

Sustainable Energy & Climate Action Plan

Consultation Draft

Contents

1. INTRODUCTION	2
2. WHY DO WE NEED THE SECAP?	3
Key Drivers	4
Objectives	7
3. DEVELOPING THE SECAP	8
Co-designing with Stakeholders	8
Climate Risk and Vulnerability Assessment	9
Strategic Environmental Assessment	9
Dundee's Emissions	10
Emissions Reduction Target	11
4. SECAP THEMES	12
Energy	12
Mobility	23
Waste	27
Resilience	31
5. SECAP DELIVERY	39
Action Plan	39
Governance	40
Monitoring and Reporting	40
Communications	40
Annex 1: Action Plan	42
Acknowledgements	48
Glossary	49
SECAP: Consultation Questions	50

1. INTRODUCTION

In October 2018, the **International Panel on Climate Change** (IPCC) published its Special Report on Global Warming of 1.5°C, concluding that there is less than 12 years to act to avoid the worst impacts of climate change. The report describes the enormous harm that a 2°C rise is likely to cause compared to a 1.5°C rise and informed that limiting Global Warming to 1.5°C may still be possible, with ambitious action from national and sub-national authorities, civil society, the private sector, indigenous peoples and local communities.

In May 2019, The **UK Committee on Climate Change** (CCC) published a landmark report (*Net Zero: The UK's contribution to global warming*) which recommend that a 100% reduction in greenhouse gas emissions (GHG) should be legislated by the UK Government "as soon as possible". Such a target would constitute the UK's "highest possible ambition" to combatting climate change and would "send a much stronger signal internationally". The report states that this net-zero target could be achieved at the same cost that is currently put against achieving the current Climate Change Act, which is between 1-2% of GDP in 2050.



On the same day, the Scottish Government announced plans to amend its **Climate Change Bill** and commit to a legally binding target of reaching net-zero GHG by 2045 at the latest which would see Scotland become carbon neutral by 2040.

It is widely recognised that there is a climate emergency and cities have a key leadership role to play in making significant reductions in emissions and building resilience to the unavoidable impacts of a changing climate.



In March 2018, the Lord Provost and Leader of Dundee City Council, signed the **Covenant of Mayors for Climate and Energy** (CoM), a global initiative that brings together local governments in a voluntary commitment to reducing GHG emissions and develop a Sustainable Energy & Climate Action Plan (SECAP) that adopts a joint approach to tackling climate change mitigation and adaptation.



The draft SECAP is the culmination of collaborative work, led by Dundee City Council and co-designed with public, private and community organisations, recognising the fact that a concerted city-wide effort is required to achieve this level of impact on GHG emissions.

The draft represents the first set of actions in a long-term pathway to first surpass the CoM target of **40% reduction in GHG emissions by 2030** and then to **achieve net-zero GHG emissions by 2045**. It is recognised that to achieve this target will require local interventions identified in the SECAP, alongside significant additional measures in order that Dundee benefits from the effects of national policies.

The SECAP is organised into the following sections:

- **Context:** Why do we need the plan; what are its key drivers and objectives?
- **Development:** How the plan was co-designed with stakeholders; the preparatory work to understand Dundee's emissions and climate risks; assessing the environmental impact of the plan.
- **Themes:** Energy, Mobility, Waste and Resilience; why action is needed, what work is currently planned and what we want to achieve.
- **Delivery:** Deliverable actions for each theme; delivery mechanisms, including governance, communication, monitoring and reporting.

2. WHY DO WE NEED THE SECAP?



Situated on the Tay Estuary, covering 60km² and with a population of almost 150,000, Dundee is undergoing a major transformation, spearheaded by the £1 billion Dundee Waterfront project, spanning 240 hectares of land stretching 8km along the River Tay. Key economic sectors within Dundee include life sciences and healthcare, creative industries and digital media, tourism, energy, electronics, publishing, retail and education.

Visitor number are projected to increase with the opening of the V&A museum, attracting tourism revenue of £1billion within ten years, which is creating demand for hotels, hospitality, leisure and service businesses. In addition, two world-class universities and an award-winning college, museums and galleries, a captivating arts and science scene, over 3,000 business, a thriving port, beach, green and open spaces and internationally recognised biodiversity and habitats, all help Dundee to live up to its accolade of the "coolest little city".

Dundee is also a young city, 51% of the population is under 40. With a student to population ratio of 1:6, the highest in Scotland, Dundee's talent pool is skilled, multicultural and highly educated and the general population is set to grow at 6% per annum for the next twenty years.

These factors provide both opportunities and challenges for Dundee. More visitors and an increasing population mean greater resource use and consequently increased energy demands, more waste, more GHG emissions resulting in reduced air quality and greater pressures on the resilience of the city. Conversely, in meeting these challenges great steps forward in sustainability and innovation can be achieved through increased use of renewables, more sustainable mobility alternatives, smart options for waste reduction, integrated district heating systems and improved blue and green infrastructure. These all help to mitigate against and build resilience to the future impacts of climate change on our communities, buildings, land and wildlife.

One of the most difficult challenges facing Dundee and the wider city region is to achieve economic growth whilst reducing carbon dioxide (CO₂) emissions. To do this Dundee will need to achieve an absolute decoupling of CO₂ emissions from economic growth, whereby emissions reduce whilst still supporting sustainable economic growth. This is a long term goal for Dundee and will require the successful implementation of significant interventions, particularly if the CoM target is to be achieved alongside significant city region economic growth. It also means that over time, Dundee will need to better understand and manage all forms of GHG emissions, from all sources.

Key Drivers

National and International Commitments

Scotland has some of the most ambitious climate change targets in the world and the **Climate Change Bill**, published in 2018, set out bold new targets, increasing the emissions reduction target from 80% to 90% by 2050, whilst also making the necessary provisions for a net-zero GHG target to be set. In May 2019, it was decided that the Bill will be amended so that the Scottish Parliament can vote on a new target of net-zero by 2045. In doing so, Scotland will become one of the first countries in the world to legislate to support the aims of the Paris Agreement which sets the standard for the international response to climate change.

Progress is underpinned the **Climate Change Plan**, published in 2018 and is the Scottish Government's third report on proposals and policies (RPP3) for meeting its climate change targets. It sets out 64 policies and 31 proposals to reduce emissions from electricity generation, housing, transport, services, industry, land use, waste, and agriculture in order to deliver its target of 66% emissions reduction by 2032.

Alongside the Climate Change Plan, Scotland's first **Energy Strategy** was published in 2017 that sets out the long-term vision for the future energy system in Scotland. With a strong focus on local energy systems and the adoption of a system wide approach, the strategy sets a target to supply 50% of Scotland's energy needs from renewable sources. In addition, it commits to increase the productivity of energy use across the Scottish economy by 30% by 2030.

Paris Agreement

The Paris Agreement, adopted by world leaders of 195 countries, is the first-ever universal, legally-binding global climate deal. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C and to pursue efforts to limit the temperature increase even further to 1.5°C. However, scientists now agree that we actually need to keep temperature rises to below 1.5C.



In February 2019, the Scottish Government began consultation on '**Climate Ready Scotland: Scottish Climate Change Adaptation Programme**'. Covering a five year period, it sets out progress to date in how the country is adapting to the effects of climate change, proposals and policies for action and arrangements for wider engagement in climate conversations.

Scotland's public bodies are expected to lead by example in tackling climate and delivering national plans through influencing and enabling positive behaviours; driving change; and acting as exemplars of climate action and low carbon innovation. All public bodies in Scotland are now mandated under **Public Bodies Climate Change Duties** to report annually on action they are taking to reduce carbon emissions, helping to:

- standardise reporting methodology across the public sector
- improve the quality of climate change data
- encourage transparency
- improve engagement with leadership
- guide future Scottish Government strategic reports, support and policy-making

Annual reports from public bodies in Dundee can be viewed on the Sustainable Scotland Network website¹.

Other specific legislation and policy that relates to the SECAP is discussed in each of the four themes as well as in the 'Strategic Environmental Assessment – Environmental Report' which accompanies the SECAP.

¹ Scottish Public Bodies Climate Change Reporting: <https://sustainablesotlandnetwork.org/reports>

Tackling Fuel Poverty

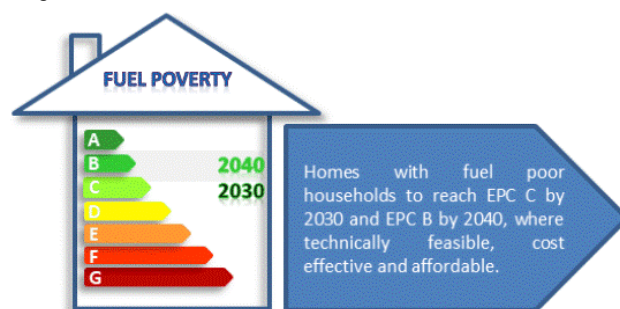
Climate change and fuel poverty are inextricably linked in that actions taken to mitigate against fuel poverty such as installing insulation (which reduces fuel bills and keeps the home warmer) also help mitigate against climate change by reducing heating use and emissions.

The **Fuel Poverty (Scotland) Bill** 2018 will set a new definition for fuel poverty recognising that it is caused by the interaction of a number of factors, most critically: the cost of energy; household income; the energy efficiency status of the property and how energy is used in the home. Under the current definition, a household is said to be in fuel poverty if it spends more than 10% of its income on all household fuel use.

According to the most recent Scottish Housing Conditions Survey published in 2019², fuel poverty affects approximately 31% (22,000) of all households in Dundee (against 27% for Scotland as a whole) with numbers highest in homes built before 1945 (43%) and amongst those in the private rented sector (41%).

Whilst the long term trend continues downwards, the fact remains that more than **1 in 3 people in Dundee are still in fuel poverty**. These statistics reinforce the need for physical improvements to properties and the provision of energy advice through national and local advice agencies to assist the fuel poor.

Figure 1: National Fuel Poor Household Standards



Source: Draft Fuel Poverty Strategy for Scotland, June 2018

Maximising Economic Opportunities

Scotland's transition to a more prosperous, low carbon economy is already well underway with new markets, businesses and industries being established. The low carbon and renewable energy sector and supply chain supported over 49,000 jobs Scotland in 2016, generating over £11 billion in turnover³.

Opportunities are emerging faster than ever for new and innovative solutions to **energy integration** as we continue to decarbonise our national energy use. In Dundee, this requires a greater level of 'connectability' in what we all do if we are to scale this work to a level that makes significant reductions in emissions and accelerates change. By doing so, the city can become a centre of green business, utilising the city's knowledge base, existing assets and low carbon infrastructure as a catalyst for inward investment, business growth, and the development of local supply chains.

The renewable energy sector is particularly important part Dundee's future and the broader local economy encompassing offshore wind, decommissioning (driven by the proximity of the Scottish Offshore Wind projects) and growing areas such as hydrogen, electric vehicles and a general market demand to lower energy costs and become more sustainable. The SECAP and its actions can be an asset in promoting the city to new investors and promoting its green credentials as a leader in renewable energy.

² Scottish House Condition Survey - Local Authority Analyses: <https://www2.gov.scot/Topics/Statistics/SHCS/keyanalyses>

³ Climate Change Plan: third report on proposals and policies 2018-2032 (RPP3):

<https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/>

Case Study: UN Global Goals for Sustainability

In 2015, the world's governments came together to adopt 17 UN Sustainable Development Goals (SDG) and 169 associated targets forming a comprehensive description of the environmental and social challenges to overcome if greater sustainability is to be achieved.

Each goal has targets and indicators that UN member states are expected to use in setting their agendas over the next 15 years. These goals recognise that tackling climate change is essential for achieving sustainable development and as such, many of the SDGs are addressing the core drivers of climate change. Scotland was one of the first nations to sign up to SDGs and has a good history of policy as well as action in relation to sustainability issues.

At the local level, Dundee City Council has demonstrated its commitment to the goals through the Council Plan, City Plan and ongoing sustainability projects as well as being part of the Scotland Sustainable Development Goals network.



Decarbonising Energy

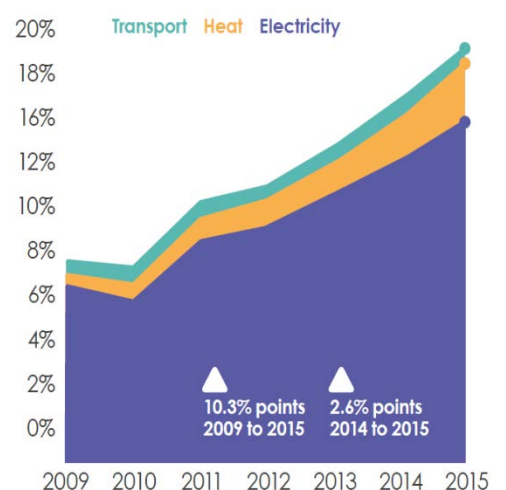
Decarbonising energy supply means reducing its carbon intensity⁴, which is necessary to achieve the national emissions reduction target.

The share of renewable energy we generate and consume in Scotland has increased considerably over the past decade (figure 2) and whilst the country is well on its way to generating 100% of its electricity demand from renewables by 2020 more needs to be done to tackle the challenges of decarbonising heat and transport, in order to meet longer term energy and climate change targets.

This will require a major transformation of local energy systems, extending into people's homes, including the fabric and domestic heating systems of buildings. Supporting and delivering local solutions to meet local needs, linking local generation and use, can help create vibrant local energy economies. Yet the technological choices we make for heating buildings will impact electricity networks, as will the introduction of electric vehicles and likely to place extra pressure on the electricity network's ability to generate, store and deliver the capacity necessary to meet peaks in demand.

These significant developments will benefit from a 'whole systems' approach that considers heat, electricity, and transport in planning future decarbonised energy systems.

Figure 2: Renewable Energy in Scotland



Source: Scottish Energy Strategy: The future of energy in Scotland, Dec 2017

⁴ The emissions per unit of electricity generated (often given in grams of CO₂ per kWh).

City Resilience

Severe weather and climate impacts are already affecting communities and service delivery provided by organisations across Scotland, with operational, reputational, financial and legal consequences. The latest **UK Climate Projections (UKCP18) projections⁵** show that this trend is set to increase in the future and the impacts we see today may occur more frequently with higher average temperatures, increased flooding and more extreme, unpredictable weather patterns. The consequences will be more serious, compounding many of the other long-term challenges we face – rising energy prices, resource scarcity, ageing population, and social and economic inequalities.



We therefore need to plan and adapt to the increasingly apparent and inevitable impacts of climate change. By choosing a resilience pathway that takes a long-term view, organisations and communities can identify their climate risks and prioritise actions that will allow them to prepare, respond and recover from severe weather and climate change impacts.

Communities that are strong and well connected are not only more likely to respond better to the challenges of climate change, but are able to build on their assets and capabilities to help transform and adapt their surroundings for the benefit of the whole community, including those most vulnerable. For example, creating a green space in a neighbourhood may help manage heat island effects, provide food growing opportunities and improve flood attenuation as well as creating a place for social interaction and community support.

Objectives

Whilst a number of significant challenges come with climate change, taking action to mitigate and adapt can bring multiple benefits for the environment, society and economy. Both pillars open up new opportunities to promote sustainable local development, enhance quality of life, stimulate investment and innovation, create jobs and reinforce stakeholder participation and co-operation.

The long-term vision for Dundee is to become a Sustainable City and in the coming decades to pass through a period of transition from a carbon-based economy to one that plays a leading role in the Scotland's goal to achieve net-zero greenhouse gas emissions by 2045. To do this, Dundee intends to:

- Reduce the consumption of energy and promote energy efficiency to deliver savings.
- Increase the proportion of power and heat from low and zero carbon technologies.
- Increase the use of district heating, develop new heat networks and deliver affordable energy.
- Reduce the impact of transport and travel by promoting and deploying sustainable alternatives.
- Manage waste sustainably by reducing, reusing and recovering waste to improve resource efficiency whilst working towards a circular economy.
- Reduce the risks and vulnerability to a changing climate and build resilience to unavoidable impacts.

⁵ UK Climate Projections (UKCP18) projections: <https://www.metoffice.gov.uk/research/collaboration/ukcp>

3. DEVELOPING THE SECAP

The SECAP demonstrates how the city will meet its commitment to reduce carbon emissions and adopt a joint approach to tackling climate change mitigation and adaptation.

To translate this commitment into action we have:

- Measured GHG emission levels for Dundee
- Assessed the climate risks and vulnerabilities for Dundee

Using the findings from the above, we have:

- Set an ambitious target for carbon reduction and a pathway for climate resilience
- Defined a set of initial actions that stakeholders plan to undertake to help reach the targets.

Co-designing with stakeholders

The SECAP has been developed alongside a series of workshops and preparatory reports that involved various teams within the City Council and a great many partners across the city, within the public, private and third sectors, who are also passionate about ensuring a low carbon future for Dundee.

At the initial stages of SECAP development, a Strengths, Weaknesses, Opportunities & Threats (SWOT) analysis of sustainability in Dundee was carried out. Some of the main strengths highlighted were the city's compact size, its proactive approach and political will, without which, progress would be much more difficult. There are many opportunities regarding its orientation and location (being south facing and on the estuary) and likely future investment due to the large-scale development of the waterfront. However many challenges were also presented, not least of which was lack of funding for sustainability projects and the high poverty levels in Dundee, with legislation, economic and political uncertainty and timescales for development seen as particular challenges.



**Dundee
2030**
Envisioning
a Low Carbon
Future

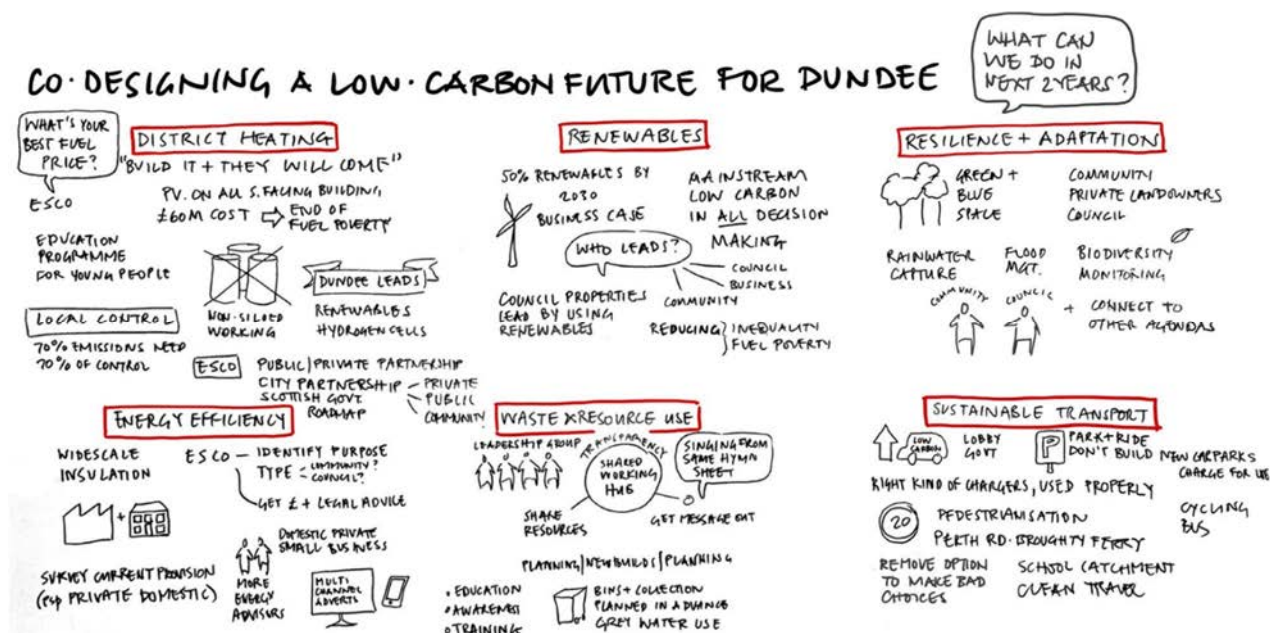
In August 2018, fifty individuals representing twenty different public, private and community organisations came together to contribute their ideas and knowledge to help shape Dundee's transition to a low carbon city in a workshop titled **"Dundee 2030: Envisioning a Low Carbon Future"**. Arguably the most important step in the process, ensuring that the whole city is committed to the low carbon goal. The workshop was the first stage in the co-designing process.

Facilitated by Open Change, experts in design led change, discussions initially focused on six themes. The workshop took place in three stages; initially, participants envisioned what a low carbon Dundee might look like in 2030. They were then asked to define long term actions (2025 onwards) that would help us to reach that vision and short term actions to start the to prepare the ground for these future actions and start the course of emissions reductions and resilience building immediately.



Through enthusiastic collaboration and discussion, over 100 actions were identified. These were then collated and further refined in partnership with the stakeholders to formulate an initial list of practical and feasible actions to help Dundee meet its goals (see Annex 1).

Figure 3: Summary of Dundee 2030 workshop captured by Open Change



Climate Risk and Vulnerability Assessment

The CoM includes a commitment to strengthen resilience and capacity to adapt to adverse climate change impacts and as such the preparation of a **Risk and Vulnerability Assessment** is a prerequisite to SECAP elaboration. It determines the nature and extent of climate-related risks by analysing potential hazards and assessing the vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment of Dundee. A Risk and Vulnerability Assessment has been undertaken for the SECAP and further details can be viewed in the Resilience theme below.

Strategic Environmental Assessment

The SECAP has been influenced by a Strategic Environmental Assessment (SEA), carried out in accordance with the **Environmental Assessment (Scotland) Act 2005**. The purpose of SEA is to minimise potential negative effects of plans, programmes and strategies on the environment and to enhance positive effects. All documents associated with the SEA process for the SECAP are available on the Scottish Government's SEA database⁶.

⁶ Scottish Government SEA database: www2.gov.scot/seag/publicsearch.aspx

Dundee's Emissions

In order to set an emissions reduction target and actions for the SECAP it was essential to collate the following information:

- An understanding of GHG emissions for Dundee at a set starting point (the '**Baseline Emissions Inventory' (BEI)**)
- An understanding of GHG emissions reduction for Dundee since the starting point (the '**Monitoring Emissions Inventory (MEI)**')
- Consideration of future emissions projections.

BEI and MEI for Dundee

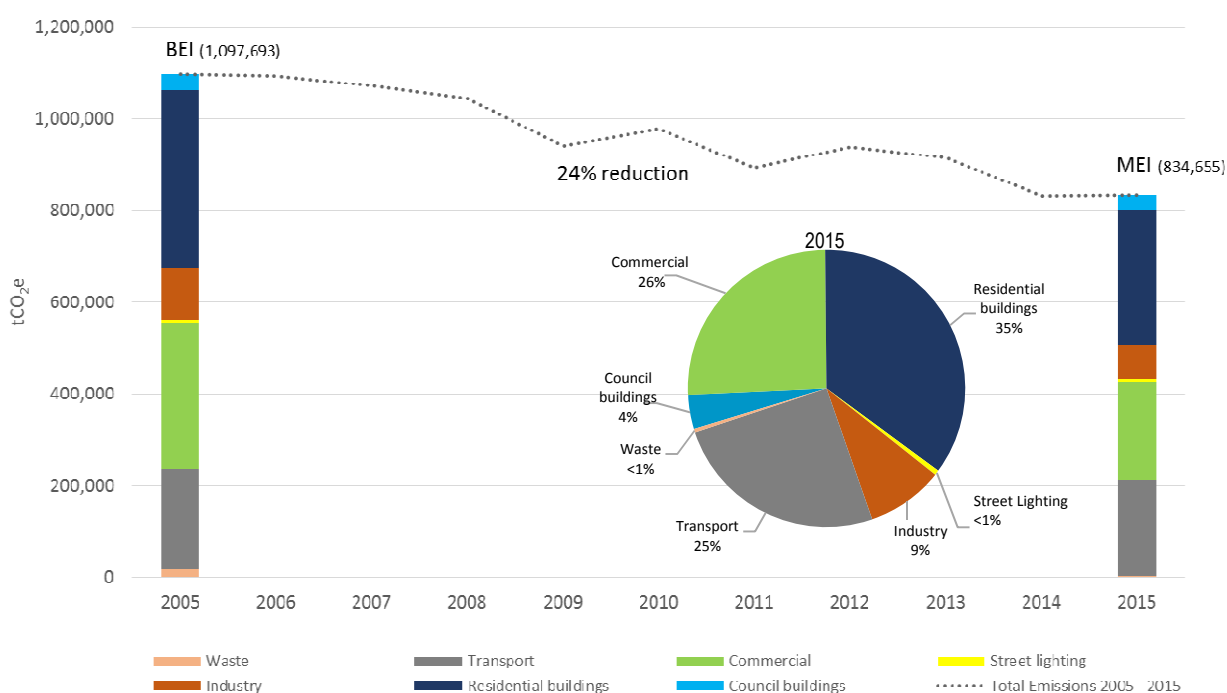
A baseline year of 2005 was selected to measure the starting point (BEI) for emissions reduction as this was the earliest year for which reliable data exists in the UK. The most recent year for which data was available when preparing the Emissions Inventories was 2015, therefore this year was selected to measure progress in reducing emissions to date (MEI).

The BEI and MEI study was carried out by Aether and used national energy data broken down by sector (domestic, industrial and commercial, transport and waste). In order to translate the energy and waste data into GHG emission estimates, the data is multiplied by emission factors.

Figure 4 shows the emissions in the baseline year (2005) and monitoring year (2015), broken down by sector. As can be seen, the residential buildings make up the largest source of emissions in Dundee comprising 35% in total in both years. This is closely followed by commercial (26%) and transport (25%) sectors. With around 75,000 residential properties, 5,500 commercial and industrial properties, as well as 600 public buildings, including 42 schools, it is not surprising that buildings make up the bulk of emissions in Dundee. Carbon emissions from Council property accounts for less than 4% of total emissions which is why a city-wide approach is essential if we are to reach targets. Nonetheless, the Council is committed to reducing its own emissions year on year and has a long-term aspiration to set carbon budgets for its Service areas.

Whilst being the largest emitters, a lot of work has taken place to reduce emissions from the residential and commercial sectors, achieving the greatest reduction between 2005 and 2015, accounting for 40% and 35% of the emissions reductions respectively. **Overall, emissions reduced by 24% from 2005 and 2015.**

Figure 4: Dundee carbon emissions 2005 and 2015 (By End Use)

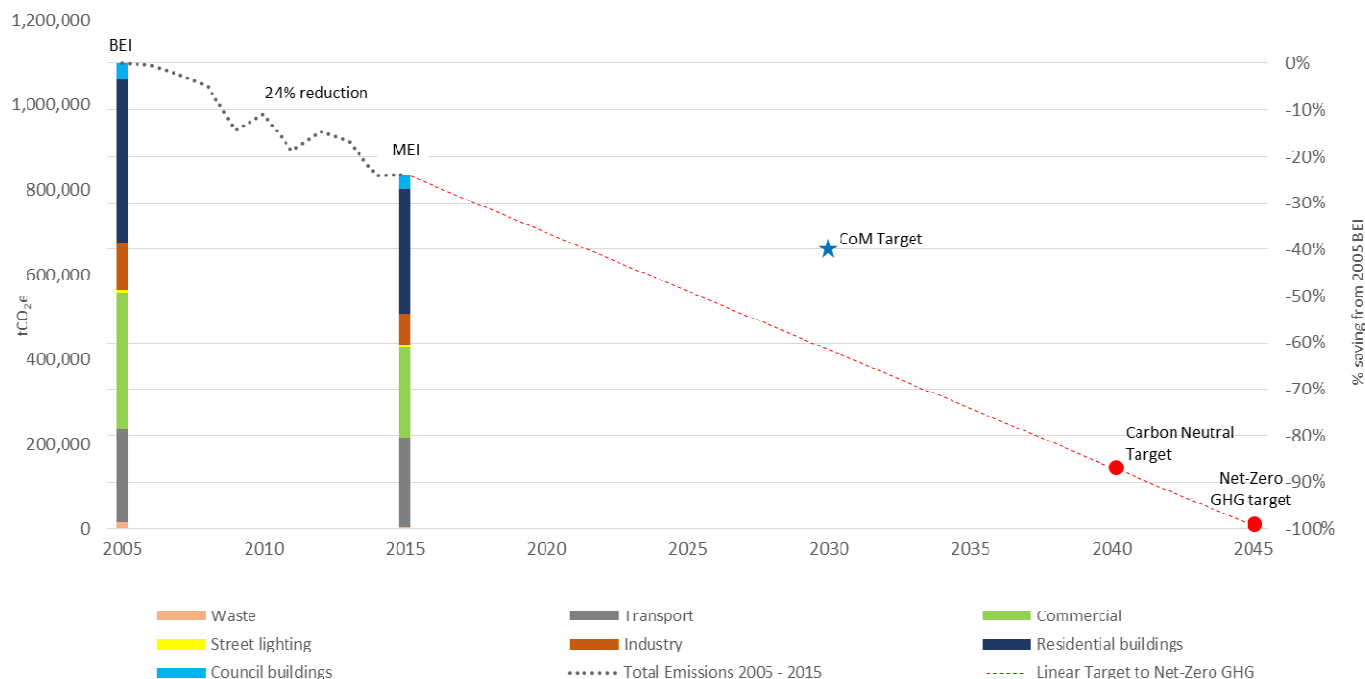


Source: Dundee GHG Inventories and future projections

Emissions Reduction Target

The SECAP commits to surpass the CoM target of **40% reduction in GHG emissions by 2030** and ultimately to achieve a science-based target of **net-zero GHG emissions by 2045**, in line with the proposed targets of the Scottish Climate Change Bill (figure 5).

Figure 5: Emissions Reduction Targets



Meeting the Target

Meeting the target will be challenging and there are a number of external factors that will impact on this, including UK and Scottish government policies and initiatives highlighted in the SECAP. A key factor will be the decarbonisation of the electricity supply grid where energy from fossil fuels is replaced with renewables. This has a direct impact on determining the **Grid Emission Factor**⁷ which is used to measure carbon reduction progress.

As far as possible, actions in the SECAP will be quantified in terms of their carbon reduction impact. For some initiatives, further development of business cases will be required with a more detailed project plan to provide a better measurement of carbon impact. For others, the scale is likely to be the crucial factor and consequently only best estimates may be provided.

We propose the following performance indicators to measure emissions reduction progress against the target:

- Total CO₂e emissions (total and by end-use)
- Per capita CO₂e emissions

Action G.2: Adopt an emissions modelling tool to quantify the impact of SECAP actions and to inform future targets.

Action G.4: Develop and trial a carbon budget for Dundee City Council.

⁷ A measurement of CO₂ emissions intensity per unit of electricity generation in the grid system (tCO₂e/MWh).

4. SECAP THEMES

ENERGY - Energy Efficiency

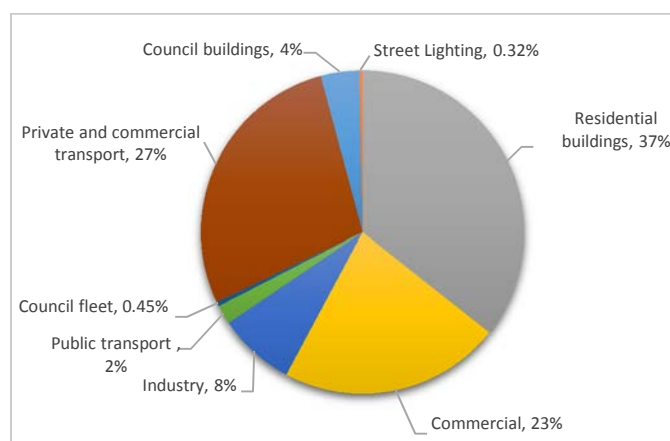
Objective: Reduce the consumption of energy and promote energy efficiency to deliver savings.

Why take action on Energy Efficiency?

Energy consumption and CO₂ emissions at the local level are dependent on many factors: economic structure (industry/service oriented and nature of the activities), level of economic activity, population, density, characteristics of the building stock, usage and level of development of the various transport modes, citizens' attitudes, climate etc. Some factors can be influenced in the short term (like citizens' attitudes), while others can only be influenced in the medium or long term (energy performance of the building stock). It is useful to understand the influence of these parameters, how they vary in time, and identify upon which partners can act (in the short, medium and long term).

Dundee's total energy usage in 2005 was estimated as 3,726,176 MWh and had reduced to 2,849,645 MWh by 2015. Just under three quarters of the energy consumed is used in buildings and over a quarter for transport. The detailed analysis is shown below:

Figure 6: Dundee energy consumption 2015 (By End Use)

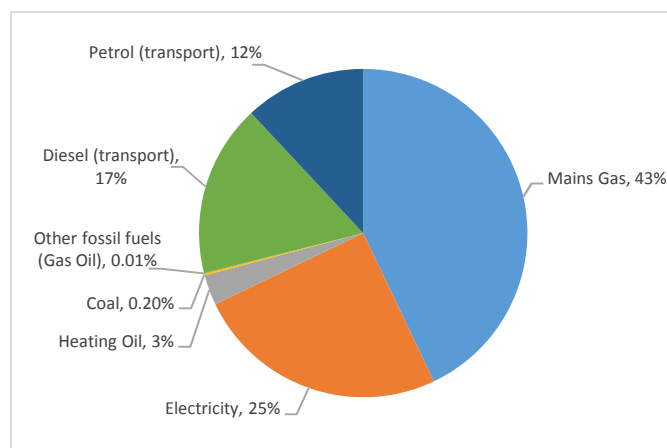


Category (End Use)	Energy Consumption in 2015 (MWh)	Contribution
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:		
Council buildings	107,256	4%
Commercial	642,504	23%
Residential buildings	1,041,500	37%
Street lighting	9,237	0.32%*
Industry	227,670	8%
Subtotal	2,027,585	71%
TRANSPORT:		
Council fleet	13,079	0.45%*
Public transport	42,788	2%
Private and commercial transport	766,193	27%
Subtotal	822,060	29%
TOTAL	2,849,645	100%

* Percentages of less than 1% are shown to two decimal places whilst the total figure is rounded to the nearest whole number.

The type of fuel used is also important as each type emits different amounts of carbon. Figure 7 shows that in terms of fuel usage, just under half of the energy used in Dundee in 2015 was from mains gas supplies and a quarter from electricity, indicating that heating and lighting of the city's domestic, commercial and industrial properties is a major contributor to emissions and significant reductions from these sectors will be required to meet the target.

Figure 7: Dundee energy consumption 2015 (By Fuel)



Fuel used	Energy Consumption in 2015 (MWh)	Contribution
Mains Gas	1,707,297	43%
Electricity	882,534	25%
Heating Oil	260,436	3%
Coal	5,200	0.20%*
Other fossil fuels (Gas Oil)	1,451	0.01%*
Diesel (transport)	412,389	17%
Petrol (transport)	456,870	12%
TOTAL	3,726,176	100%

* Percentages of less than 1% are shown to two decimal places whilst the total figure is rounded to the nearest whole number.

The Scottish Government has designated energy efficiency as a National Infrastructure Priority, the cornerstone of which is the **Energy Efficient Scotland programme** committing substantial annual funding to transform the energy efficiency and heating of Scotland's buildings so that, wherever technically feasible, and practical, buildings are near zero carbon by 2035.

Energy efficiency is one of the most cost-effective ways of reducing costs and, in the process, carbon emissions. Measures can include retrofitting properties with better insulation, installing more efficient boilers, controls and energy management systems. Typically, this will mean a shift towards renewable and low carbon energy sources; however with this is a risk of increased price rises due to the capital costs associated with deploying the associated infrastructure.

It is therefore important to consider both capital expenditure and operational expenditure through Whole Life Costing, so that the best approach can be taken when investing in new buildings and refurbishments. Often, capital expenditure and operational expenditure are separated so that the long-term cost-effectiveness of actions is not fully understood. Whole Life Costing refers to the total costs and benefits of ownership of a building, or other asset, and allows resource efficiency to be appropriately considered during the assessment of the true cost of design, construction and operation. This reduces designs that are influenced on the basis of short term capital financial outlays and that do not consider the longer term operation of the building, for example adding solar panels to a new housing development leading to a long term reduction in energy costs. Value for money can only be achieved if the costs associated with the life of the product are considered, it therefore makes economic sense for Dundee City Council to adopt this methodology for the sake of long term cost savings as well as reducing emissions.

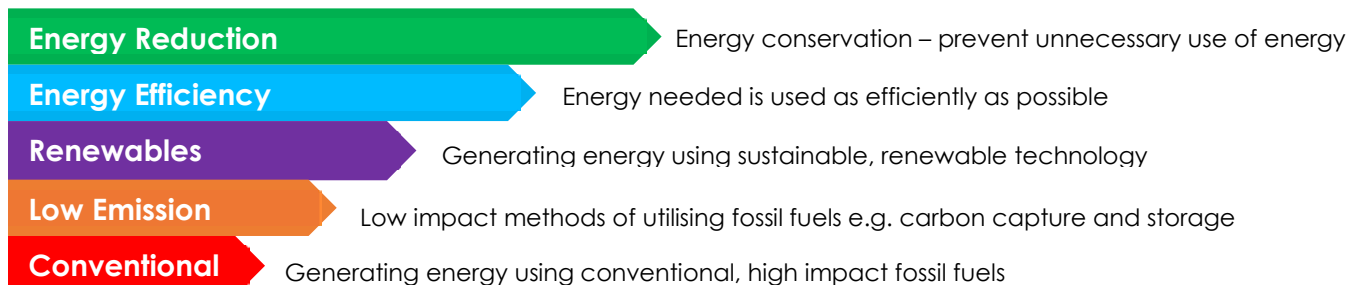
Action RE.1: Adopt a Whole Life Costing approach to ensure new developments achieve greater operational sustainability.

(This will include analysis of maintenance burdens, end of life use, outputs and performance to ensure resilient, efficient buildings are designed with minimal waste.)

Energy Efficiency in Dundee

The Energy Hierarchy

The SECAP was developed with the principles of the energy hierarchy where the approach seeks to reduce the amount of energy used in the first place, before employing technologies to reduce energy, as shown below.



Domestic Energy Efficiency

Increasing energy efficiency and reducing carbon emissions of the **social rented sector** has been driven by the Scottish Housing Quality Standard and its successor, the Energy Efficiency Standard for Social Housing. The Council and Housing Associations are adhering to these standards to address fuel poverty via their continued energy improvement programme for domestic properties.

- By 2015, all Council housing stock reached required energy ratings, via replacement of all electric storage heating with gas central heating and ensuring all suitable properties had appropriate insulation.
- 3,500 hard-to-treat properties (Council and private) have had external wall insulation fitted, reducing carbon emissions.
- A further 1300 properties will be completed by the end of 2019.
- On-going installation of photovoltaic panels installed on multi-story developments.



Energy Efficiency standards for social housing are expected to increase under national targets with the Scottish Government aiming to maximise the proportion of social housing stock achieving a Band B by 2032. This higher standard is likely to result in an increase in the deployment of renewables. A longer term target is for properties to become carbon-neutral by 2040.

Action EE.1: Complete fabric improvements to outstanding domestic Council (and ex-Council properties in mixed-tenure blocks) stock to achieve the Energy Efficiency Standard for Social Housing (EESH) by 2020 and widen range of technologies (including renewables) under consideration to allow compliance with the more exacting EESH2 standard by 2032.

Up until now, there has been no regulation of energy efficiency in the **private rented sector**. However, this is expected to change in 2019 as legislation will require that only privately rented properties with an EPC Band of at least E (i.e. minimum rating of 39) can be let. The standard will then be stepped up so that only those dwellings with an EPC Band of at least D (i.e. minimum rating of 55) can be let from 2022 onwards. A further proposal is that all privately rented properties achieve at least a Band C (minimum rating of 69) by 2030.



For the **owner-occupied sector**, there have been no previous proposals to regulate for energy efficiency. However, within the current Energy Efficiency Scotland consultation the proposal is for continuation of existing support programmes of grants and loans for energy efficiency measures until 2020, followed by a ten year period where these properties are encouraged to achieve an EPC Band C with the proposed mandatory phase requiring Band C in the subsequent 10 years.



Behaviour Change

The most cost-effective way to reduce emissions is to reduce the amount of energy used in the first place. This can be achieved by relatively small measures such as turning down controllers, reducing the temperature of clothes washing, insulating lofts, choosing energy efficient appliances, switching off appliances when not in use, changing to LED bulbs and many more actions. Despite their cost-saving benefits and simplicity, these actions often fail to be carried out. There are many initiatives in Scotland that provide advice and support to householders such as **Home Energy Scotland** and businesses such as **Resource Efficient Scotland**, as well as specific local advice service, **Dundee Energy Efficiency Advice Project (DEEAP)**.

Action EE.2: Continue to deliver a city-wide energy awareness campaign to improve energy efficiency behaviour in all households.

Local Energy Advice



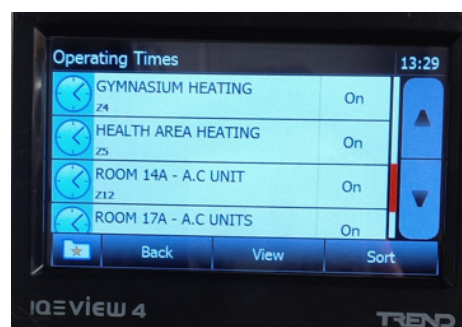
DEEAP was established by the Council in response to the need to eradicate fuel poverty in Dundee. Its aim is to provide a service throughout the city advising householders on fuel tariffs, how to reduce bills, energy efficiency measures and referral or advocacy work to resolve individuals debts with energy suppliers. DEEAP carries out 4,000 energy advice home visits per year and their staff attend events across the city to raise awareness of the service.

Home Energy Scotland North East has expert advisors based in Dundee, offering free and impartial advice on energy saving, keeping warm at home, renewable energy, greener travel, cutting water waste and more. Home Energy Scotland is funded by the Scottish Government and managed by the Energy Saving Trust and has a mission to help people in Scotland create warmer homes, reduce their bills and help tackle climate change. Advisors support over 18,000 householders in the North East last year with energy saving advice, leading to carbon savings of over 60,000 tonnes of CO₂. Feedback from North East Customers shows customer satisfaction levels of over 98% for advice and support from the team. Advisors attended over 60 events in Dundee during 2018/19 with a full events programme planned for 2019/20.

Action EE.3: Explore how the work of the Dundee Energy Efficiency Advice Project (DEEAP) can be maintained and delivered.

Non-Domestic Energy Efficiency

In order to accelerate progress in transforming the energy efficiency of public sector buildings, the Scottish Government have put in place a Framework of **Non-Domestic Energy Efficiency (NDEE)** contractors. The twelve appointed suppliers can deliver energy efficiency retrofit works and services at scale for all Scottish public sector organisations, registered social landlords and third sector organisations, rapidly delivering modern, efficient technology that supports Scotland's ambition on energy demand reduction, helping to cut costs and tackle climate change.



Dundee City Council is utilising this Energy Performance Contracting model, investing £1.7 million in the installation of energy efficiency measures in eight properties initially. This is guaranteed to achieve savings of at least £222,000 per annum and a further 1,000 tonnes of CO₂. Non-Domestic buildings involved in these initial energy efficiency improvements include Olympia Leisure Centre, Dundee Contemporary Arts and the Ice Arena. The long term plan is to include more than 100 Council properties.

Action EE.4: Complete phase 1 of the Non Domestic Energy Efficiency (NDEE) retrofit of Dundee City Council public buildings (Basket 1) before implementing subsequent phases (Baskets) annually until all prescribed measures are complete on all Council public buildings.

The Councils' first **carbon management plan** was adopted in 2009 to reduce CO₂ emissions from its operations. Since 2007/8, the total carbon footprint has reduced by 31%; 23% of this a result of improved energy efficiency in buildings, such as SMART metering, Building Energy Management Systems and behavioural changes. The Council will produce an updated Carbon Management Plan to reflect the ambitions of the SECAP as well as incorporate findings from the Public Bodies Climate Change Duties Reporting.

Action EE.5: Update the Councils Carbon Management Plan, identifying new targets in line with the Public Bodies Climate Change Duties (PBCCD) and SECAP targets.

LED Street lighting

Dundee has more than 24,000 streetlights which use around 8.9GWh of power a year at a cost of £1.2 million. These lights also emit 3,980 tonnes of CO₂.

Since 2012/13 the Council has installed 5,000 LED street lights that have so far resulted in a 35% reduction in CO₂ emissions. By 2020, a further **£4.8 million will have been invested to complete the programme of converting all possible streetlights to LED**. This will significantly reduce running costs and is estimated to achieve a further 35% reduction in CO₂ emissions.



Action EE.6: Replace all streetlights with energy efficient lighting systems by 2020.

Business and Industry

Industry and commercial sectors are large GHG emitters in Dundee and there is great potential to engage with businesses to reduce energy usage and emissions across the city.

Resource Efficient Scotland, in partnership with Dundee & Angus Chamber of Commerce, Scottish Enterprise and Business Gateway, funded by the Scottish Government and European Regional Development Fund have worked closely with local businesses and the Council's Economic Development Service in Dundee since 2013 to provide advice and support in reducing emissions and saving costs. This has involved **advising 63 Small to Medium enterprises** in Dundee, delivering **92 projects** identifying savings of £620k of energy (8,594 MWh) and £13,380 of waste (152 tonnes of waste).

Action EE.7: Provide advice and support on resource efficiency and climate risk management for businesses in Dundee.

ENERGY - Renewables

Objective: Increase the proportion of power and heat from low and zero carbon technologies.

Why take action on Renewables?

Using renewable energy rather than fossil fuels can significantly decrease GHG emissions. The pace of investment and share of renewable energy as a proportion of the energy we generate and consume in Scotland has increased considerably over the past decade as the cost of technologies fall and efficiencies continue to rise.

Renewable energy sources now supply the equivalent of almost 18% of Scottish final energy consumption, up from around 8% in 2009. In 2015, 77% of electricity generation came from zero or low carbon sources, and 27% from wind energy alone.

In Dundee, according to the 2015 MEI, **less than 1% of our locally generated electricity comes from renewable sources**. There is therefore great potential to increase the percentage of local electricity generation from renewable sources in Dundee to make a significant reduction in carbon emissions.

Action RE.2: Research opportunities to utilise local water bodies for renewables including local reservoirs, rivers and estuaries.

Emerging energy technologies such as hydrogen are also likely to become increasingly important for meeting future energy demand from continued population growth and more use of electricity in other sectors (e.g. transport, industry). Changes to how we store energy across the system, and particularly in terms of electricity and heat, could have a profoundly important bearing on our low carbon future.

By 2032, 35% of Scotland's home are to be heated by low-carbon technologies.

Renewables in Dundee

Dundee is a compact city and the opportunities to deploy some renewable technologies such as large scale wind and solar farms are limited. Yet other renewable technologies, such as photovoltaics, are now well established and the challenge remains to scale up their use to a level that can make significant impact on reducing emissions.

Within Dundee's **Local Development Plan**, proposals for all new buildings will be required to demonstrate that a proportion of the carbon emissions reduction standard set by Scottish Building Standards will be met through the installation and operation of low and zero carbon generating technologies. Supplementary guidance will be kept under review to ensure the proportion of the carbon emissions reduction standard to be met by these technologies will increase over time.

Solar

Renewable technologies, in particular photovoltaics, have been included in the design of new build schools. Sidlaw View, Tayview, Coldside and the North East Campus, alongside three systems at DISC, Claverhouse and the Crescent. Further plans include a rolling programme of photovoltaic installation, covering all Council buildings.



Dundee is home to the UK's first **purpose-built electric vehicle charging hub** in Princess Street, featuring eighteen bays of **solar canopies**, rapid charging units and an integrated energy storage system utilising second-life Electric Vehicle (EV) batteries. Further solar canopies have been constructed at Queen Street, Broughty Ferry.

New EV charging hubs will also be developed at Dundee's three main multi-storey car parks - Green Market, Olympia and Bell Street. Each new hub will see the installation of ten charging posts with two connectors, doubling the number of public charging points in the city.

The installation of solar panels and a battery storage system will integrate more renewable energy and enable variable charging of vehicles when grid demand is lower helping reduce environmental impacts associated with electricity generation. The project will also trial a 'master and slave' configurations to reduce equipment and communications costs, while still proving intelligence to support billing and managed charging.



Action RE.3: Identify solar PV opportunities across Dundee for public and private buildings and ensure all civic buildings have renewables where technically feasible.

Geothermal

As part of the regeneration of Dundee's waterfront, the V&A Museum of Design aims to achieve the **BREEAM Excellent category** as a recognised measure of sustainability. The building itself runs solely on geothermal energy. Design includes thirty, 200-metre deep bore holes for heating and cooling of the building along with air source heat pumps on the roof. This form of renewable energy provides the building with 800,000 kWh/annum of heating and 500,000 kWh/annum of cooling.



Hydrogen

Dundee is supporting the Scottish Cities Alliance in the creation of a hydrogen economy in Scotland by developing an **Integrated Energy Park** (combining heat, power and transportation) and with a focus on hydrogen fuel. Replacing diesel with hydrogen as a fuel source in buses will result in better air quality, improved health, reduced noise levels and lower carbon emissions as well as providing the capacity for longer transport distances compared to electricity.

Potential sites are being identified for Integrated Energy Park which will include a hydrogen fuel production and distribution centre at with the potential to attract various associated businesses, including transportation companies such as local bus and fleet networks, who would establish their depots near to the fuel hub for

convenience. Consequently, within the proposed site plan options, development opportunities for associated businesses have been clustered around the hydrogen fuel production site.

Action RE.4: Progress an Integrated Energy Park/ Centre of Excellence concept.

Action RE.5: Explore potential for Integrating hydrogen fuel into heating and transport technologies where feasible.

Offshore Wind

The Scottish Government has identified Dundee Port in the **National Renewables Infrastructure Plan** as the most suitable port location on the East Coast of Scotland and recognised the major investment to support offshore construction and operations & maintenance activity made by both the public and private sector in the city.

Dundee Port has ambition to secure assembly and construction work for the offshore wind sector and have invested over £10m to create a new quayside with an industry-leading “heavy lift” capability, coupled with a significant onshore operational area. Further investment will be forthcoming to enable offshore wind marshalling to be supported at the port should a suitable project be awarded.

Alongside investment in infrastructure, Dundee offers world leading R&D expertise and competencies across the supply chain to meet industry needs. Dundee’s cluster approach brings together regional strengths in the engineering/manufacturing sectors via networks, such as **Energy Dundee** and the **Forth & Tay Offshore Cluster** to support the sector.



Action RE.6: Develop a regional cluster approach to attract investment, support business growth and create jobs in the offshore wind sector; retaining more graduates and making the city a magnet for new talent.

ENERGY – District Heating

Objective: Increase the use of District Heating, create new heat networks and deliver affordable energy.

Why take action on District Heating?

Heat accounts for more than half of the energy consumed in Scotland, with the majority of homes, businesses and public buildings using conventional gas boilers. This dependence on fossil fuels, coupled with old and poorly-insulated building stock, means that heating also accounts for half of Scotland's total CO₂ emissions. Heat must therefore be at the centre of our move to a low carbon economy.

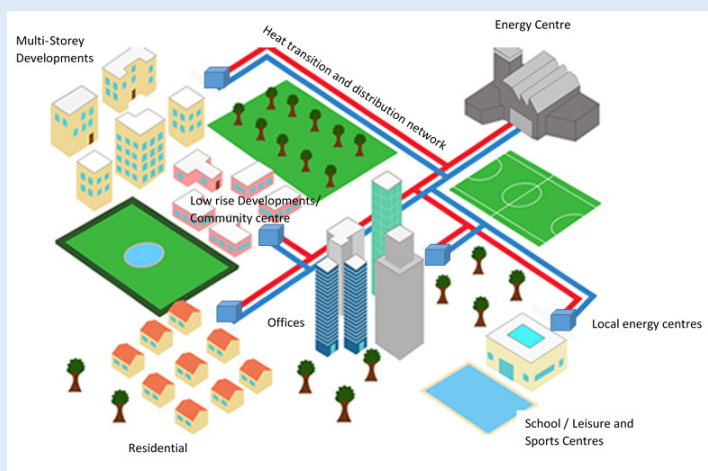
District heating is the supply of heat by hot water to a number of buildings through a heat network of underground pipes. It is an effective method for reducing the carbon intensity of heat, reducing fuel costs and helping to tackle fuel poverty. The benefits of district heating derive from economies of scale. Even a local (building-scale) district heating system is usually operating at a greater scale than the alternative heating systems it replaces.



The Scottish Government recognise that district heating could make an important contribution to meeting Scotland's future heat demand in areas where heat density is sufficiently high to develop networks that can provide heat at an affordable cost. Where allied to a low carbon heat source, it also offers the potential to meet heat decarbonisation objectives⁸.

How District Heating Works

Buildings are connected to the heat network through a substation where the heat used is metered. Buildings may have an associated energy centre which at times provides heat to the building, but at other times feeds heat into the wider district heating network. As the district heating network expands, higher levels of efficiency and resilience are achieved through the incorporation of multiple heat sources supplying multiple and varying demands.



District Heating in Dundee

Historically, the city has embraced energy conservation and generation including district heating dating back to the first public sector social housing developments in the 1920's and 1930's. The Council at that time built the Logie Housing estate and Hospitalfield Housing estate often referred to as "The Steamies" on account of the high temperature steam engines serving low rise units.

Public sector bodies in Dundee have a key leadership role to play in developing district heating through the actions they take on their own estates to minimise heat demand; transforming the district heating market by providing 'anchor' loads (buildings with major heat requirements); and identifying partnership opportunities for utilising unused excess heat.

⁸ The Scottish Government, (2017) 'Consultation on Heat & Energy Efficiency Strategies, and Regulation of District Heating': www.gov.scot/Resource/0051/00513244.pdf

The **University of Dundee** has its own district heating system which has served their campus since the early 1970's. This scheme, considered as integral to a city-wide network, has four large engines with opportunities to expand to other feasible properties in the area.

More recently the City Council has delivered a number of domestic district heating installations within ten multi storey developments at Dallfield, Lansdowne, Lochee and Whorterbank, making homes warmer and more fuel efficient.



Dundee City Councils' **District Heating Strategy 2018-2028**, sets out a long term vision to support the city's growth and low carbon transition using decentralised energy and provides an evidence base to advance district heating network schemes in Dundee, informing both policy and delivery. It identifies potential district heating networks and sets out an indicative programme of short, medium and long-term network development and interconnections together with a deliverable action plan.

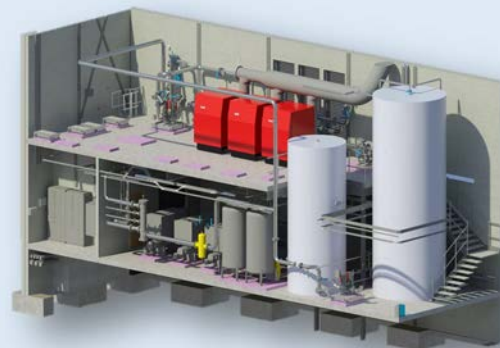
Action DH.1: Explore options to further improve efficiencies in the Council's existing Multi-Storey domestic district heating schemes.

Case Study: Low Carbon District Energy Hub at Regional Performance Centre for Sport

The Council secured £2.9 million funding from the Scottish Government's Low Carbon Infrastructure Transition Programme (LCITP) together with capital investment to develop an innovative **Low Carbon District Energy Hub** at Caird Park Regional Performance Centre for Sport (RPCS). This multi-technology energy centre design combines heat pumps, gas Combined Heat & Power (CHP), solar thermal, photovoltaics, and large thermal stores combined with gas boilers for peak demand and backup.

By delivering a low carbon solution, the Energy Hub will be capable of generating 100% of its electrical demand and provide 85% of the site's heat demand from renewables with a reduction in carbon emissions of at least 536 tCO₂e per annum. The hub will provide key infrastructure that will act as the catalyst to accelerate the city's ambitions for the development of a city-wide energy network.

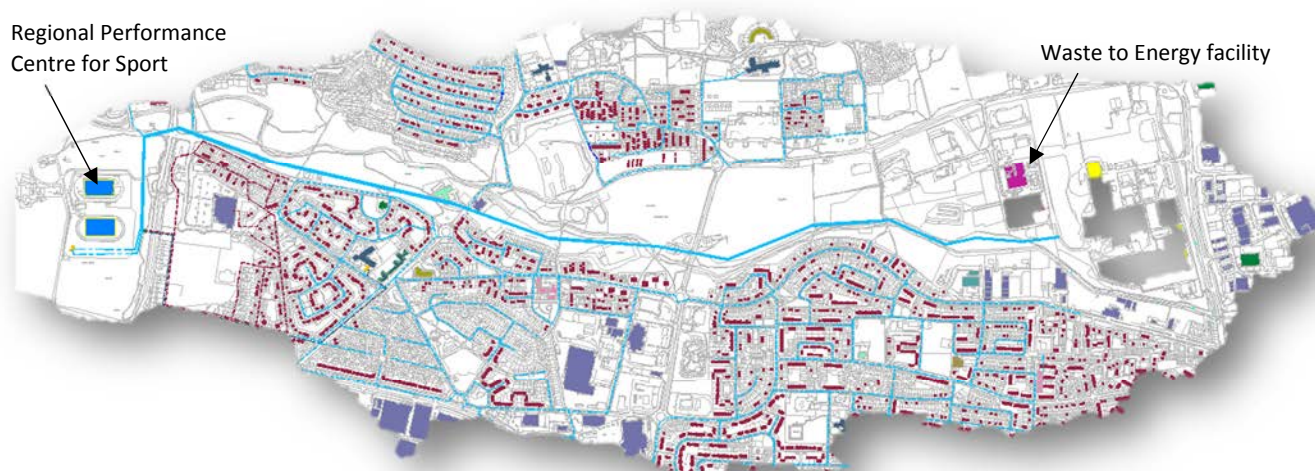
It has been designed in such a way to have future capacity to feed approximately 220 houses in Mill of Mains or Linlathen housing developments adjacent to the site over the next ten years and other possible interested parties.



Action DH.2: Deliver the Low Carbon District Energy Hub at the Regional Performance Centre for Sports (RPCS) as a catalyst project; proving industry/technology programmes and projects.

Dighty Corridor Project

The City Council were successful in an additional LCITP bid in 2018 to develop an investment-ready business case for the Dighty Corridor project. This long-term project would link the waste to energy facility at Baldovie to the Low Carbon District Energy Hub at the RPCS, creating an energy corridor along the line of the Dighty Burn. Connections would then be taken from this main network pipe to serve homes in Douglas, Mid Craigie, Linlathen, Fintry and Whitfield.



Action DH.3: Prepare an investment-ready business case that identifies district heating opportunities from the city's Energy from Waste Combined Heat and Power facility.

Action DH.4: Engage with stakeholders and wider industry to promote district heating in Dundee and work with technology providers to explore fuels for district heating integration.

Energy Services Company

An Energy Services Company (ESCo) is a commercial structure created specifically to produce, supply and manage the local delivery of decentralised energy to a 'whole site' development allowing the generation of low carbon energy into the heart of communities. These can operate as a public-private partnership and provide a model with which to co-ordinate the planning, funding, operations, and delivery of low carbon energy production such as district heating networks. The City Council's recent heat network developments represent an investment of around £27m, which could potentially be transferred to an ESCo to operate, and form part of its asset base.

Action DH.5: Investigate options to create a Dundee City Energy Services Company (ESCo) to help coordinate planning, funding, operations, and delivery of projects.

Local Heat and Energy Efficiency Strategies

Dundee City Council are working with the Scottish Cities Alliance and Resource Efficient Scotland to pilot a **Local Heat and Energy Efficiency Strategies** (LHEES) approach in the Lochee Community Planning Partnership area. Proposed by the Scottish Government, an LHEES is intended to establish geographical zones which set out the most appropriate energy efficiency, district heating and heat decarbonisation options for local areas. The study focuses the step-by-step practicalities of developing a localised investment plan, the data requirements necessary to inform the plan, the technology solutions likely to be applicable in the area as well as an understanding of how an LHEES model could be replicated across the city.

Action DH.6: Participate in the Scottish Government's pilot Local Heat and Energy Efficiency Strategy (LHEES) programme and respond to proposals to create a statutory framework for LHEES.

MOBILITY

Objective: Reduce the impact of transport and travel by promoting and deploying sustainable alternatives.

Why Take Action on Mobility?



Unlike the dense smog and smoking chimneys of the past, today's air pollution is largely considered invisible; caused mainly by emissions from vehicles that can descend into the lungs and aggravate existing health problems such as asthma and, heart and respiratory disease.

The Scottish Government acknowledges that local authorities are meeting their statutory responsibilities in actively working towards achieving air quality standards. However, across many areas of Scotland including Dundee, **the rate of progress must increase if air quality standards are to be met.**

The Scottish Government intend to achieve this through a range of policy actions including the **Cleaner Air for Scotland Strategy – The Road to a**

Healthier Future which sets out proposals to reduce air pollution further and fulfil Scotland's legal responsibilities. It has six main objectives on Transport, Health, Placemaking, Legislation & Policy, Communication and Climate Change, with sustainability as a common thread throughout. In addition, Scottish local authorities must consider air quality when developing a SECAP.

Dundee has an **Air Quality Action Management Area** covering the whole of the local authority area, as there are locations where the Scottish and UK Air Quality Standards and EU limits for nitrogen dioxide (NO₂) and fine particulates (PM₁₀) are being exceeded.

Placemaking is how we plan, design and manage our towns and cities. This can significantly impact air quality and is fundamental to the Scottish Government's spatial planning policies. For example, integrating greenspaces into new and existing developments can act as a buffer against noise and air emissions from vehicles, whilst improving green spaces and active travel opportunities.

New developments can be designed so that they generate less traffic, are well linked to public transport, walking and cycling routes and make it easier for people to make sustainable transport choices. This not only helps reduce air pollution but also creates attractive, healthy places to work and live in.

The new **National Planning Framework 3** and **Scottish Planning Policy** set out the Scottish Government's national spatial strategy and planning policies to ensure more connected, sustainable places that reduce the need to travel; integrate different transport modes and provide safe, convenient opportunities for active travel.

Mobility in Dundee

Engage Dundee, a consultation process carried out in June 2017 to draw out the priorities of citizens to input to the City and Council Plan, received over 6,000 responses. It highlighted the importance of improving parking, public transport and cycle routes. Increasing sustainable transport options ensures streets are safer and less congested, air quality, and consequently, human health, improves and carbon dioxide emissions are reduced.



Active Travel

Cycling is the fastest growing mode of travel in Scotland and recent evidence from the Dundee Travel Active programme shows that communities from across Dundee respond positively to active travel initiatives by walking and cycling more. **However, only 25% of households in Dundee have access to an adult bike and in 2013, only 1% of journeys in Dundee were made by bike** – that's a third less than the Scottish average on both scores and this despite the fact that 41% of Dundee Households do not own a car.

Dundee being a small city, is perfectly suited to cycling around given the right infrastructure, although the hilly topography can pose challenges on some routes! Active travel is encouraged through provision of walking and cycling routes and various initiatives promoted to schools and communities. Additionally, the Council supports the Dundee Cycling Forum and publishes the Dundee Cycle Map. In line with the **Dundee Cycling Strategy 2016**, cycle paths are being systematically upgraded and extended where feasible; alongside changes in policy and promotion, this will enable more people to cycle more often.

Action M.1: Implement the Dundee Cycling Strategy and Councils extensive Active Travel programme in partnership with community groups, improving and increasing cycling paths and infrastructure across the city to reduce the modal share of car based transport.

In July 2018, Dundee was successful in the first phase of Sustrans Scotland's 'Community Links PLUS' design competition. This has provided funding to undertake engagement and design work during 2019, which will look at improving cycling and walking routes from communities in the north-west and north-east of Dundee into the city centre.

A new **Waterfront Active Travel Hub** is to be developed by 2020. The Hub will feature a bike repair/rental shop, with operators responsible for providing information and taster sessions on all forms of sustainable transport within the city including EVs, car clubs, walking groups and cycle routes.

Action M.2: Develop a Low Carbon Active Travel Hub in Dundee Waterfront to include bike hire, cycle parking, bike maintenance, electric vehicle (EV) charge points, an EV car club and community outreach.

Mobility Innovation Living Laboratory project (MILL), a public-private-people partnership led by Urban Foresight, strives to introduce shared mobility solutions that integrate with the transport network based on initiatives tested in the real world, namely Dundee city centre, under the banner ShareMORE (Shared Mobility and Resource Efficiency). This will include projects that will improve the efficiency of parking infrastructure, implement easy to access cycle hire schemes, enhance public transport information and accessibility as well as encourage shared use of assets to reduce the number of vehicles on the road.

Action M.3: Implement Shared Mobility and Resource Efficiency projects developed by the Mobility in Living Laboratory (MILL) to ensure Dundee remains in a position to take advantage of future innovative mobility solutions including autonomous vehicles.

A number of projects are being delivered to further support active travel:

- WOW is the promotion and financial support of Living Streets' **'Walk Once a Week'** school challenge and 'travel tracker' classroom resource. This inclusive initiative encourages children to record their mode of travel every day of the week with the opportunity to earn a limited edition badge designed by other school pupils participating in the UK.
- **Pedal to the Pool**, endorsed by the Council, is a family approach to active travel, offering free swimming for children who have cycled to their local swimming pool. Participants take a photograph next to their bike to show they have cycled and they can swim for free.

- The **'Get on the Go'** campaign was a joint radio and social media campaign between Dundee City, Perth and Kinross, and Angus Councils. The campaign was aimed at people driving in their cars, specifically single occupancy cars. The campaign promoted walking, cycling and park and stride, as well as car sharing schemes, with the aim of reducing the number of unnecessary cars on the road.
- **'Safer Routes'** leaflets have been designed and distributed to every primary school within Dundee. These school specific maps highlight the recommended safe routes for walking to school, as well as highlighting designated 'park and stride' zones; where parents can park up and pupils can walk the rest of the way (typically a ten minute walk is acceptable). These maps are intended to make it easy for families to choose active travel methods, providing information on safe crossing zones and less congested routes in their area.

Low Carbon Travel

Of the 75 posts, 56 have been installed by the Council with Scottish Government funding and provide free charging. Tesla have installed 8 superchargers. From the council owned chargers alone there have been over 111,300 charging sessions, providing over 2.5 million electric miles. That is a total reduction of an estimated 475 tonnes CO₂.

The **Drive Dundee Electric campaign** was launched in June 2017 to encourage and support the uptake of EV's in the area. It is now the face of all the charging infrastructure, regulation, events and acts as a point of information and contact to ensure all response is accurate and quick, providing the best experience to EV owners. The campaign will be working with local car franchises to promote EVs there and run a mini experience centre to help familiarise the public with the vehicles and charging technology.

Almost 15% of taxis that operate in Dundee are electric and this figure is expected to reach 25% in the coming years. Dundee City Council offers a reduced price for taxi testing as there is less for the mechanics to check. There is an EV only taxi rank, company plates must now be an EV and all new private hire must be an EV.

Action M.5: Expand Electric Vehicle (EV) charging hubs and infrastructure across the city.

Action M.6: Increase EV uptake in Dundee via support and awareness provided by the Drive Dundee Electric campaign and local policy measures, including continued migration to low carbon vehicles within the council fleet.

As air quality becomes an increasingly political issue, measures are being put in place to discourage more polluting vehicles from entering areas where air quality is poor. Dundee is one of four Scottish cities that will introduce a **Low Emission Zone** (LEZ) by 2020 in line with Scottish Government targets. An LEZ is a defined geographical area where access for some polluting or high emission vehicles is completely restricted or absolutely deterred. An LEZ is designed to promote low emission vehicles, which are permitted to enter the zone without penalty. The Dundee LEZ will



Action M.7: Establish a Low Emission Zone in Dundee by 2020 to contribute to the broader city objectives and the vision to create a healthy, vibrant and attractive city by protecting public health through improving air quality.

Case Study: ECO Stars Dundee

Two ECO Stars schemes have been set up in Dundee to provide information and support to the city's fleet operators to help them improve vehicle efficiency, reduce fuel consumption and reduce emissions whilst rewarding them with a star rating and cost savings.

The first to launch was the Heavy Vehicles scheme in December 2013 (supported by TACTRAN), while the Taxi – Private Hire Vehicles scheme was launched in March 2015.



Action M.8: Continued promotion of ECOSTARS schemes to encourage Heavy Duty, Taxis and Private Hire vehicle companies to participate in air quality improvements in Dundee.

In conjunction with the Integrated Energy Park discussed under the Energy theme, the Scottish Cities Alliance and partners in Dundee are progressing opportunities for integrating hydrogen fuel with other heating and transport technologies. The objective is to support the transition of fuel cell buses from technically proven but high cost demonstrators, to a more mainstream choice for public transport authorities / operators.

Action M.9: Explore options for increasing deployment of low emission buses in Dundee, including hybrid and hydrogen buses.

WASTE

Objective: Manage waste sustainably by reducing, reusing and recovering waste to improve resource efficiency whilst working towards a circular economy.

Why Take Action on Waste?

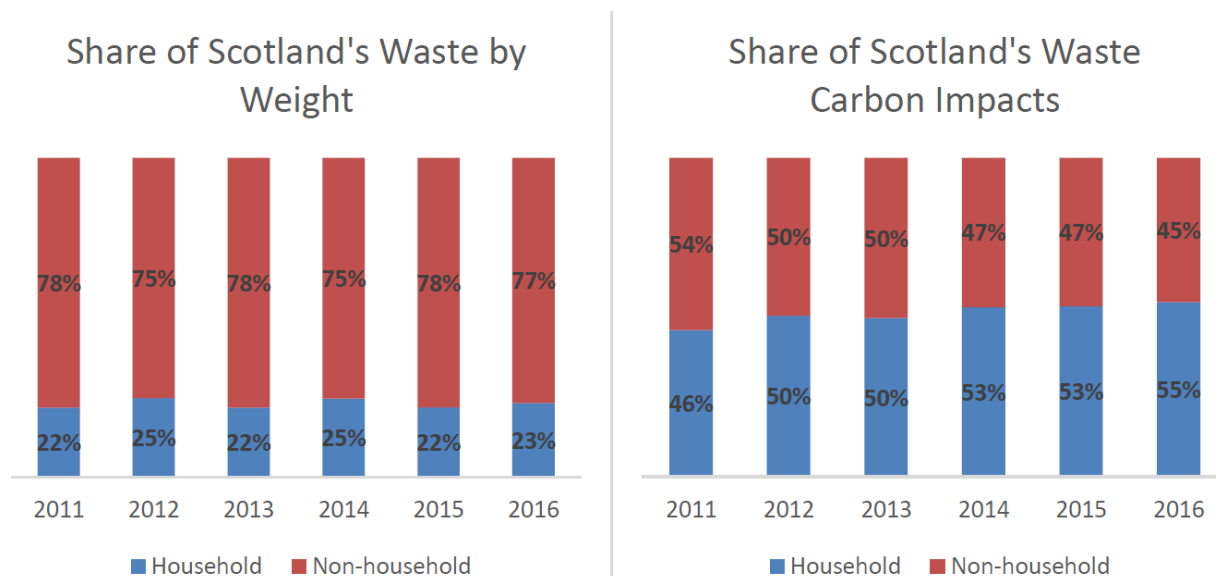
The five main policy drivers to reduce waste generation and increase recycling rates in Scotland are:

1. Ban on biodegradable municipal waste to landfill from 2021
2. Reduce weight of waste arisings in Scotland by 15% below 2011 levels by 2025
3. Reduce per capita food waste arisings in Scotland by 33% below 2013 levels by 2025
4. Achieve 70% recycle rate for all waste by 2025
5. Achieve maximum landfill rate of 5% by 2025

Zero Waste Scotland has developed a Carbon Metric tool to help assess the carbon impacts for waste materials. The Carbon Metric quantifies the complete lifecycle impacts of more than 30 different common waste materials, providing policy makers and business leaders with an alternative to weight-based waste measurement, and allowing them to identify and focus specifically on those waste materials with the highest carbon impacts and greatest potential carbon savings.

Figure 8 shows that household waste accounts for less than 25% of all Scottish waste by weight, but a growing majority of the carbon impacts due to the high carbon value of household waste and more rapid impact reduction in the non-household waste stream. Food waste in particular has a high carbon impact, accounting for 2% of all waste but 22% of all carbon impacts.

Figure 8: Comparison of Weight and Carbon Impact of Scotland's waste



Source: www.zerowastescotland.org.uk/research-evidence/carbon-metric-summary-report

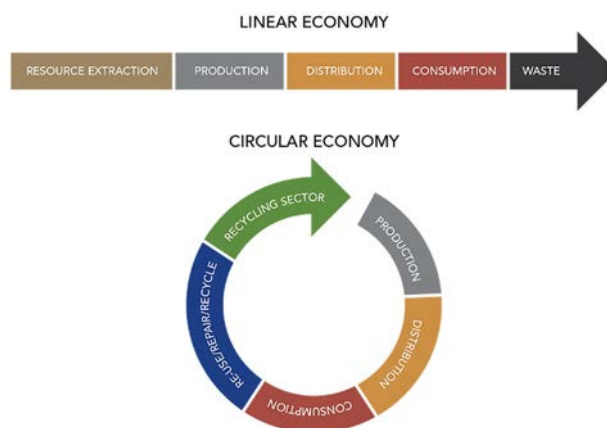
Circular Economy

A circular economy is an alternative to a traditional linear economy (make, use, dispose) aiming to keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life. This closed loop model can offer businesses new commercial opportunities, reduce resource costs and to reduce carbon emissions.

The Carbon Metric is helping to measure our progress towards a Circular economy in Scotland, proving that sustainable waste and resource policy can deliver major emissions savings across all economic sectors.

Local businesses are being supported to maximise circular economy opportunities through **Circular Tayside**, a joint Chamber of Commerce and Zero Waste Scotland initiative to deliver savings across the Food and Drink, Manufacturing, Energy/Oil and Gas and Manufacturing sectors.

Although much work is already taking place, many opportunities were identified in the action planning process that could accelerate our progress towards a more circular economy in Dundee. Opportunities will be identified and taken forward by Circular Tayside, with a city-wide circular economy education and awareness strategy to be developed.



Action W.1: Develop and implement circular economy projects identified by the Circular Tayside initiative and deliver a circular economy education strategy across the City.

Waste in Dundee

Scotland's Zero Waste Plan 2010 sets a municipal recycling target of 70% by 2025. Dundee City Council currently recycles 35% of household waste and are working on improving, enhancing and supporting these services further.

Improved waste and comprehensive recycling collections have been rolled out across the city since 2012 and these services are now fully compliant with the **Charter for Household Recycling in Scotland** (a government initiative to bring consistency to recycling services across the country). Dundee is the first city in Scotland to achieve this and internal waste management practices are now also being aligned with the Charter. The Council's Waste team continually assesses collection routes, improving these where possible to avoid unnecessary trips, therefore reducing emissions and fuel costs as well as increasing resource efficiency.

Current waste education and awareness programmes include support on how to '**Reduce, Re-Use and Recycle**' to schools and community groups. Meaningful opportunities and activities are regularly offered to a variety of people, linking to the 'Take Pride in your City' campaign. The Council has been working with Zero Waste Scotland to develop a **Community Litter Prevention Action Plan**, made up of individual plans from each of the Council's services, businesses, schools, community groups and organisations.

With the ban on biodegradable waste going to landfill coming into force in Scotland in 2021, Dundee will participate and support the national campaign to **reduce food waste** across businesses, schools and homes.

Technology is also playing its part in waste reduction. The **Smart Street Waste** project is trialling a mix of smart technology including solar-powered compactor bins, sensors in street and park area bins, electric industrial vacuum machines and the utilisation of hand held devices, which could lead to a reduction in journeys for emptying and efficient route planning, thereby reducing carbon emissions.

Action W.2: Continue to communicate frequently with residents around waste/recycling services to improve participation/recycle quantity and quality.

Action W.3: Zero Waste Scotland to pilot food waste reduction project in Dundee schools, hospitals and small businesses by December 2020.

Action W.4: Encourage citizens to take personal and shared responsibility for the environment through the "Take Pride in Your City" campaign.

Action W.5: Trial Smart waste technology to improve waste monitoring and collection efficiencies in the city.

Action W.6: Explore initiatives to significantly reduce the quantity of single-use plastics used in Dundee organisations including DCC premises and wider commercial establishments.

Action W.7: Continued delivery of sustained waste education campaign programme which aligns to the curriculum for excellence and embeds behavioural change at all stages of the educational journey.



Introducing a **deposit return scheme** is part of Scotland's ambitious plans to develop a circular economy. These schemes are used in lots of places around the world as a way of encouraging more people to recycle certain drinks containers, such as plastic, glass bottles and metal cans. They work by charging anyone who buys a drink a deposit for the bottle or can it comes in. They can get this money back when they return the bottle or can back to a collection point to be recycled. Such schemes have been found to increase recycling of drinks containers to much higher levels than we have in Scotland at the moment.

The public consultation on a deposit return scheme for Scotland received more than 3,000 responses from individuals and organisations, indicating the high level of public interest. The final scheme design has now been published and the Scottish Government will bring forward legislation for its introduction.

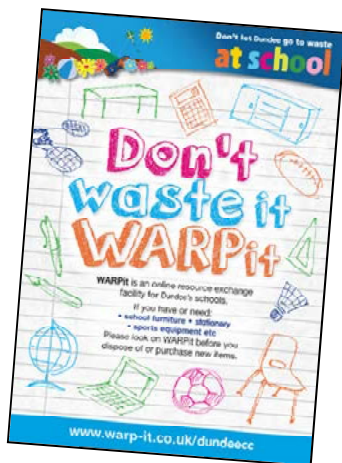
Action W.8: Support the Scottish Governments Deposit Return Scheme and other viable take back schemes.

Reuse and Repair

Thousands of tonnes of waste are thrown out by households each year and finding alternative uses by reusing and repairing can divert this waste and save carbon. There are a range of organisations in the city actively involved in re use and repair of a range of items including, textiles, furniture, bikes, electronic and white goods.

The **Baldovie Community Reuse Hub** was initially a pilot project between the Council, Tayside Re-Users, Transform and Dundee Social Enterprise Network. Items are saved from the skip and repaired, reducing waste. Since September 2015, approximately 135,000kg of goods have been recovered. Following successful completion of the pilot, Tayside Reusers will be taking the project forward.





WARPit (Waste Action Re-Use Portal) is an online tool that makes it easy for organisations in Dundee to locate and obtain surplus resources, (such as furniture, office consumables, electrical items, fixtures and fittings, books and technical equipment) thereby reducing procurement spend and waste disposal costs, as well as minimising waste and reducing associated carbon emissions.

Since launching in 2014, Dundee City Council's use of WARPit has saved over £320,000 in item replacement, waste disposal and procurement costs; 154,000kg of CO₂ and 53,100kg in waste disposal. Items totaling almost £69,000 have been donated to local charities.

A Tayside Charities WARPit account has also been established with over 20 members, through which charities and social enterprises across Dundee and the wider Tayside region can sign up, donate their surplus resources, and claim additional resources, for free. Not only is WARPit a great way to make the best of our regions resources through partnership working, but it will help to record and track our collective monetary and carbon savings.

Action W.9: Stimulate increased reuse as well as upcycling and repairing opportunities and the necessary skills and training to undertake these.

RESILIENCE

Objective: Reduce the risks and vulnerability to a changing climate and build resilience to unavoidable impacts.

Why Take Action on Resilience?

Climate Resilience concerns how we adjust our society as well as our built and natural environments to the impacts of climate change. This will require changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. Dundee will need to develop adaptation solutions and implement actions to respond to the impacts of climate change that are already happening, as well as prepare for future impacts.

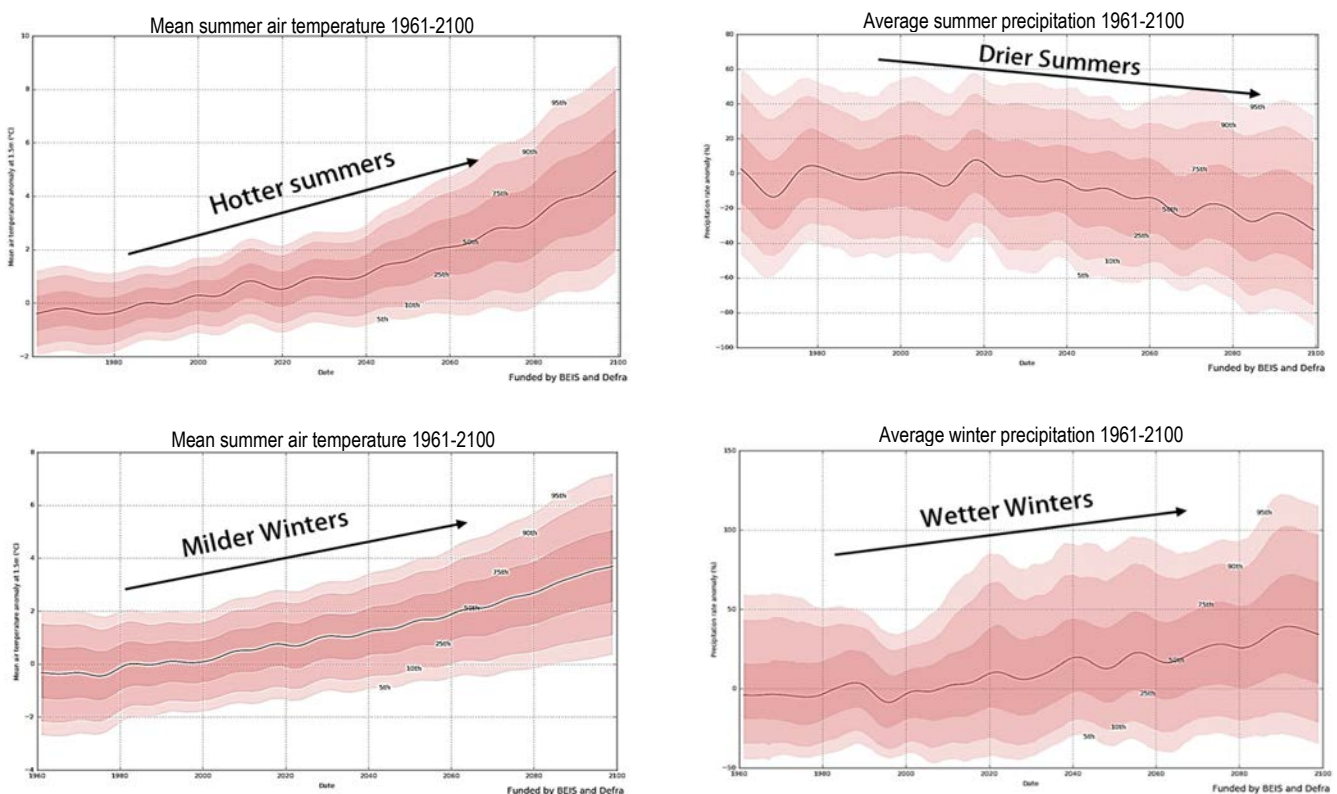
Climate Data for Dundee between 1961 and 1996 emphasises the changes we are seeing to Dundee's climate:

- Annual mean daily temperature = 1.2°C increase.
- Annual number of air frost days = 28 day reduction.
- Total annual precipitation = 19% increase.

Future Climate in Dundee

As shown in the graphs below, Dundee's climate is set to get warmer and drier in the summer and milder and wetter in the winter. It is also expected that Dundee will experience higher incidences of extreme weather events such as flooding and storms a rise in sea level around the coast. What is considered a heatwave or extremely hot summer today will occur more frequently in future.

Figure 9: UKCP18 climate projections for Dundee



Climate Risk and Vulnerability Assessment

As required by the CoM, a Risk and Vulnerability Assessment of ten policy sectors was carried out in small workshops with key resources in each policy sector to determine the nature and extent of climate related risks in Dundee. Climate impacts were identified for each of the climate hazards/scenarios for the policy sectors with an estimate of how likely they are to occur, the level of impact and the timeframe for occurrence, short, medium or long term. The policy sectors and some examples of impacts are shown below.

Policy Sector	Expected Impact(s)
Buildings	Increased demand for cooling and insulation, higher costs for repair and maintenance.
Transport	Damage to transport infrastructure, extreme weather impact on mobility, higher maintenance costs.
Energy	Damage to electrical infrastructure and power generation facilities.
Water	Increased water scarcity and drought, impacts upon flora and fauna, lower ground water recharge.
Waste	Damage to waste infrastructure and treatment facilities, site and access disruption.
Land Use Planning	Urban heat island effect, erosion and floods, including coastal.
Environment & Biodiversity	Ecosystem degradation, species migration, insect infestation, habitat loss due to flooding, access to food.
Health	Increased disease and mortality rate, hygiene issues, increased incidence of injury.
Civil Protection & Emergency	Increased number of disasters/deployments, increased insurance costs.
Tourism	Decline in tourism and demand, closure of museums, increased maintenance costs, reduction in bathing water quality.

During this exercise, climate resilience actions were co-designed with stakeholders, including NHS Tayside, Scottish Water, SEPA and Scottish Natural Heritage. Many of the actions identified were already in progress by various organisations; some new actions were identified during the SECAP visioning event and the remaining actions were devised in partnership with the stakeholders.

The full Risk and Vulnerability Assessment is available as a separate, supporting document to the SECAP.

The benefit of collaborating across sectors to co-design adaptation and resilience actions are that the actions are deliberated in a holistic, integrated manner, with due consideration given to “place”. Going forward this will mean designing urban areas with the people that use it, to creating a place with a strong identity, engaging successfully with its surrounding buildings, nature and activities. For example, when increasing green infrastructure, rather than designing this in isolation, this might be integrated with a new cycle route and contain planting that can withstand climate changes, increase biodiversity and reduce heat island impacts.

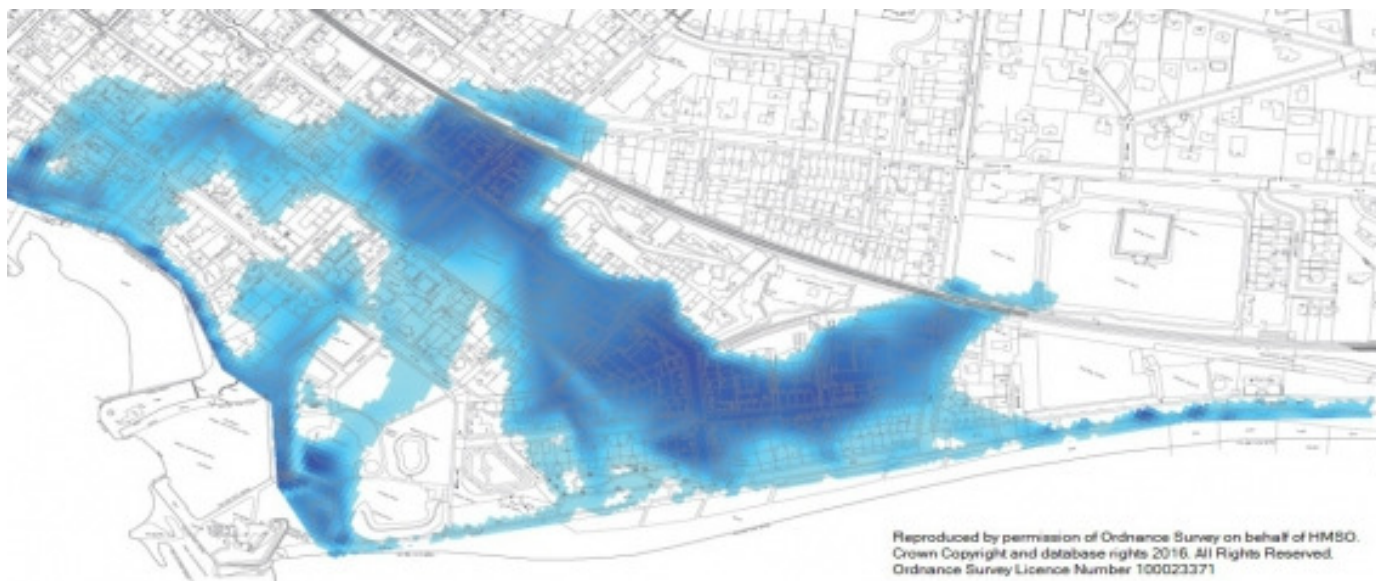
Resilience in Dundee

Infrastructure and Services

Designing infrastructure, building and services to be climate ready will involve climate proofing new developments as well as retrofitting adaptive measures, such as increasing cooling systems and protecting the built heritage of the city.

Since 2009, Councils in Scotland have had a duty to work towards a co-ordinated flood risk management plan. Studies have demonstrated that large areas of Broughty Ferry are at significant risk and during a 1 in 200

year event, extreme water levels in the River Tay would cause flooding. The estimated costs to residents, businesses and infrastructure would be in the region of £97 million with 450 properties at risk.



The £13.5m Broughty Ferry Flood Protection scheme is currently at detailed design stage and will see the construction of a new setback wall and gates along with a four meter wide combined cycle walkway running from Douglas Terrace to Broughty Castle. This scheme will also include soft flood protection measures utilising the existing sand dunes along Broughty Ferry Esplanade from the car park to the Glass Pavilion.



An investment of £6.9m has recently been made to construct set back walls and flood gates from the central waterfront to Dundee airport which used local stone to minimise the carbon footprint and incorporated a combined cycle walkway.



Early collaboration with other sectors in the development of projects can ensure opportunities to enhance biodiversity, water management and active travel are considered at the pre-design stage.

Dundee City Council is working closely with Scottish Water on an integrated catchment study to develop Surface Water Management Plans, this will include measures such as increasing permeability of surface, increasing blue and green infrastructure and improving urban drainage networks.

Scottish Water will increase their network to ensure sufficient drinking water is available, expanding to the River Tay in times of low flow. Rainwater harvesting and conservation techniques will help to provide additional back up as well as help to reduce supply and treatment related carbon emissions and energy use. Increased use of renewables will ensure we are resilient to interruptions in energy supply and Business Continuity plans will be updated to incorporate climatic risks.



Action R.1: Design a Dundee Surface Water Management Plan/Tayside Integrated Catchment Study that considers measures to reduce flood risk and protect buildings, infrastructure and people from flooding and includes blue-green infrastructure across the city and/or retrofitting SUDS to store and manage surface water runoff. Ecological solutions will be used where possible e.g. dune replenishment as part of Dundee Coastal Flood Protection Scheme.

Action R.2: Undertake coastal and watercourse inspections and organise repairs and maintenance under current legislation and the Tay Estuary and Montrose Basin Local Flood Risk Management Plan.

Action R.3: Improve Dundee's Public Sewer and Mains Water systems to improve drinking water quality and reduce sewage discharge to the water environment; continued communication of water quality information via the electronic display at Monifieth, SEPA website and Dundee City Council signage and social media.

Action R.4: Scottish Water will review and develop its 25 Year Water Resource Plan to ensure projected drought conditions are included; incorporating reinforcement of reservoirs, expanding the supply network and developing mitigation measures as required.

Action R.5: Monitor costs associated with climate change including heating and cooling costs as well as maintenance and repair costs of buildings and infrastructure.

Action R.6: Promote efficient water use by businesses and the wider community and create a business case for rainwater capture and reuse capital investment.

Action R.7: Implement 'Cleaner Air for Scotland - The Road to a Healthier Future' strategy and monitor guidance for developers to ensure air quality is taken into account for new developments.

Case Study: Broughty Ferry sand dune management

Soft engineering techniques are being utilised to restore and develop the dunes and act as a natural flood defence, avoiding the need for more costly wall structures or stone cores.

The height and width of the land side dunes will be increased at points to provide better flood protection. This involves removing the top layer of grasses and vegetation, importing sand and relaying the grasses which help stabilise the dune and provide a barrier to absorb wave energy.



On the sea side of the dunes, chespaie fencing will be used to trap moving sand and allow the dunes to grow out. It will also be used to create beach access points and prevent public access in order to help protect and stabilise the dunes and prevent erosion. These works will be complemented by a programme of planting new grasses and inspection regimes.

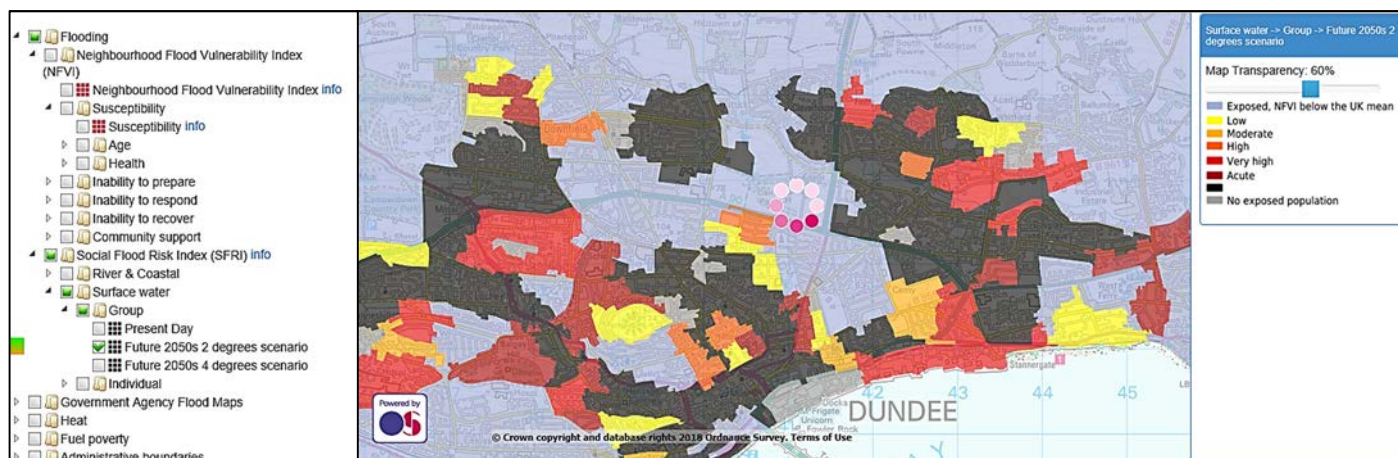
NHS Tayside are already experiencing increased demands on the service due to extreme weather events and a changing climate – public health campaigns and regular testing and review of Winter Plans to prioritise services will be critical. The **Dundee Green Health Partnership**, is one of four national pilot projects funded by Scottish Natural Heritage. In partnership with existing projects – Nature Based Interventions, NHS Tayside and developing referral pathways, it works on improving mental health and well-being using green spaces in Dundee.

Action R.8: Public health information campaigns to address increase in sun/heat/air and water quality related illnesses and development of Green Health Partnership, linking health care and greenspace initiatives.

Action R.9: Develop an interactive green map for Dundee to help visitors and residents identify sustainable options and information for travel, food, recreation and resource use.

SMART technology, such as that being developed for the waste and transport sectors in SMART cities can help to ensure communication methods are prompt and wide-reaching, for example during transport interruptions, providing quicker demand response options for commuters and visitors to Dundee. New online tools such as **Climate Just** can also help us to identify vulnerable communities and future flood risk.

Figure 10: UKCP09 Climate Just mapping tool showing social flood risk in 2050 under a 2 degree warming scenario



If waste services are disrupted due to weather events there could be increases in litter and fly tipping and longer refuse runs. The **Take Pride in Your City campaign** will continue to encourage responsible litter behaviour; whilst waste service operational contingencies will continue to be reviewed and updated. Waste reduction/circular economy education and activities will help to mitigate this.

Action R.10: SMART Mobility to include co-ordinated communication of transport information and quicker demand response options to keep visitors and residents informed of disruptions and alternatives.

Action R.11: Plan co-ordinated, prompt communication to inform residents of waste service disruptions, alternative options available and estimate of when normal services will resume; ensuring that operational contingencies are in place for extreme weather events.

Community Resilience

Ensuring Dundee is a truly resilient city, where communities feel empowered and connected will be challenging. When broadening out from purely climatic impacts, resilience becomes even more challenging and complex, and will rely not only on our local communities working together but also on the emerging field of resilience science and the experience of other communities in order to find solutions that truly empower communities and do not just rely on physical adaptation measures.

Local Resilience Partnerships carry out considerable planning to ensure that communities, especially the vulnerable, are supported during events that may cause an interruption to services and utilities, e.g. storms and flooding. The Council also has robust Flood Emergency Plans in place and climate related risks are taken into account in the Councils Risk Register.

Communication will certainly be key to ensuring that Dundee is resilient to climate change. Whether it be engaging with communities to co-design resilient neighbourhoods or helping schools and businesses and communities prepare for future risks to health or climate hazards and possible interruptions to essential services; clever and effective methods of communication will be essential.

Action R.12: Develop adaptation engagement tools to support community capacity building, including visual and interactive tools, workshops and collaboration with community organisations.

Action R.13: Develop a Persons at Risk Register in partnership with the NHS to help identify members of the community vulnerable to interruptions in supply of power, heating, water and other essential services and regular testing and review of Local Resilience Partnership plans and NHS Winter Plans to prioritise services.

Action R.14: Update the Green Tourism accreditation to incorporate climate adaptation and increase the number of Green Tourism Award Holders in Dundee.

Case Study: Eco Schools

Eco-Schools is a global programme designed to encourage a whole-school approach to Learning for Sustainability, encouraging young people to engage in their environment by allowing them the opportunity to actively protect it. To earn a Green Flag Award, schools choose from 10 topics, ensuring that it is pupil-led, linked to the curriculum and the UN Sustainable Development goals.



Many schools in Dundee undertake wide-ranging activities related to sustainability and climate change, providing a significant opportunity to affect behaviour change as well as directly reducing resource use across buildings. Increasing Eco-Schools attainment has the potential to reap considerable benefits.

Dundee City Council is endeavouring to increase Eco-Schools Green Flag status by adopting a co-ordinated approach; ensuring schools are aware of local support available to them and how Eco-Schools can be easily integrated into their curriculum across many learning objectives. By supporting a small number of schools through the new process in a pilot project, we hope to encourage others to take part by demonstrating the new process and the benefits of taking part.

Action R.15: Increase participation in the Eco-Schools programme in Dundee via improved local support and pilot projects with appointed schools.

Green Space and Biodiversity

Over 40% of Dundee is publicly accessible greenspace, with our waterfront location stretching 16.5km along the Tay Estuary. The water quality of the Tay makes it one of the best major estuaries in Europe and supports biodiversity and habitats which have been recognised internationally and offered protection through a number of natural heritage designations.

One of our major underpinning aims is to care for the 'green lungs' of Dundee, to the benefit of citizens, visitors and biodiversity alike. More than 20 parks and greenspaces are annually assessed against the **National Green Flag criteria**; a number of which consider the impacts of climate change. 6 green spaces successfully attain a nation-wide Green Flag award.





Increasing green and blue infrastructure is a key adaptation action, however these need to be integrated with wider objectives such as active travel and biodiversity.

Preventing biodiversity loss as well as increasing biodiversity in the city will be the main objectives of the new Biodiversity Plan; and for this to happen, biodiversity needs to be incorporated into decision making across all sectors. Enhancing habitats, improving monitoring and changing green space maintenance regimes to favour biodiversity are one part of the picture.

Creating climate proof habitats for new developments and infrastructure improvements, for example, improving flood defences at Broughty Ferry will involve replenish the dunes, thus enhancing coastal habitats.

Action R.16: Co-design blue/green infrastructure improvements in partnership with relevant departments and the wider community. Aligning with Dundee City Councils green networks supplementary planning guidance; improvements will take into account flooding, heat island effect, active travel, biodiversity and including appropriate planting in urban areas, as well as community cohesion opportunities.

Action R.17: Produce an Open Space strategy based on collaboration and outcomes from workshops to include green infrastructure that helps Dundee's nature to adapt to changes in climate and supports the delivery of Dundee's green networks.

Action R.18: Prepare a Biodiversity Plan that includes actions for safeguarding and enhancing existing habitats and species as well as actions on potential sites and projects. The plan should be integrated across sectors and the broader green network and adopted corporate-wide to ensure biodiversity protection and enhancement are prioritised in all green space maintenance regimes, relevant projects and developments.

Action R.19: Contribute to the enhancement and maintenance of the Tay River and coastal habitats. Identify opportunities for soft coastal management /managed realignment habitat creation and maintain the Beach Award for Broughty Ferry.

Action R.20: Monitor and review the Urban Tree Policy to identify suitable areas for tree planting with climate appropriate species and with consideration of how planting interacts with surroundings e.g. air quality, active transport, biodiversity etc.

Community food growing is one of the best ways to increase neighbourhood resilience, empowering people to work together to produce their own resources, share with others and build relationships and support networks.

In 2014, funding was made available to develop growing spaces, with local projects now established in Menzieshill, Douglas, Lochee, Ardler, Charleston and Maryfield with work is ongoing with the local community to establish a growing space in Fintry.



Action R21: Develop a Local Food Growing Strategy and expand the number of community growing projects and support them with skills training, materials and capacity building.

5. SECAP DELIVERY

Action Plan

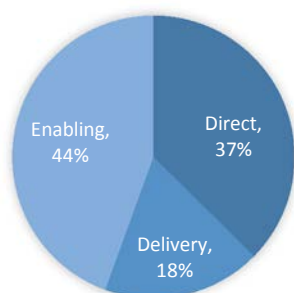
The SECAP will be delivered through the four themes of Energy, Mobility, Waste and Resilience with each theme including an initial set of actions (Annex 1) to reduce carbon emissions or adapt to a changing climate, taking into account existing projects, stakeholder priorities and national initiatives.

Three types of actions have been defined:

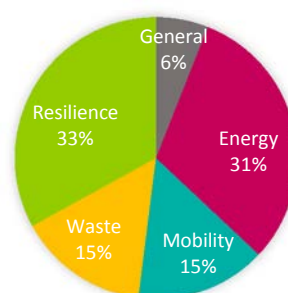
- Those that have **direct** impact on emissions and resilience, such as an energy efficiency programme.
- Those that help to **deliver** or implement the direct actions, such as undertaking research, securing funding, measuring and monitoring.
- Those that **enable** the delivery of actions such as developing governance and project management frameworks.

62 actions have been identified for the draft SECAP and are split by the following:

Split of actions by type



Split of actions by theme

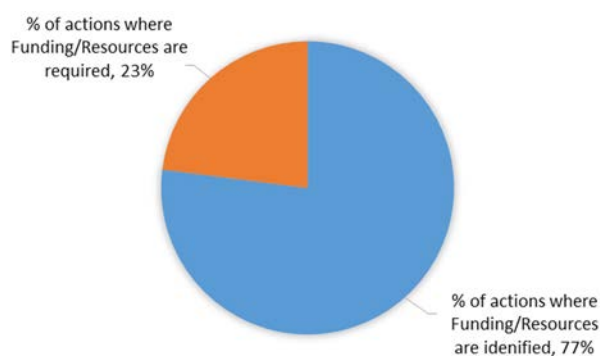


Funding and Resourcing

The successful delivery of the SECAP actions will depend on appropriate levels of funding and resources being in place. It is stressed that these actions represent a mix of committed and desired interventions across stakeholders with many actions already having funding committed, whilst others will require feasibility studies or business cases in the first instance to determine their viability and funding subsequently secured to make them happen. This is particularly the case for some of the larger projects.

What is clear is that significant additional investment will be needed for a number of projects if the targets are to be met. All stakeholders are therefore committed to exploring potential sources of funding through existing avenues as well as any innovative approaches to ensuring projects can be delivered.

The SECAP is a city wide plan, not just a Council document. It is essential that all stakeholders play their part in proposing and taking forward actions. The action plan will therefore constantly evolve and change to reflect ongoing engagement and the adoption of further actions from other stakeholders to support the SECAP.



Governance

Successful implementation of the SECAP will require governance at both strategic and action level. It is proposed that Dundee City Council's Sustainability and Climate Change Team fulfil a co-ordinating role to oversee progress.

To ensure Dundee City Council is effectively contributing to the implementation of the SECAP it has set up an internal Sustainable Dundee Working Group (SDWG) to encourage collaboration across its own Services. With a large pool of expertise to draw upon, there is clear articulation of issues and opportunities with shared ownership of solutions and responses; providing a broader scope and greater momentum in support of sustainability projects.

It is proposed that an annual SECAP all-stakeholder day be organised, where the public, private, third sectors can meet to review the SECAP, check progress with targets and actions and adopt any new measures that will help to meet the long term target.

Action G.1: Establish effective SECAP governance in partnership with public, private and community organisations and implement a system for monitoring and reporting progress.

Monitoring & Reporting

The SECAP sets out our long term pathway across the four themes and the action plan highlights the initial steps we will be taking along the way. However, we cannot be sure what the future of our energy system will look like, given emerging technologies and increasingly localised energy systems. To take account of the anticipated changes we will review progress regularly and evolve the plan over time reflecting changes to legislation, best practice and attitudes.

Monitoring of individual projects will be undertaken by project leaders and reported on a six monthly basis via Dundee City Council's performance management system (PENTANA). Annual monitoring reports will be prepared for the Council's Policy and Resources Committee outlining progress on action plan projects.

We will also explore new carbon footprint visualisation tools that can be used to model future emissions scenarios and interventions in Dundee and help measure progress in meeting our target.



For the Covenant of Mayors requirements, a more in-depth report will be prepared every two years accompanied by a MEI using latest data available. This will monitor every action for progress and evaluate the quantifiable reductions in carbon emissions where possible.

Communications

Stakeholder engagement and statutory consultations have been undertaken to develop this draft SECAP. Further engagement will be necessary to raise awareness to all stakeholders as it is implemented.

We will develop a communications plan to allow a coordinated approach for ongoing engagement and consultation to ensure people can follow progress and find out about climate change activities in Dundee. Our main platforms for communication will be the Knowledge Hub, Dundee City Council website (www.dundee.gov.uk/sustainable-dundee), and the Sustainable Dundee (@sust_dundee) and Dundee City Council (@dundeecouncil) Twitter accounts.

Sustainable Dundee is a brand and campaign developed by Dundee City Council intended to raise awareness of, and link up, sustainability and climate change issues and progress, both internally and to the wider community. The branding visibly demonstrates relationships between the four themes of the SECAP.



The logo will feature throughout internal and external webpages containing related information as well as printed publications from the various sections involved, acknowledging the position of such projects within a broader 'vision' or goal. The brand retains its own individual Twitter account (@sust_dundee), allowing us to reach a wider audience.

Action G.3: Develop the Sustainable Dundee communications strategy to raise awareness, communicate and engage people in the SECAP to promote prolonged behaviour change.

Contact

sustainability@dundeecity.gov.uk

www.dundeecity.gov.uk/sustainable-dundee

Twitter: @sust_dundee

Knowledge Hub: www.khub.net/group/dundee-city-sustainable-energy-and-climate-action-plan

Annex 1: SECAP Draft Action Plan

Targets with **TBC** are to be confirmed when potential carbon savings or other relevant factors have been assessed.

GENERAL

	Action	Lead Agency	Type of Action	Funding in Place
G.1	Establish effective governance for the SECAP in partnership with public, private and community organisations and implement a system for monitoring and reporting progress.	Dundee City Council/SECAP stakeholders /Community Organisations	Enabling	Yes
G.2	Adopt an emissions modelling tool to quantify the impact of SECAP actions and to inform future targets.	Dundee City Council	Delivery	No
G.3	Develop the Sustainable Dundee communications strategy to raise awareness, communicate and engage people in the SECAP to promote prolonged behaviour change.	Dundee City Council	Delivery	Yes
G.4	Develop and trial a carbon budget for Dundee City Council.	Dundee City Council	Delivery	Yes

ENERGY

	Action	Lead Agency	Proposed Performance Indicators (where applicable)	Targets (where applicable)	Type of Action	Link to SDG's	Funding in Place
Energy Efficiency							
EE.1	Complete fabric improvements to outstanding domestic Council (and ex-Council properties in mixed-tenure blocks) stock to achieve the Energy Efficiency Standard for Social Housing (EESHS) by 2020 and widen range of technologies (including renewables) under consideration to allow compliance with the more exacting EESHS2 standard by 2032.	Dundee City Council	<ul style="list-style-type: none"> Energy savings (kWh/a) attributed to External Wall Insulation (EWI) and other fabric improvements to domestic housing stock. % council houses achieving Energy Efficiency Standard for social housing. % Reduction in fuel poverty in all tenure households. 	<ul style="list-style-type: none"> 100% social housing to achieve EESHS. 	Direct/Delivery	1,7, 11,13	Yes
EE.2	Continue to deliver a city-wide energy awareness campaign to improve energy efficiency behaviour in all households.	Home Energy Scotland	<ul style="list-style-type: none"> Number of households engaged. Number of measures implemented. Energy savings (kWh/a) attributed to improved energy efficient behaviour in households. 	<ul style="list-style-type: none"> TBC 	Direct	1,7,11, 12,13	Yes
EE.3	Explore how the work of the Dundee Energy Efficiency Advice Project (DEEAP) can be maintained and delivered.	Dundee City Council	<ul style="list-style-type: none"> Number of home visits by DEEAP advisors. 	<ul style="list-style-type: none"> TBC Number of home visits. 	Enabling	1, 13, 17	No
EE.4	Complete phase 1 of the Non Domestic Energy Efficiency (NDEE) retrofit of Dundee City Council public buildings (Basket 1) before implementing subsequent phases (Baskets) annually until all prescribed measures are complete on all Council public buildings.	Dundee City Council	<ul style="list-style-type: none"> Energy savings (kWh/a) attributed to NDEE measures. Number of non-domestic properties upgraded. Energy consumption in Council buildings tCO₂e 	<ul style="list-style-type: none"> 5% reduction in energy use in public buildings per annum by 2020. NDEE applied to all Council public buildings with significant energy use by 2030. 	Direct	7, 11, 12, 13	Yes for Baskets 1 and 2.
EE.5	Update the Councils Carbon Management Plan, identifying new targets in line with the Public Bodies Climate Change Duties (PBCCD) and SECAP targets.	Dundee City Council			Delivery	1, 7, 9, 11, 12, 13	Yes
EE.6	Replace all streetlights with energy efficient lighting systems by 2020.	Dundee City Council	<ul style="list-style-type: none"> Energy savings (kWh/a) attributed to conversion to LED streetlights. % streetlights converted. 	<ul style="list-style-type: none"> Replace all streetlights with energy efficient lighting systems by 2020. 	Direct	11, 12, 13	Yes
EE.7	Provide advice and support on resource efficiency and climate risk management for businesses in Dundee.	Resource Efficient Scotland	<ul style="list-style-type: none"> Number of businesses engaged Number of measures implemented Energy savings (kWh/a) attributed to improved energy efficient behaviour in businesses 	<ul style="list-style-type: none"> TBC Identify potential energy savings. 	Direct	11, 12, 13	Yes

Renewables							
RE.1	Adopt a Whole Life Costing approach to ensure new developments achieve greater operational sustainability. (This will include analysis of maintenance burdens, end of life use, outputs and performance to ensure resilient, efficient buildings are designed with minimal waste.)	Dundee City Council	<ul style="list-style-type: none"> Number of new developments designed by whole life costing principles. 		Enabling/ Delivery	9, 11, 12, 13	No
RE.2	Research opportunities to utilise local water bodies for renewables including local reservoirs, rivers and estuaries.	Dundee City Council/ private energy sector			Delivery	7, 9, 11, 13	No
RE.3	Identify solar PV opportunities across Dundee for public and private buildings and ensure all civic buildings have renewables where technically feasible.	Dundee City Council	<ul style="list-style-type: none"> Energy generation (kWh/a) attributed to solar PV in civic buildings. KWp installed capacity in civic buildings. Energy generation (kWh/a) attributed to solar PV in private buildings. 		Enabling/ Direct	7, 9, 11, 13	No
RE.4	Progress an Integrated Energy Park/ Centre of Excellence concept.	Dundee City Council/ private sector			Direct/ Enabling	7, 8, 9, 11, 12, 13, 17	No
RE.5	Explore potential for integrating hydrogen fuel into heating and transport technologies where feasible.	Dundee City Council	<ul style="list-style-type: none"> Energy generation (kWh/a) attributed to hydrogen fuel. 	<ul style="list-style-type: none"> TBC 10% electricity consumption generated by renewables. 	Direct/ Enabling	7, 9, 11, 13, 17	No
RE.6	Develop a regional cluster approach to attract investment, support business growth and create jobs in the offshore wind sector; retaining more graduates and making the city a magnet for new talent.	Dundee City Council		<ul style="list-style-type: none"> TBC 	Enabling	7, 8, 9, 11, 13, 17	Yes

District Heating							
DH.1	Explore options to further improve efficiencies in the Council's existing Multi-Storey domestic district heating schemes.	Dundee City Council	<ul style="list-style-type: none"> Energy savings (kWh/a) attributed to improvements in MSD DHS. 		Direct	1, 7, 10, 13	No
DH.2	Deliver the Low Carbon District Energy Hub at the Regional Performance Centre for Sports (RPCS) as a catalyst project; proving industry/technology programmes and projects.	Dundee City Council	<ul style="list-style-type: none"> Proportion of energy generation (kWh/a) at RPCS attributed to low carbon technology. 		Direct	7, 8, 9, 10, 11, 13	Yes
DH.3	Prepare an investment-ready business case that identifies district heating opportunities from the city's Energy from Waste Combined Heat and Power facility.	Dundee City Council/ MVV	<ul style="list-style-type: none"> Energy savings (kWh/a) realised by connected properties. 		Enabling	7, 8, 9, 11, 13, 17	Yes
DH.4	Engage with stakeholders and wider industry to promote district heating in Dundee and work with technology providers to explore fuels for district heating integration.	Dundee City Council/ private energy sector	<ul style="list-style-type: none"> Number of district heating schemes in Dundee. 		Enabling	7, 8, 9, 10, 11, 13, 17	Yes
DH.5	Investigate options to create a Dundee City Energy Services Company (ESCo) to help coordinate planning, funding, operations, and delivery of projects.	Dundee City Council/ private energy/ transport companies			Enable	7, 8, 9, 10, 11, 13, 17	No
DH.6	Participate in the Scottish Governments pilot Local Heat and Energy Efficiency Strategy (LHEES) programme and respond to proposals to create a statutory framework for LHEES.	Scottish Government	<ul style="list-style-type: none"> Energy savings (kWh/a) attributed to implementation of LHEES interventions. 		Direct	7, 10, 11, 13, 17	Yes for pilot.

MOBILITY							
	Action	Lead Agency	Proposed Performance Indicators (where applicable)	Targets (where applicable)	Type of Actions	Link to SDG's	Funding in Place
M.1	Implement the Dundee Cycling Strategy and Councils extensive Active Travel programme in partnership with community groups, improving and increasing cycling paths and infrastructure across the city to reduce the modal share of car based transport.	Dundee City Council	<ul style="list-style-type: none"> Active travel as a proportion of trips to work (as measured by the Scottish Household Survey). 		Direct	3, 10, 11, 13	Yes

M.2	Develop a Low Carbon Active Travel Hub in Dundee Waterfront to include bike hire, cycle parking, bike maintenance, electric vehicle (EV) charge points, an EV car club and community outreach.	Dundee City Council/ private enterprise			Enabling	3, 10, 11, 13	Yes
M.3	Implement Shared Mobility and Resource Efficiency projects developed by the Mobility in Living Laboratory (MILL) to ensure Dundee remains in a position to take advantage of future innovative mobility solutions including autonomous vehicles.	Urban Foresight	<ul style="list-style-type: none"> Number of innovative (shared mobility) services introduced in the city (Outcomes based indicators being developed). 		Direct/ Enabling	3, 10, 11, 13	Yes
M.4	Ensure safer streets that enable active travel in Dundee including assessing suitable locations for pedestrianisation, 20mph zones and off road/segregated active travel networks.	Dundee City Council			Enabling	3, 10, 13	Yes
M.5	Expand Electric Vehicle (EV) charging hubs and infrastructure across the city.	Dundee City Council	<ul style="list-style-type: none"> (KWh/a) consumption at EV public charging points. Number of solar charging points. 	<ul style="list-style-type: none"> 7 charging hubs by the end of 2020. 	Enabling	3, 11, 13	Yes
M.6	Increase EV uptake in Dundee via support and awareness provided by the Drive Dundee Electric campaign and local policy measures, including continued migration to low carbon vehicles within the council fleet.	Dundee City Council	<ul style="list-style-type: none"> KWh/a consumption at EV public charging points. Number of solar charging points. % EVs in Dundee 	<ul style="list-style-type: none"> 25% increase in electric fleet vehicles by the end of 2020. 	Direct	3, 11, 13	Yes
M.7	Establish a Low Emission Zone in Dundee by 2020 to contribute to the broader city objectives and the vision to create a healthy, vibrant and attractive city by protecting public health through improving air quality.	Dundee City Council	<ul style="list-style-type: none"> NO₂, PM₁₀ and PM_{2.5} levels. Compliance with regulatory thresholds. 	<ul style="list-style-type: none"> NO₂ - annual mean 40ug/m³, hourly mean 200ug/m³ (not to be exceeded > 18 times per yr) PM₁₀ - annual mean 18ug/m³, 24hour mean 50ug/m³ (not to be exceeded > 7 times per yr) PM_{2.5} - annual mean 10ug/m³ 	Direct	3, 11, 13	Yes
M.8	Continued promotion of ECOSTARS schemes to encourage Heavy Duty, Taxis and Private Hire vehicle companies to participate in air quality improvements in Dundee.	Dundee City Council/ private vehicle companies	<ul style="list-style-type: none"> Increase in ECOSTARS membership. 		Delivery	3, 11, 13, 17	Yes
M.9	Explore options for increasing deployment of low emission buses in Dundee, including hybrid and hydrogen buses.	Dundee City Council/	<ul style="list-style-type: none"> Number of low carbon buses in operation in Dundee CO₂ (tCO₂e) reduction as a result of low carbon buses 		Direct	3, 11, 13, 17	No

WASTE

	Action	Lead Agency	Proposed Performance Indicators (where applicable)	Targets (where applicable)	Type of Actions	Link to SDG's	Funding in Place
W.1	Develop and implement circular economy projects identified by the Circular Tayside initiative and deliver a circular economy education strategy across the City.	Zero Waste Scotland			Direct	8, 9, 11, 12, 13	Yes
W.2	Continue to communicate frequently with residents around waste/recycling services to improve participation/recycle quantity and quality.	Dundee City Council	<ul style="list-style-type: none"> % Household waste recycled/composted. 		Direct	11, 12, 13	Yes
W.3	Zero Waste Scotland to pilot food waste reduction project in Dundee schools, hospitals and small businesses by December 2020.	Zero Waste Scotland	<ul style="list-style-type: none"> % (by weight) of biodegradable waste diverted from WtE for recycling. tCO₂e reduction due to waste disposal avoided). 		Direct	11, 12, 13	Yes

W.4	Encourage citizens to take responsibility for the environment through the "Take Pride in Your City" campaign.	Dundee City Council	<ul style="list-style-type: none"> Costs of clean-up and litter picking. 		Enabling	3, 11, 12, 13, 15	Yes
W.5	Trial Smart waste technology to improve waste monitoring and collection efficiencies in the city.	Dundee City Council			Direct	9, 11, 12, 13	Yes
W.6	Explore initiatives to significantly reduce the quantity of single-use plastics used in Dundee organisations including DCC premises and wider commercial establishments.	Dundee City Council			Enabling	12, 13	No
W.7	Continued delivery of sustained waste education campaign programme which aligns to the curriculum for excellence and embeds behavioural change at all stages of the educational journey.	Dundee City Council			Enabling	11, 12, 13	Yes
W.8	Support the Scottish Governments Deposit Return Scheme and other viable take back schemes.	Scottish Government			Direct/ Enabling	11, 12, 13	Yes
W.9	Stimulate increased reuse as well as upcycling and repairing opportunities and the necessary skills and training to undertake these.	Partner organisation (TBC)	<ul style="list-style-type: none"> % (by weight) of materials diverted from disposal for re-use. (TBC) (CO₂ (tCO₂e) reduction due to waste disposal avoided) 		Direct	8, 9, 11, 12, 13, 17	No

RESILIENCE

	Action	Lead Agency	Proposed Performance Indicators (where applicable)	Targets (where applicable)	Type of Action	Link to SDG's	Funding in Place
R.1	Design a Dundee Surface Water Management Plan/Tayside Integrated Catchment Study that considers measures to reduce flood risk and protect buildings, infrastructure and people from flooding and includes blue-green infrastructure across the city and/or retrofitting SUDS to store and manage surface water runoff. Ecological solutions will be used where possible e.g. dune replenishment as part of Dundee Coastal Flood Protection Scheme.	Dundee City Council	<ul style="list-style-type: none"> Number of flood events. Number of buildings impacted by flood events. Number of people affected by flood events. Infrastructure impacted by flood events. 		Delivery	6, 9, 11, 13, 14, 15	Yes
R.2	Undertake coastal and watercourse inspections and organise repairs and maintenance under current legislation and the Tay Estuary and Montrose Basin Local Flood Risk Management Plan.	Dundee City Council			Direct	6, 9, 11, 13, 14, 15	Yes
R.3	Improve Dundee's Public Sewer and Mains Water systems to improve drinking water quality and reduce sewage discharge to the water environment; continued communication of water quality information via the electronic display at Monifieth, SEPA website and Dundee City Council signage and social media.	SEPA	<ul style="list-style-type: none"> Reduction in number of storm sewer discharges to the water environment. 		Direct/ Enabling	6, 9, 11, 13, 14, 15	Yes
R.4	Scottish Water will review and develop its 25 Year Water Resource Plan to ensure projected drought conditions are included; incorporating reinforcement of reservoirs, expanding the supply network and developing mitigation measures as required.	Scottish Water	<ul style="list-style-type: none"> % increase in supply network. 		Direct	6, 9, 11, 13, 14, 15	Yes
R.5	Monitor costs associated with climate change including heating and cooling costs as well as maintenance and repair costs of buildings and infrastructure.	Dundee City Council	<ul style="list-style-type: none"> Costs associated with heating and cooling. 		Delivery	11, 13	Yes
R.6	Promote efficient water use by businesses and the wider community and create a business case for rainwater capture and reuse capital investment.	Scottish Water	<ul style="list-style-type: none"> % reduction in water consumption. Grey water recycling / rainwater harvesting per % of total consumption. Water consumption in litres and associated supply and treatment energy savings (kWh/a) generated by water efficiency campaign. 	<ul style="list-style-type: none"> TBC awaiting SW/carbon assessment 	Direct	12	Yes
R.7	Implement 'Cleaner Air for Scotland - The Road to a Healthier Future' strategy and monitor guidance for developers to ensure air quality is taken into account for new developments.	Dundee City Council	<ul style="list-style-type: none"> Reduction in NO₂, PM_{2.5} and PM₁₀. Percentage of the total planning applications responded to with air quality conditions/ assessments. 	<ul style="list-style-type: none"> Annual mean PM_{2.5} concentration 10 µg/m³ by the end of 2020. 	Direct	3, 11, 13	Yes

R.8	Public health information campaigns to address increase in sun/heat/air and water quality related illnesses and development of Green Health Partnership, linking health care and greenspace initiatives	NHS Tayside	<ul style="list-style-type: none"> • Number of water quality related illnesses. • Number of heat related illnesses. • Number of air quality related illnesses. • Number of sun related injuries/illnesses. • Increase in reported atopic diseases. 	<ul style="list-style-type: none"> • No more than 10% increase in any one year. 	Direct	3, 11, 13, 17	Yes
R.9	Develop an interactive green map for Dundee to help visitors and residents identify sustainable options and information for travel, food, recreation and resource use.	Dundee City Council			Delivery	3, 11, 12, 13	Yes
R.10	SMART Mobility to include co-ordinated communication of transport information and quicker demand response options to keep visitors and residents informed of disruptions and alternatives.	Urban Foresight	<ul style="list-style-type: none"> • Number of climate related transport disruptions that require a response. • Average time taken to disseminate transport updates to multiple channels. 		Enabling	11, 13, 17	Yes
R.11	Plan co-ordinated, prompt communication to inform residents of waste service disruptions, alternative options available and estimate of when normal services will resume; ensuring that operational contingencies are in place for extreme weather events.	Dundee City Council			Enabling	12, 13	Yes
R.12	Develop adaptation engagement tools to support community capacity building, including visual and interactive tools, workshops and collaboration with community organisations.	Dundee City Council	<ul style="list-style-type: none"> • Number of engagement events/activities. • Number of people engaged. • Positive feedback from events. 		Delivery	10, 11, 13, 17	No
R.13	Develop a Persons at Risk Register in partnership with the NHS to help identify members of the community vulnerable to interruptions in supply of power, heating, water and other essential services and regular testing and review of Local Resilience Partnership plans and NHS Winter Plans to prioritise services.	Local Resilience Partnership			Enabling	3, 11, 13, 17	Yes
R.14	Update the Green Tourism accreditation to incorporate climate adaptation and increase the number of Green Tourism Award Holders in Dundee.	Green Tourism Accreditation Scheme	<ul style="list-style-type: none"> • Number of businesses provided with climate adaptation support/information. • Number of Green Tourism Award holders in Dundee. 		Enabling	11, 12, 13	No
R.15	Increase participation in the Eco-Schools programme in Dundee via improved local support and pilot projects with appointed schools.	Dundee City Council	<ul style="list-style-type: none"> • Number of schools participating in Eco-Schools in Dundee. 	<ul style="list-style-type: none"> • TBC 	Enabling	4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16	Yes
R.16	Co-design blue/green infrastructure improvements with relevant Council departments, partners and the wider community. Aligning with Dundee City Councils green networks supplementary planning guidance; improvements will into account flooding, heat island effect, active travel, biodiversity and including appropriate planting in urban areas, as well as community cohesion opportunities.	Dundee City Council	<ul style="list-style-type: none"> • % increase in blue/green infrastructure. 	<ul style="list-style-type: none"> • TBC 	Delivery	3, 9, 11, 13, 15, 17	Yes
R.17	Produce an Open Space strategy based on collaboration and outcomes from workshops to include green infrastructure that helps Dundee's nature to adapt to changes in climate and supports the delivery of Dundee's green networks.	Dundee City Council			Delivery	3, 9, 11, 13, 15, 17	Yes
R.18	Prepare a Biodiversity Plan that includes actions for safeguarding and enhancing existing habitats and species as well as actions on potential sites and projects. The plan should be integrated across sectors and the broader green network and adopted corporate-wide to ensure biodiversity protection and enhancement are prioritised in all green space maintenance regimes, relevant projects and developments.	Dundee City Council	<ul style="list-style-type: none"> • Actions implemented from the biodiversity plan. 		Enabling	11, 13, 14, 15	Yes
R.19	Contribute to the enhancement and maintenance of the Tay River and coastal habitats. Identify opportunities for soft coastal	Dundee City Council	<ul style="list-style-type: none"> • Area of river/coastal habitat enhanced/managed for biodiversity and flood management. • Actions implemented from the Biodiversity Plan. 		Direct	11, 13, 14, 15	Yes

	management /managed realignment habitat creation and maintain the Beach Award for Broughty Ferry.						
R.20	Monitor and review the Urban Tree Policy to identify suitable areas for tree planting with climate appropriate species and with consideration of how planting interacts with surroundings e.g. air quality, active transport, biodiversity etc.	Dundee City Council			Enabling	3, 11, 13, 15	Yes
R.21	Develop a Local Food Growing Strategy and expand the number of community growing projects and support them with skills training, materials and capacity building.	Dundee City Council	<ul style="list-style-type: none"> Number of community food growing projects in Dundee. 		Direct	1, 2, 3, 10, 11, 12, 13, 15, 16, 17	Yes

Acknowledgements

We would like to thank the organisations, partnerships and forums that have contributed to the research, workshops and action planning necessary to develop the draft SECAP.

Adaptation Scotland
Aether
Dundee & Angus Chamber of Commerce
Dundee and Angus College
Dundee City Council
Dundee Resource and Re-use Centre
Dundee Voluntary Action
Friends of the Earth Tayside
Forth Ports
Gate Church Carbon Saving Project
Hillcrest Housing Association
Home Energy Scotland
Michelin
National Express
NHS Tayside
Open Change
Scottish Cities Alliance
Scottish Enterprise
Scottish Environment Protection Agency
Scottish Hydrogen & Fuel Cell Association
Scottish Natural Heritage
Scottish Water
Scottish Wildlife Trust
SNIFFER
Stagecoach
Sustainable Scotland Network
Tayside Re-Users
University of Abertay
University of Dundee
Urban Foresight
Zero Waste Scotland



Glossary

Adaptation	The adjustment in economic, social or natural systems in response to actual or expected climatic change, to limit harmful consequences and exploit beneficial opportunities.
BEI	Baseline Emissions Inventory. Identifies and quantifies the main sources of greenhouse gas emissions in a starting year.
Carbon emissions	Release of CO ₂ e into the atmosphere.
Carbon footprint	A measure of the carbon emissions produced as a result of an organisation's or service's activities.
Carbon Intensity	The emissions per unit of electricity generated (often given in grams of CO ₂ per kWh).
CHP	Combined Heat and Power
Climate Change	Any change in climate over time, whether due to natural variability or as a result of human activity.
CoM	Covenant of Mayors for Climate and Energy
CO ₂	Carbon Dioxide. The most common greenhouse gas contributing to human made climate change.
CO ₂ e	Carbon Dioxide equivalent. A standard unit for measuring carbon impact and includes the six other major greenhouse gases in one unit.
EFW	Energy from Waste
Emission Factor	A measurement of CO ₂ emissions intensity per unit of electricity generation in the grid system.
EPC	Energy Performance Certificate. Shows the current energy rating and potential energy rating of a property.
ESCo	Energy Services Company
EV	Electric Vehicle
GHG	Greenhouse Gas that enhances the greenhouse effect and thus climate change.
IPCC	International Panel on Climate Change
KWh	Kilowatt Hour. A unit of energy equivalent to one kilowatt of power expended for one hour of time (1,000KWh = 1MWh). Commonly used in energy use billing.
LCITP	Low Carbon Infrastructure Transition Programme
LEZ	Low Emission Zone
LHEES	Local Heat and Energy Efficiency Strategy
MEI	Monitoring Emissions Inventory. Identifies and quantifies the main sources of greenhouse gas emissions at a point in time after a baseline year.
Mitigation	The attempt to lessen future climate change and its social, economic and environmental consequences by reducing the greenhouse gas emissions.
MWh	Megawatt Hour. A unit of energy use equivalent to one megawatt of power expended for one hour of time. Used for metering larger amounts of electrical energy and power generation.
NDEE	Non-Domestic Energy Efficiency
Net zero CO ₂ emissions	Achieved when CO ₂ emissions are balanced by CO ₂ removals over a specified period. Also referred to as carbon neutrality.
Net zero GHG emissions	Achieved when emissions of greenhouse gases to the atmosphere are balanced by removals over a specified period.
Resilience	The capacity of a system to absorb the stresses imposed by climate change. When change occurs, resilience provides the components for renewal and reorganisation.
RPCS	Regional Performance Centre for Sport
RPP	Report on Policies and Proposals
RVA	Risk and Vulnerability Assessment. Exercise to determine the nature and extent of climate-related risks by analysing potential hazards and assessing the vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment
SDG	Sustainable Development Goals
SEA	Strategic Environmental Assessment. An assessment of the significant environmental impacts of a qualifying plan, programme or strategy.
SECAP	Sustainable Energy and Climate Action Plan
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Its three core elements of economic growth, social inclusion and environmental protection are interconnected and all must be harmonised for the well-being of individuals and societies.
Vulnerability	The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes

SECAP: Consultation

Please note that the consultation period will run from **Tuesday 25th June 2019 until Tuesday 6th Aug 2019**.

You can return comments by completing the questionnaire online at:

<https://www.dundee.gov.uk/consultations-and-surveys>

or by emailing **sustainability@dundee.gov.uk**

Questions

1. Does the SECAP identify the right objectives for a low carbon and resilient Dundee and are they of relevance to you or your organisation? (page 7)
2. Do you think the information and figures presented under the Dundee's Emissions section is easy to understand? Do you have any suggestions for communicating and presenting emissions data? (pages 10-11)
3. What are your views on the four themes (Energy, Mobility, Waste and Resilience) that the SECAP has prioritised? (pages 12-38)
4. What are your views on the action plan set out in Annex 1? (pages 42-47)
5. Are you aware of other actions that are already happening? If so, please provide information on this, where possible providing contact details, organisation and information on the project itself.
6. Do you think the Performance Indicators / Targets for actions are the right ones? What others do you suggest?
7. What are your views on the Governance, Monitoring and Reporting arrangements that have proposed for the SECAP? (page 40)
8. Does the SEA Environmental Report adequately assess the environmental implications of the SECAP?
9. Any other comments?

Thank you!