with relevant service area leads to ensure the plan's delivery. The team will also lead and co-ordinate annual progress reporting and be responsible for ensuring the Sustainability Board, APOG and Policy and Sustainability Committee are provided with appropriate updates and officer support. The team will work with service area leads to support the development of further interventions to reduce the Council's emissions and will co-ordinate the refresh of the Council Emissions Reduction Plan as appropriate.

Service area leads will provide support to ensure delivery of service commitments within the plan, and lead the development of further actions, working with the

Corporate Sustainability Team to ensure the Sustainability Programme Board is provided with the information required to fulfil its strategic oversight function.

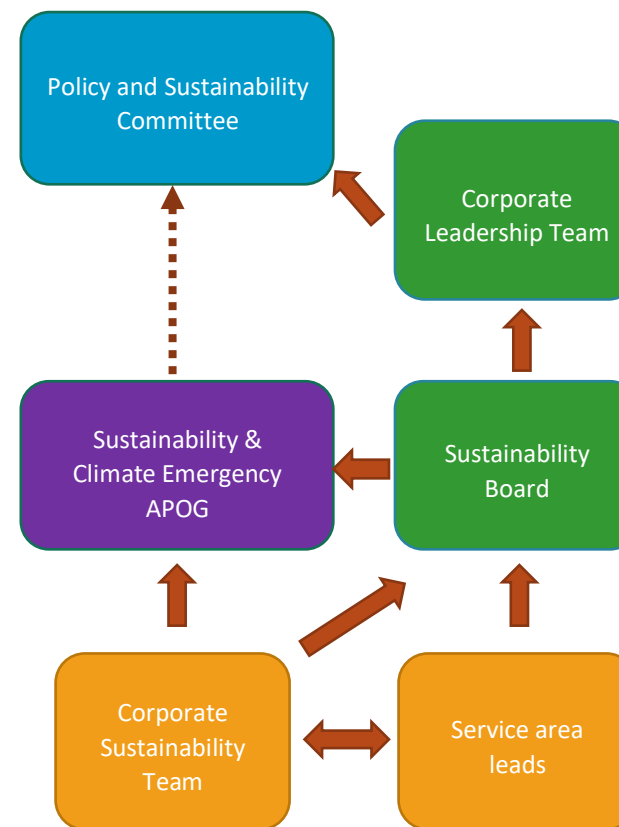


Figure 16: Council's Sustainability Governance structure. (Purple: Political oversight, Blue: Strategic oversight, Orange: Delivery)



Performance monitoring and reporting

The Council will continue to publicly report its organisational emissions annually to the Scottish Government through the Public Bodies Climate Change Duty Reporting (PBCCD).

The Council also participated in the Carbon Disclosure Project (CDP)²⁶ for the first time in late 2020. CDP is an international non-profit organisation for companies and cities' environmental reporting organisation. It is the largest climate change-focused data collection and assessment programme in the world.

Table 126: Reporting Calendar, Council emissions

Report	Key dates	Schedule
Carbon Disclosure Project	July 2021	Annual
Public Bodies Climate Change Duties report	November 2021	Annual
Council Emissions Reduction Plan Annual Progress Report	October 2021 - Finalised plan November 2022 - Report against the actions laid out in the phased action tables in each chapter November 2022.	N/A Annual
Council Business Plan report	<i>A report on the Planning & Performance framework will be submitted to Committee in June and will confirm frequency and publication dates</i>	

²⁶ <https://www.cdp.net/en/cities>

In 2020, almost 1,000 cities, states and regions across the globe reported through the CDP-ICLEI Unified Reporting System, including 33 local authorities in the UK (*Figure 21*).

The reporting arrangements for the monitoring of Council emissions are listed in *Table 16*.



Figure 17: Map of UK local authorities who reported through the CDP-ICLEI Unified Reporting System in 2020.

Appendix 1: Council organisational carbon footprint boundary

Scope 1		Scope 2		Scope 3		
Transport		Electricity consumption	Bus stations, tram stops, substations, cabinets and Park & Ride	Electricity T&D losses		
	Controlled fleet		Care homes	Water	Edinburgh Leisure	
	Edinburgh Roads services		Cemetery		Council estate	
Edinburgh leisure	Community / Family / day / education centres		Waste	Landfill		
				Recycling		
				Incineration		
Gas consumption	Bus stations, tram stops, substations, cabinets and Park & Ride			Staff travel	Composting	
	Care homes		Energy centre		Car mileage	
	Cemetery		Offices	Taxi	Air and rail travel	
	Community / Family / day / education centres		Culture, arts, theatres and sports, libraries		Black cab	
	Energy centre		Farmhouses		Regular taxi	Health & social care
	Offices		Hostels	Communities & families		
	Culture, arts, theatres and sports, libraries		Housing services / Domestic			
	Farmhouses		Parks			
	Hostels		Schools			
	Housing services / Domestic	Workshop / Depots				
	Parks	Toilets				
	Schools	Street lighting				
	Workshop / Depots	Christmas lighting				
	Oil consumption	Workshops/depots	Traffic signals			
Buildings (community centres, cemetery...)		Housing stair lighting				
LPG	Edinburgh leisure	Lothian Pension Fund				

Appendix 2: Climate Compact Commitments

Climate Compact commitments	Council's progress
1.1 Operations	
Share within a month of signature what action we are currently taking to address climate change and our current emissions.	City and Council emissions, as well as action the Council is taking are published through the Carbon Disclosure Project (CDP) and the Public Bodies Climate Change Duties reports
Take demonstrable actions to contribute to the reduction of carbon emissions (by COP26 in November 2021 and beyond).	<p>Key strategies which will be pivotal to deliver the city's net zero target:</p> <ul style="list-style-type: none"> - The city 2030 Net zero Strategy, - due for publication in Oct. 2021. - The present Council's emissions reduction plan - The Council's business plan, published in February 2021, had sustainability at its core - The City Mobility Plan, published in February 2021, provides a strategic framework for the safe & effective movement of people & goods up to 2030. - Edinburgh's City Centre Transformation is an ambitious plan for a vibrant and people-focused capital city centre which seeks to improve community, economic and cultural life. - City Plan 2030 sets out locations for new homes and businesses, protect places of value, and ensure essentials for a good quality of life are in place - such as public transport, schools and green space. The vision of the City Plan 2030 is to ensure Edinburgh is a sustainable city which supports everyone's wellbeing, in which everyone lives in a home they can afford, where you don't need to own a car to move around, and where everyone shares its economic success.
Publish online (by November 2021 latest) our plan to cut carbon emissions within our organisation with identified [annual/biannual/other] target dates for progress.	<p>Publication of present Council Emissions Reduction Plan</p> <p>Publication of city-wide net zero strategy due in October 2021.</p>
Include in this plan a commitment to engage across the whole value chain to drive emissions reduction	Detailed in procurement section of this plan. This will also be addressed within Council actions as part of the city's net zero strategy
Set out how we will embed assessment of climate impact into	The Council is taking a wide range of actions to identify the risks and adapt to the impacts of climate change. A citywide climate change risk assessment is currently being

all organisational and investment decisions.	undertaken. Outcomes from this will provide evidence and inform decision-making on future climate change adaptation action
1.2 Influence and Leadership	
Communicate our approach to tackling climate change and promote the importance of greater efforts to tackle climate change.	Development of a new net zero sustainability mark/branding Comprehensive issues-based citizen engagement and awareness raising programme in place for delivery 2021 onwards
Share learning with members of the Edinburgh Climate Compact and other city organisations looking to accelerate action on climate change.	Co-sponsorship of the Edinburgh Climate Commission The Council will be hosting one of the Climate compact's quarterly meetings later in the year On going collaboration with city partners on net zero strategy development and implementation
Roll out climate literacy for staff, including the management team as a minimum.	Detailed in Staff engagement section of this plan
Promote, support and enable employee choices and behaviours to contribute positively to a net-zero future.	Detailed in Staff engagement section of this plan
Maximise the impact of procurement across the value chain to accelerate emissions	Detailed in Procurement section of this plan
1.3 Transport	
Integrate the sustainable travel hierarchy into our organisation's operations, future business planning and lock out a return to the levels of business travel prior to 2020.	Detailed in Business travel section of this plan
Prioritise sustainable and active travel choices by our workforces, limiting the need to travel for work wherever possible.	Detailed in staff travel section of this plan
Invest in a switch to zero emission company owned vehicles.	Commitment to electrify the Council's cars and vans fleet, detailed in fleet section of this plan
1.4 Buildings	

<p>Commit to a clear programme of deep retrofit of the owner organisational estate.</p>	<p>Detailed in Buildings section of this plan</p>
<p>Maximise and optimise energy use from sustainable energy sources.</p>	<p>Detailed in Buildings section of this plan</p>
<p>Explore the potential of the organisational estate to generate renewable and sustainable energy and contribute to increased greenspace, biodiversity and sequestration.</p>	<p>Detailed in Buildings section of this plan</p>

Appendix 3: Scottish Government funding streams

Table 137: Applications submitted

Area	Fund	Bid (£)	Project	Service area	Status
Heat and energy	<u>Low Carbon Infrastructure Transition Fund (LCITF)</u>	£3.9m	Western Villages: ~450 homes with >50% for affordable rent. Includes a communal air and water source heat pump farm combined with solar PV arrays to bring the development to net zero carbon. Total cost ~£7.8m.	Place / Housing	Business case submitted.
Domestic building retrofit	HEEPS:ABS	£4.8 for this financial year	Retrofit 622 private homes	Place / Housing	Bid successful
Core sustainability team	EIT / ClimateKIC	£200,000 (pot available tbc)	Climate KIC partnership – reduced level from 2020; contribution to core team costs only	Strategy & Communications	Resubmission required due to Brexit
Innovation / core team	<u>LIFE</u>	£2m	Climate KIC partnership – remaining core team costs; scoping tests of change at Granton and community retrofit	Strategy & Communications	Through to stage 2 of application
Citizen engagement / adaptation	<u>CAYMAN</u>	£100,000 over 4 years	Partnership with Glasgow and Italy National Research Council on citizen science participation in collecting coastal change data and assessing the effectiveness adaptation plans	Strategy & Communications	Application submitted
Regeneration	Regeneration Capital Grant Fund	£2.8m in total for two projects	Awaiting update from colleagues	Place / Commercial development	Successful. Fund will reopen in June 2021

Table 148: Funding Opportunities

Area	Fund	Amount available (£)	Proposed project(s)
Biodiversity / Adaptation	<u>Nature Climate Bonds</u>	Suitable for smaller amounts initially of £1m or less, but is scalable and has no closing date.	Commercially viable nature-based solutions

Green Urban Regeneration	Vacant Land Fund	£50m over 5 years	Biodiversity, community woodland, renewable energy, community use, urban ecosystem services
Innovative pathfinders	Green Growth Accelerator	Potentially £10m, intention is to unlock up to £200m in external funding	Infrastructure projects where Council makes initial investment. Partnerships encouraged. Must meet net-zero criteria.
Energy - Renewables, scalable finance	<u>Community Municipal Bonds</u>	£1m is proposed amount for first tranche.	Commercial scale solar installations, battery storage
Energy - Commercial scale solar	Engenera Solar Bonds	Open for negotiation depending on project	Other renewable technologies at suitable scale may also be considered.
Energy – District Heating	<u>District Heating Loan Fund</u>	Feasibility studies of up to £20k.	District heating projects
Energy Efficiency	<u>Non-Domestic Energy Efficiency (NDEE)</u>	Project value must be over £1m per application.	retrofit of public sector buildings with energy efficiency assets
Biodiversity, urban trees	<u>Trees for Cities</u>	TBC	TBC. Discussions with funders scheduled for March 2021
Regeneration	<u>Town Centre Fund</u>	TBC	Council officers in discussions with funders
Waste	Household recycling collection infrastructure Fund	£70m	Details and guidance regarding the Expression of Interest application process will be published at www.zerowastescotland.org.uk/recyclingfund . All Scottish local authorities can apply for the fund, either individually or in partnership with other authorities, commercial or third sector partners.
Energy - Renewables	Solar Photovoltaics (PV) Fund	TBC	Spend to save money to install solar panels on roofs of suitable properties or land. Upfront investment would be provided from the fund, with payment then received from the Council and/or its ALEOs for energy used
Buses	<u>Ultra Low Emission Bus Zones</u>	£25m	<u>Applications open from 22/01/2021</u> supports the purchase of new buses, and assists with 50% of the cost differential between a standard diesel bus and the equivalent ultra-low emission bus.
Buses	<u>Bus Partnership Fund</u>	£500m	<u>Open for applications</u> Aim: enabling local authorities to work in partnership with bus operators, to develop and deliver ambitious schemes that incorporate bus priority measures.

Innovation	<u>Bloomberg Cities Mayors Challenge</u>	£1m	50 leading urban innovations imagined or launched in the wake of the COVID-19 pandemic. They can be in any stage of implementation, but must have the potential for meaningful impact, and the ability to spread to other cities.
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