



Glasgow City Council

**Environment Sustainability and Carbon Reduction
City Policy Committee**

**Report by Executive Director of Neighbourhoods,
Regeneration & Sustainability**

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Item 3

24th August 2021

UPDATE ON CITY WIDE CARBON EMISSIONS

Purpose of Report:

To provide Committee with an update on carbon emissions in Glasgow since the baseline year of 2006.

To analyse the city's progress against the 30% carbon dioxide (CO₂) reduction by 2020 target, which informs the annual monitoring to the Energy and Carbon Masterplan and reporting to the European Covenant of Mayors office.

Recommendations:

The Committee is asked to:

- (a) Note the contents of this report;
- (b) Continue to support the work of Neighbourhoods, Regeneration & Sustainability (NRS) in reducing Glasgow's CO₂ emissions and environmental impact.
- (c) Note that a further update on the city's progress towards the 30% carbon dioxide reduction target will be provided in 12 months.

Ward No(s):

Citywide: ✓

Local member(s) advised: Yes No consulted: Yes No

1. Introduction

- 1.1 In 2010, the Council established Sustainable Glasgow, a partnership that, based on the Sustainable Glasgow Report commissioned by Glasgow City Council, set out a target of reducing the city's carbon emissions by 30% by 2020 on a 2006 baseline.
- 1.2 In Autumn 2012, Glasgow, in partnership with three other European Cities (Ghent, Gothenburg & Riga) committed to delivering the EU funded STEP UP (Strategies Towards Energy Performance and Urban Planning) project, which successfully delivered a methodology for enhancing sustainable energy plans for cities across Europe. Through the Step-Up project, the 2010 Sustainable Glasgow Report was enhanced and became the Sustainable Glasgow - Energy and Carbon Masterplan (ECMP).
- 1.3 The then Executive Committee, now City Administration Committee, approved the Council's Energy and Carbon Masterplan for the City in [April 2015](#).
- 1.4 The Masterplan retains the commitment to achieve a 30% reduction in Glasgow's carbon emissions on a 2006 baseline and identifies 33 discrete actions that, if delivered, would help the City achieve its target.
- 1.5 The Energy and Carbon Masterplan has two main reporting channels –
 - (a) Glasgow City Council's committee process on an annual basis;
 - (b) the Covenant of Mayors, due every two years from the resubmission date (February 2014).

2 Background

- 2.1 The Department for Business, Energy, & Industrial Strategy (BEIS), formerly the Department for Energy and Climate Change (DECC), releases data on energy consumption and carbon emissions for local authorities annually two years in arrears. The data available from BEIS has been updated from its previous releases.
- 2.2 This report updates the carbon emissions for Glasgow based on most recent BEIS data. Sub-national energy consumption figures for 2019 have not been released, thus this report is focussed only on the city's carbon emissions.
- 2.3 The legacy of the STEP UP Project is managed by NRS. This includes compiling data from various stakeholders (private, public, residential, industrial/commercial and transport sectors) and analysing carbon emissions at city wide level.

3 Results: Analysis of Emissions Data (2019)

3.1 Glasgow Carbon Dioxide Emissions

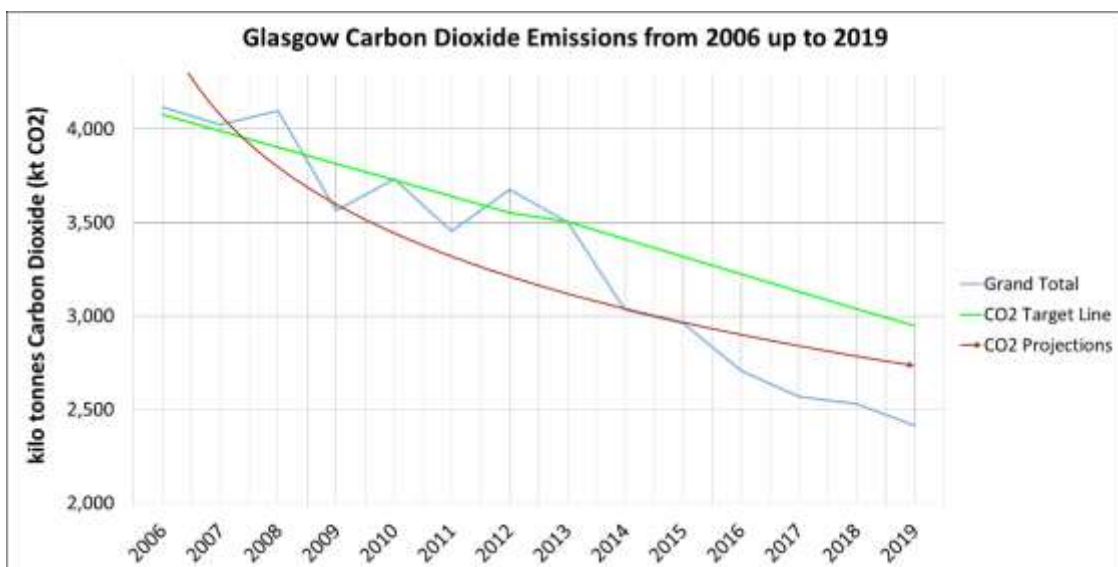
3.1.1 Glasgow's CO₂ emissions in 2019 totalled 2,414 kilo-tonnes¹ of carbon dioxide (ktCO₂). This represents a 5% decrease from 2018 and a **41% decrease** from a 2006 baseline, meaning that having met our target in 2015, **Glasgow has continued to exceed its 2020 target of 30% ahead of schedule.**

3.1.2 This is a significant achievement, and testament to what the city can achieve with regards to its ambition of becoming one of the most sustainable cities in Europe. Whilst this echoes a general positive trend nationally, Glasgow has continued to exceed expectations. Despite this success, it is imperative that efforts to reduce carbon emissions do not falter, and that this success serves to motivate continued efforts to exceed the 2020 target and meet the city's net-zero carbon target by 2030, as set out in the recently adopted Glasgow Climate Plan target.

3.1.3 It should be noted that the most recent BEIS figures have added 'Public Sector' emissions into their dataset and have also split 'Industrial' and 'Commercial' emissions into two different categories.

3.1.4 The trajectory of Glasgow's CO₂ emissions reduction is visually represented in the figure below. The red line in Figure 1 shows the trend line based on actual data. Glasgow's target to achieve a 30% reduction in carbon emissions by 2020 from the baseline year (2006) equates to a reduction of 1,235 ktCO₂. It is noted that Glasgow reduced its emissions by 1,703 ktCO₂ in 2019, thus equating to a **41% reduction in total emissions.**

Figure 1. Glasgow Carbon Dioxide Emissions



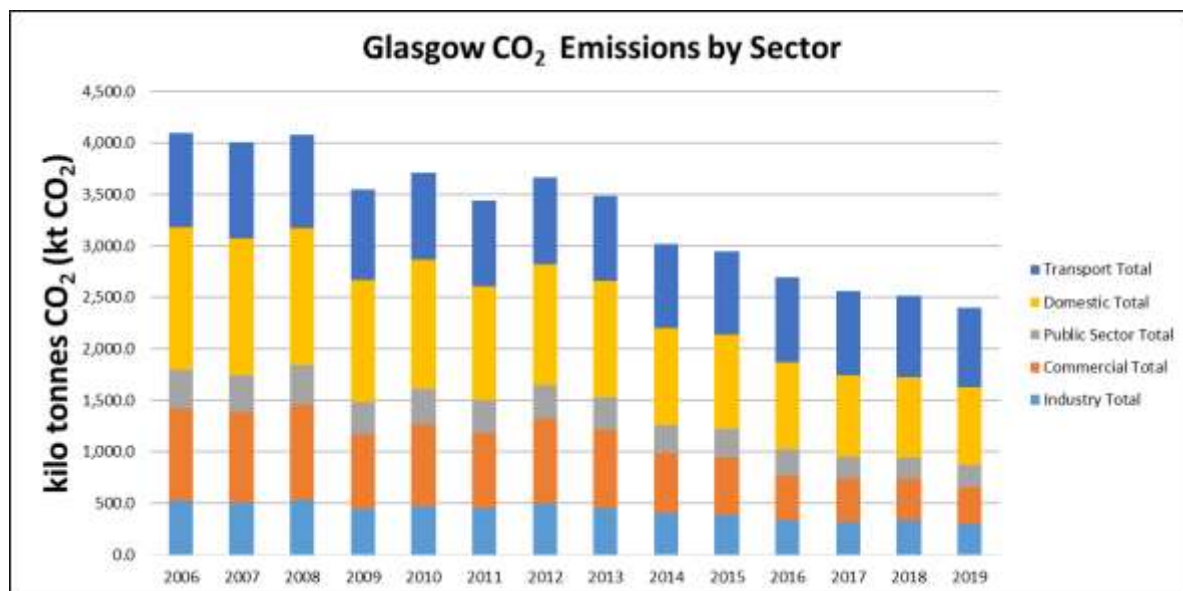
Source: BEIS. Local CO₂ emission estimates 2006-2019.

¹ 1 kilotonne (kt) is equal to 1,000 tonnes

3.2 Sectoral Breakdown

3.2.1 Glasgow's carbon emissions can be broken down into sectors to allow for further analysis. The sectoral profile for the period 2006 until 2019 can be found in Figure 2 below.

Figure 2. Breakdown of Glasgow's Carbon Dioxide Emissions by Sector



Source: BEIS. Local CO₂ emission estimates 2006-2019.

3.2.2 The sectoral emissions changes identified between 2018-2019 are:

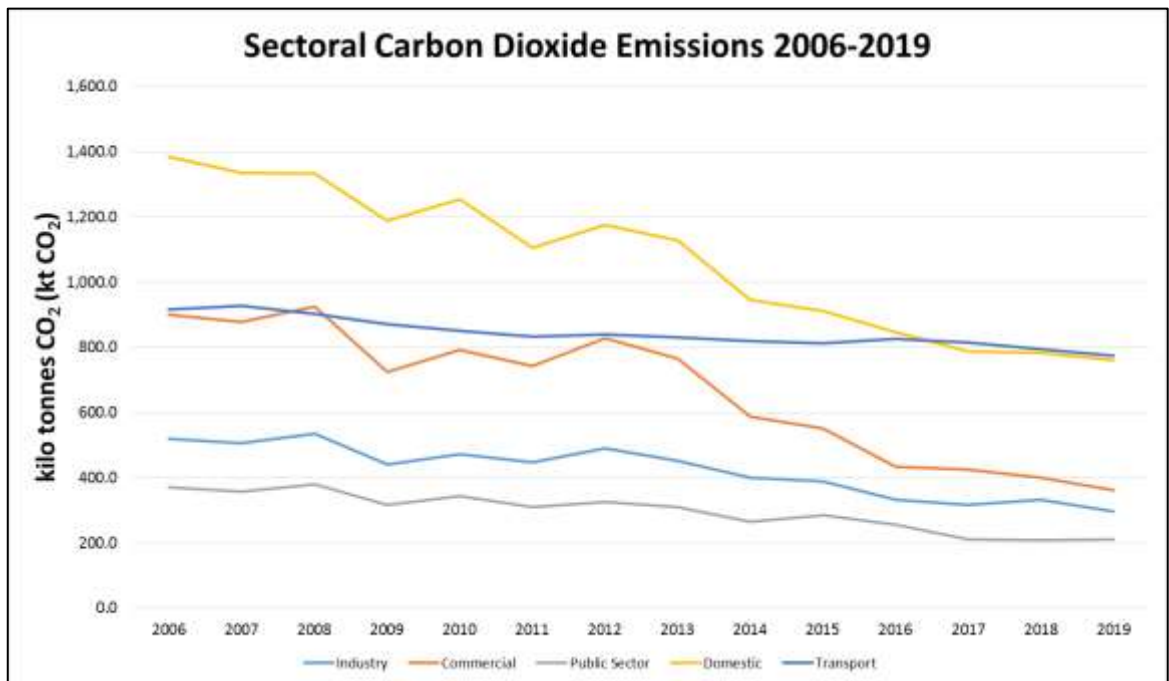
- The domestic sector: 22 ktCO₂ reduction (-2.9%)
- The transport sector: 20 ktCO₂ reduction (-2.6%)
- The industrial sector: 36 ktCO₂ reduction (-10.8%)
- The commercial sector: 40 ktCO₂ reduction (-9.8%)
- The public sector: 1.7 ktCO₂ rise (+0.8%)

3.2.3 Those sectors responsible for emitting the most CO₂ in 2019 were: the domestic sector by 760 ktCO₂/year and the transport sector by 773 ktCO₂/year (demonstrated in Figure 3). Whilst the domestic sector was not identified as one of the highest emitting sectors in the previous year's figures, this may be indicative of the splitting up of Industrial and Commercial sectoral emissions rather than changes to the emissions profile of the city.

3.2.4 Although the decrease in electricity related emissions across the sectors is good news, it should be met with caution. The carbon intensity of electricity reduces as increasing proportions of generation comes from renewable sources. The conversion factor for electricity decreased by 10% between 2018 and 2019, from 0.28307 kgCO₂/kWh to 0.2556 kgCO₂/kWh.

3.2.5 This suggests that the 10.8% and 9.8% drops seen in both the industrial and commercial sectors respectively may be a result of the decreasing conversion factor for electricity rather than reduced consumption from these sectors. If this is the case, more work needs to be done to ensure these sectors are reducing their absolute energy consumption and not just relying on the decarbonisation of the electrical grid.

Figure 3. Glasgow Carbon Dioxide Emissions by Sector



Source: BEIS. Local CO₂ emission estimates 2006-2019.

3.2.6 The small increase in emissions from the public sector relates specifically to a rise in public sector gas emissions (11 ktCO₂). The only other rise seen in the 2019 data was the rise in domestic gas (which rose by 4 ktCO₂). Whilst it is not possible to identify exactly what has resulted in these small increases, some possible causes can be explored.

3.2.7 The consumption of gas, fuel oil and electricity for heating is influenced by the external temperature and weather conditions. Hence, in Glasgow, there is variability between months from a seasonal perspective but there can also be variability between the same month in different years. Degree Day analysis uses a simplified form of historical weather data to compare periods to allow organisations to understand how energy consumption has been affected by the weather.

3.2.8 Using this method, it is noted that on average, 2019 was 12% cooler than 2018 which could account, in part, for the increased gas consumption within the public and gas sectors. In addition, 2019 saw 985mm of rain, 15% more than in 2018. Often rainy conditions can be conflated with cold weather and this leads

to heating being switched on for comfort or clothes drying which could also possibly explain the slight rise in domestic and public sector gas emissions.

3.2.9 Although not directly comparable due to slightly differing reporting periods and methodologies, it should be noted that significant progress has been made with the Council emissions against the 2005/06 baseline, with the Council family having reduced its carbon footprint by 46.65% through the 2019/20 reporting year.

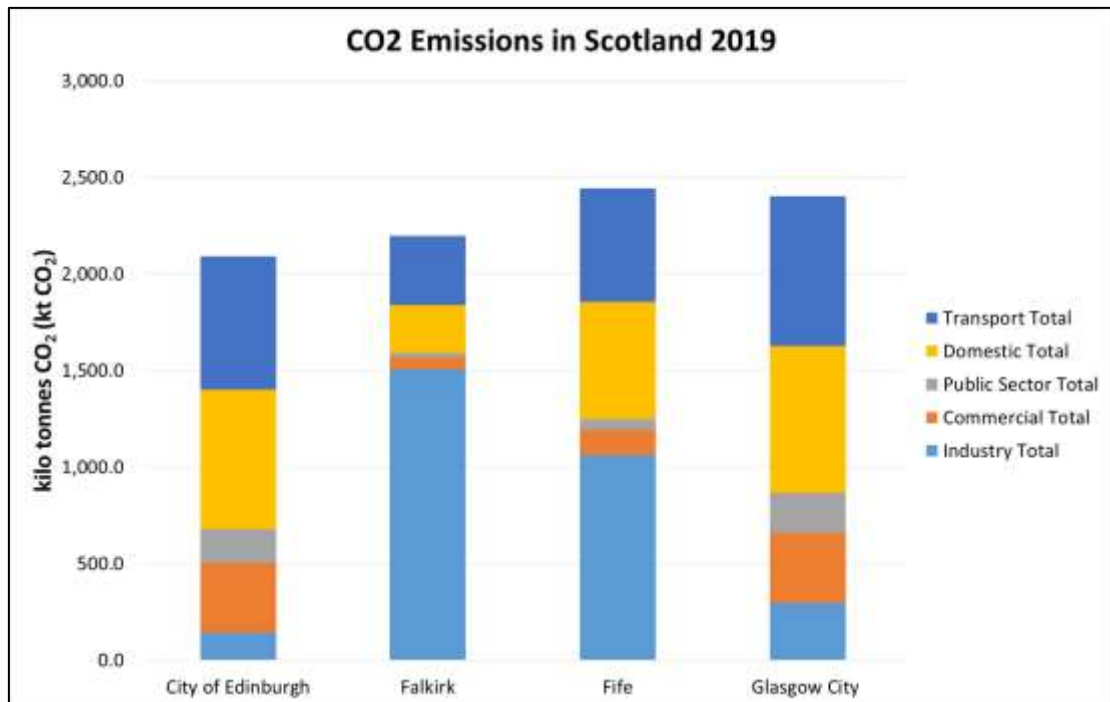
3.2.10 There was a reduction in transport emissions of 20 ktCO₂ (-2.6%) between 2018-2019. This is a positive result and a hopeful sign that policies surrounding low carbon transport are having a positive impact, however the slower rate of reduction means transport emissions represent an increasing proportion of total emissions. Specific projects that are likely to have contributed to this decrease include the implementation of the city centre Low Emissions Zone in December 2018, increased investment in Electric Vehicle infrastructure and increased cycle lane provision in this time period.

3.2.11 Glasgow's pending Local Transport Strategy, in conjunction with the upcoming Regional Transport Strategy, will offer further opportunities to reduce emissions through the provision of active and sustainable transport modes.

3.3 Glasgow and other Local Authorities in Scotland

3.3.1 Analysis of the carbon emissions of all the Scottish Local Authorities (LA's) in 2019, shows that Fife has the largest carbon footprint (2,559 ktCO₂), followed by Glasgow (2,414 ktCO₂), Falkirk (2,258 ktCO₂) and Edinburgh (2,106 ktCO₂) as indicated in Figure 4.

Figure 4. Breakdown of carbon emissions in top four Scottish Local Authorities by source (2019).



Source: BEIS. Local CO₂ emission estimates 2005-2019.

3.3.2 Examination of the CO₂ per capita shows that Glasgow emitted 3.8 ktCO₂ per capita in 2019 compared to 4 ktCO₂ in 2018, this is lower than Scotland's average CO₂ per capita (5.7 ktCO₂) and also slightly lower than our closest Scottish comparator, Edinburgh, which sits at 4 ktCO₂ per capita. This is a positive indicator. However, these figures need to be tempered with the possibility that they could also reflect an increase of people living in pockets of fuel poverty in the city who cannot afford to switch on electricity or gas appliances.

4 Energy and Carbon Masterplan Action

4.1 The [Energy and Carbon Masterplan \(ECMP\)](#) outlined 33 Key Actions aiming to reduce carbon emissions across the three main sectors (transport, domestic, and industrial/commercial sectors) and ensure Glasgow successfully reduces CO₂ emissions by 2020.

4.2 Successful and continued delivery of these 33 actions requires the support and collaboration of public sector, private sector, community groups and citizens, particularly those involved in the industrial, commercial and transport sector, due to the Council's limited influence on these sectors.

4.3 Neighbourhoods, Regeneration and Sustainability is responsible for monitoring these actions on an annual basis and identifying further opportunities, especially through renewable energy projects.

4.4 The essential projects set out in the ECMP include:

- Increase of renewable energy production in the city (wind turbines project; solar PV panel arrays);
- District Heating networks;
- Increase of sustainable transport modes (i.e. shifting from private cars to car-share, public transport, cycling, walking);
- Decarbonisation of the transport sector (electric buses, electric vehicles, etc.);
- Generation of energy from waste (GRREC project);
- Behavioural change.

4.5 Some notable achievements within this include:

- In 2019, there were 18 schools and 13 social work buildings in the city with solar PV installed. This can generate over 650,000kWh annually (enough to power roughly 232 flatted properties for a year)². There are also large numbers of housing stock in the city with solar panel installations.
- The Glasgow Recycling and Renewable Energy Centre (GRREC) was officially opened in 2019. Based in the Southside of the city, this facility generated 20,117MWh of renewable energy in its first year of operation. This is roughly equivalent to the power generated by 3.4 standard onshore wind turbines. Furthermore, alongside significant landfill diversion and recycling benefits, the facility delivers a saving of 90,000 tonnes of CO2 per year.³

5 City Wide Projects

5.1 In addition to the projects mentioned in the ECMP, further efforts are being made to successfully deliver large-scale projects. In 2015, the city was successful in a bid for EU Horizon 2020 funding for the RUGGEDISED (Rotterdam, Umea, Glasgow: Generating Exemplar Demonstrations in Sustainable Energy Districts), which will enhance energy security, deployment of renewables and electric vehicles, district heating, and energy storage. This project is being delivered in a city district extending from George Square to the former Meat Market site on Duke Street. This will act as a demonstrator and catalyst for further low carbon districts in the city. The project is now into its fourth year, when the physical interventions are scheduled to be deployed. The delivery of the project has been impacted by the Covid-19 pandemic, causing delays to the installations. This has resulted in an additional year being added to the project to allow for successful completion.

5.2 In February 2019, a working group was formed to discuss to possibility of declaring a climate emergency in the city, which was declared in May of the

² <https://www.ovoenergy.com/guides/energy-guides/how-much-electricity-does-a-home-use.html>

³ More information can be found at <https://www.viridor.co.uk/energy/energy-recovery-facilities/glasgow-grrec/>

same year. Subsequent to this, the working group produced 61 recommendations for how the city can respond to the climate emergency. These recommendations have been evaluated and incorporated into our [Climate Plan](#) which was approved in June 2021. The plan sets out the council's ambitions around how it will achieve net-zero carbon by 2030.

- 5.3 Ongoing and emerging projects include the roll out of Intelligent Street Lighting and implementation of the Low Emission Zone. These projects will continue to make sizeable contributions to CO₂ emissions reductions in addition to providing enabling infrastructure for expanding innovation, such as smart sensors and electric vehicle penetration into the city.
- 5.4 Increased use of data and smart systems to manage council assets and their performance, such as the data-based decision platform being delivered through the [RUGGEDISED project](#), will also support significant contributions to reducing CO₂ emissions in the city.
- 5.5 City-wide work on the Avenues Project, the Circular Economy Routemap and active travel will have a direct benefit to the health and wellbeing of the citizens of Glasgow whilst also contributing to the decarbonisation agenda.
- 5.6 To fully build upon the commitments of the Council, it is important that stakeholders from different sectors, including the transport sector (public transport, private transport); housing sector (private and social housing); commercial; and industrial sector work in partnership. City stakeholders must be encouraged to make their activities more sustainable and to use energy and resources more efficiently. The Sustainable Glasgow board was successfully relaunched in early 2020 at an event in the SEC. The event invigorated the need for a continued, multi-stakeholder approach to addressing the climate emergency and pursuing decarbonisation in Glasgow and the Board will provide the means in which to do so.

6 Carbon Emission Trends

- 6.1 The carbon emissions data presented in this report highlights that, even though the city has, in 2019, exceeded its 2020 CO₂ target, continued action is required in reducing carbon and energy consumption across the sectors. It is heartening news that whilst Glasgow reduced its emissions by 1.5% between 2017 - 2018, **it has reduced its emissions by 5% between 2018 - 2019.**
- 6.2 Data in the coming years should confirm the change of pace in Glasgow as a result of the increased focus on the climate emergency. Efforts must continue to focus on reducing gas emissions in the domestic sector. There should also be continued focus on reducing emissions from the transport sector, building on the positive trend that these figures show. Continued support for the development of renewable energy projects and other low carbon projects will facilitate a secure energy future for Glasgow and its citizens, and will contribute to successfully achieving and exceeding the carbon targets by 2030.

- 6.3 The impact of the Covid-19 pandemic and the resulting widespread changes to daily life, are expected to have a significant impact on carbon emissions. It is anticipated that carbon emissions will significantly drop in 2020 compared to 2019. However, as has been demonstrated through similar economic events, it is also probable that these emissions may temporarily increase again as we bounce back from lockdown and the economy reopens and the city enters into a 'new normal'.

7 Policy and Resource Implications

Resource Implications:

Financial: There are no new financial implications arising from the report.

Legal: The report raises no new legal issues.

Personnel: The Energy and Carbon Masterplan and Climate Plan for Glasgow are managed by the Sustainability team.

Procurement: No relevant procurement issues.

Council Strategic Plan: The report supports the following strategic themes and outcomes:

A Sustainable and Low Carbon City

- **Priority 54:** Invest in roads and pavement maintenance, improving conditions, residents' satisfaction and contributing to active travel networks. Ensure community involvement in local decision making about this investment.
- **Priority 55:** Prioritise sustainable transport across the city.
- **Priority 62:** Review the affordable warmth scheme and consider how to make best use of current resources to support as many older peoples' households as possible.
- **Priority 65:** Build high quality, inclusive active travel infrastructure, investing a minimum of 10% of our transport infrastructure budgets in cycling and walking to make Glasgow an excellent cycling and walking city.

- **Priority 66:** Improve the efficiency of our services through the development of smart technology, including for refuse collection and street lighting.
- **Priority 67:** Become a carbon neutral city by 2037, reviewing our energy carbon masterplan, and investigating membership of international networks, the Carbon Neutral Alliance and C40.
- **Priority 68:** Meet our commitments to the national target of ensuring heat, transport and electricity needs are met by renewables by 2030.
- **Priority 69:** Explore ways of accelerating our work on green energy initiatives, and review the possibility of doing so through an ESCO.

Equality and Socio-Economic Impacts:

Does the proposal support the Council's Equality Outcomes 2017-22

Yes, it is broadly supportive of all the Council's Equality Outcomes.

What are the potential equality impacts as a result of this report?

No significant impact - an EQIA screening has been undertaken.

Climate Change impacts all of society, however this can disproportionately impact on those most vulnerable communities. We must ensure that our actions minimise the negative impacts that climate change has on our most vulnerable communities, while also maximising their ability to participate and benefit from our just transition to a low carbon economy.

Please highlight if the policy/proposal will help address socio economic disadvantage.

Yes. Examples would be reduced fuel poverty through cheaper energy, and increased social inclusion through improved public transport infrastructure.

Sustainability Impacts:

Environmental: This report describes the cumulative reductions in carbon emissions until 2019. This report details the success of actions undertaken by the City and local communities in reducing carbon emissions and energy consumption.

Social, including opportunities under Article 20 of the European Public Procurement Directive: This report describes progress on efforts to reduce carbon emissions. These efforts more often than not are linked to equality and social justice.

Economic: This report details the success of actions undertaken by local business & communities in reducing carbon emissions.

Privacy and Data Protection impacts: This report presents analysis of publically available data and does not represent any privacy or data protection issues thus a Data Protection Impact Assessment (DPIA) has not been carried out.

8 Recommendations

The Committee is asked to:

- (a) Note the contents of this report;
- (b) Continue to support the work of Neighbourhoods, Regeneration & Sustainability (NRS) in reducing Glasgow's CO₂ emissions and environmental impact.
- (c) Note that a further update on the city's progress towards the 30% carbon dioxide reduction target will be provided in 12 months.

Appendix 1 – Energy and Carbon Masterplan Actions – Update

Action Number	Update
<p>1. Conduct internal energy audits of municipal properties and identify those that will benefit most from energy efficiency measures actions and projects.</p>	<p>Utilising the Council’s Cyclical Energy Efficiency (CEEF) Fund, the following has been achieved over the past two years:</p> <ul style="list-style-type: none"> • £255,000 worth of projects have been delivered. • £476,000 worth of projects have been commissioned. • £1,342,000 worth of projects are at various stages of implementation. • £4,600,000 worth of projects are under development. <p>This action will remain ongoing and be taken forward in the Carbon Management Plan.</p>
<p>2. Decrease energy consumption in public buildings by developing Demand Side Management technology and procedures.</p>	<p>First Demand Side management technology was installed via the Future Cities project. These have encountered some challenges and will continue to work on this to progress.</p> <p>Contract awarded and first Council site is in the process of being connected.</p>
<p>3. Conversion of remaining coal-fired boilers and oil boilers into gas boilers (or biomass where appropriate) in GCC buildings.</p>	<p>Nine biomass boilers now installed.</p> <p>A procurement exercise is underway to expand on this initial trial.</p>
<p>4. Implement PC Shutdown software in the Education estate and examine the feasibility to extend it to the entire council estate.</p>	<p>Complete.</p>
<p>5. Reduce electricity consumption associated with the GCC Data Centre using RES Data Centre Project.</p>	<p>Data Centre is no longer part of the Council estate. This service is provided by third parties through CGI.</p>
<p>6. Reduce energy consumption of the Council estate through the council’s Asset Management Strategy, including potential replacement of inefficient heating for more efficient heating in GCC temporary structures.</p>	<p>Heating related consumption has recently been skewed by Covid-19 restrictions however comparing data from 2017/18 to data from 2018/19 shows a 7% reduction in consumption.</p> <p>This action will continue to be taken forward by Corporate Asset Management with support from the Carbon Management Plan.</p>

<p>7. Reduce energy consumption in Council premises via activities of green wardens and the staff behavioural change programme.</p>	<p>The “Green Warden” programme came to an end however the staff awareness has been taken forward in recent Carbon Literacy Training.</p> <p>The most recent data shows that 42 elected members and 74 GCC officers have now received Carbon Literacy Training; a total of 116 individuals.</p> <p>This has included one session of “<i>Train the Trainer</i>”. This has enabled capacity building within Glasgow City Council allowing us to further upskill our own staff. This also provides us with the ability to train external organisations.</p> <p>This will continue to be rolled out as an action in Glasgow’s Climate Plan.</p>
<p>8. Installation of LED lights as standard on all new builds and refurbishments.</p>	<p>In excess of 80 Council buildings have been converted with further phases in place.</p> <p>This action is now part of the Council’s standard specification for new build.</p>
<p>9. Installation of managed, centralised BMS control. Where possible this will integrate heating, lighting and alarms.</p>	<p>BMS deployment has been delayed by recent Covid -19 restrictions however 170 properties have now been retrofitted.</p> <p>This action will remain ongoing and be taken forward in the Carbon Management Plan.</p>
<p>10. All new (from 2014) GCC buildings to achieve Bronze Active standard by 2014; Silver Active standard by 2016 and Gold Active standard by 2018 (<i>LDP, Resource Management Policy</i>)</p>	<p>This action was incorporated into planning policy when the Development Plan was adopted in 2017. At this time the focus went straight to Silver Active with 15% LZCGT.</p> <p>As of 2018, non-residential buildings must achieve a Gold Active 1 standard, which requires a 38% carbon emissions reduction over the current building regulations (a 75% improvement against 2007 standards).</p> <p>This continues to be taken forward as part of the Council’s Planning Policy.</p>
<p>11. Target tertiary buildings where there is high energy usage and encourage owners and tenants to take a pro-active approach to energy efficiency and reduce CO2 emissions.</p>	<p>Actively managed through GCC’s Sustainability team and Sustainable Glasgow to help develop energy solutions across the city. Examples include the Wyndford District Heating Scheme and those of the Universities of Glasgow and Strathclyde.</p>

	<p>This will continue to be delivered via GCC's Sustainability team and incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>12. Develop and maintain a heat mapping model for non-residential sector by source (gas and electricity) for Glasgow and combine datasets with the city energy modelling tool.</p>	<p>The Council contributes data to the national heat map on an annual basis and maintains the heat map availability through the Scottish Governments prescribed access arrangements.</p> <p>This action is ongoing and will be incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>13. All new (from 2014) non-residential buildings to achieve Bronze Active standard by 2014; Silver Active standard by 2016 and Gold Active standard by 2018 (<i>LDP, Resource Management Policy</i>)</p>	<p>This has been part of planning policy since the Development Plan was adopted in 2017.</p> <p>As of 2018, non-residential buildings require a 38% carbon emissions reduction over the current building regulations (a 75% improvement against 2007 standards) to achieve Gold Aspect 1.</p> <p>The response from the non-residential sector has been promising and this has contributed to a significant move away from fossil fuels at the planning stage. Recent examples include the deployment of Air Source Heat Pumps and Solar PV.</p>
<p>14. Identify areas with heat recovery potential to reduce waste and make productive use of excess heat.</p>	<p>Areas have been identified however difficulties in developing district heating have, so far, limited recovery and use of that heat.</p> <p>Work is still ongoing to access and utilize waste heat in the city with the GRREC being a priority.</p> <p>This action is ongoing and will be incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>15. Improve energy efficiency, reduce energy consumption and fuel poverty in social housing through the coordination and enhancement of existing schemes.</p>	<p>Recent data identified over 94% of Glasgow's social housing meets the Scottish Housing Quality Standards including energy efficiency ratings.</p> <p>Most recent data on fuel poverty estimates that 25.3% of households in Glasgow are fuel poor, compared to 24.4% for Scotland as a whole.</p>

	<p><i>(Note - These are a best estimate of fuel poverty under the new definition of fuel poverty and cannot be compared to previous local authority analysis figures).</i></p> <p>Previously, the threshold for fuel poverty was spending more than 10% of gross household income on fuel costs whereas the new definition rates fuel poverty as 10% of spending on fuel against net household income.</p> <p>Comparing trends from the previous year's indicates that over 7 years (2010-2017), fuel poverty rates in Glasgow reduced from 26% to 21.4% of all households, a decrease of 13,000 households (74,000 to 61,000).</p> <p>Over £106m has been committed by the Council and its partners on installing energy efficiency measures to over 12,620 households (over 5,500 of which were social rented households). The Council has consistently attracted the highest amount of the Scottish Government's Energy Efficient Scotland Programme funding (EES) compared to other Scottish local authorities. This is augmented by Energy Company Obligation (ECO) funding from utilities companies.</p>
<p>16. Improve energy efficiency and promote renewable energy projects in private housing sector.</p>	<p>Glasgow's Affordable Warmth Programme is funded mainly through the Scottish Government's Energy Efficient Scotland (EES) Programme: Area Based Schemes (EES: ABS).</p> <p>Since the programme began in 2013, over £101million has been invested, with around 12,000 measures installed in over 70 project areas across the city.</p> <p>Examples of ABS projects include:</p> <p>Yoker Properties: Lawrence Non Traditional Construction Delivered external wall insulation to circa 135 semi-detached and terraced properties over a 2 year period (2017- 2019). The project is within the lowest 25% of SIMD areas and attracted £945,000 HEEPS funding.</p> <p>Shettleston: D Wilde/Kaynes Brickwood Non Traditional construction Delivered external wall insulation to two different construction types in the Shettleston</p>

	<p>area. House types were non-traditional steel frame construction, “four in the block” flatted properties. External wall insulation had previously been carried out in these areas but a number of gaps where owner occupiers had not participated.</p> <p>The SIMD data zones ranged between the lowest 10% and 25% and all properties were within Council Tax bands A-C.</p> <p>Demand for external wall insulation was high with a total of 216 owners participating across both projects bringing the Scottish Government HEEPS investment to the area to circa £1.4m.</p>
<p>17. Promote behavioural change in citizens in households to promote energy savings (through smart meters, online energy model, behavioural change).</p>	<p>Glasgow City Council website’s “Housing Energy and Affordable Warmth” pages promote Home Energy Scotland (HES) and G-HEAT as well as the Carbon Trust as independent external advice agencies for customers seeking specific advice and information relating to energy savings and measures.</p> <p>G-HEAT continue to operate as a local energy advice and assistance service with a particular focus during the past 18 months to support vulnerable households affected by the COVID-19 pandemic. Glasgow City Council engaged with G-HEAT to provide support to households within the boundaries of GCC who have been impacted by COVID-19. The council allocated £104,400 for this initiative and G-HEAT to provide advice and support and funding support up to £150. Glasgow City Council’s Housing and Welfare Team, the ‘PRS Hub’, worked closely with G-HEAT to provide energy advice and assistance referrals for vulnerable PRS tenants.</p> <p>New Gorbals Housing Association provide funding to G-HEAT that is distributed to tenants that are impacted by fuel poverty. This has allowed G-HEAT to work with NGHA to proactively identify and support vulnerable households.</p>
<p>18. All new residential buildings to achieve Bronze Active standard by 2014; Silver Active standard by 2016 and Gold Active standard by 2018 (LDP, Resource Management Policy).</p>	<p>All new affordable homes delivered with subsidy via Glasgow’s Affordable Housing Supply Programme achieve ‘Gold Hybrid’ as set out in the ‘Glasgow Standard’ agreed in 2018.</p>

	In 2019/20 there were 1,983 new build unit approvals and 1,003 completed units.
19. Develop and maintain a heat mapping model for the residential sector.	<p>The Council contributes data to the national heat map on an annual basis and maintains the heat map availability through the Scottish governments prescribed access arrangements.</p> <p>This action is ongoing and will be incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
20. Implement energy efficient street lighting across the city.	<p>LED lighting is now the standard specification for street lighting.</p> <p>Most recent data indicates Glasgow has 23,995 LED streetlights (which accounts for 32.8% of the total street lighting in the city).</p> <p>Emissions from lighting in the city, as partly a result of this action, have reduced by 59% between 2015/16 and 2020/21 (this figure includes traffic signals and some CCTV equipment).</p>
21. Procurement and deployment of a further 20 electric vehicles for the council fleet and further electric vehicles for Community Planning Partnership (CPP) partners.	<p>Under the remit of the Fleet Strategy approved in September 2019, the council is now introducing electric and hydrogen vehicles.</p> <p>To date over 300 vehicles have been delivered and are being deployed with a substantial renewal and refurbishment programme being developed.</p>
22. Reduce usage and maximise efficiency of council fleet, including Fuel efficient driver training.	All new vehicles will be fitted with telematics reporting on standards and supported by improved driver training including sympathetic driving techniques which as well as improving standards of driving also assist in electric vehicle battery maximisation of range.
23. Work with bus, train operators and SPT to encourage modal shift from private to public transport.	<p>The relationship between the Council and public transport sector companies has been managed by Glasgow City Council and through Sustainable Glasgow.</p> <p>Measures such as the introduction of a Low Emission Zone (LEZ) have helped to improve the standards of the public transport fleet, including the addition of more electric buses.</p> <p>Further measures will be taken forward in the emerging Local Transport Strategy.</p>

	<p>This is also being taken forward through work with the Bus Partnership and via the Sustainable Glasgow Partnership hub.</p> <p>In addition this action is supported by the Metro feasibility study currently underway.</p>
<p>24. Promote and enable the use of active travel modes, such as walking and cycling across the city.</p>	<p>Spaces for People programme saw temporary walking and cycling infrastructure provided in 2020 with consultation in 2021 on permanence or otherwise.</p> <p>In addition to this, Glasgow currently has 80 MACH bike stations, with 870 standard bikes and 126 E-bikes made available for hire.</p> <p>Furthermore, the city currently has a total of 290 km of dedicated cycle lanes.</p> <p>Glasgow has also benefitted from the Secure On-Street Cycle Parking pilot project, introduced in May 2021. The scheme is currently at 93% occupancy with 52 units at capacity and only three units having fewer than three stored bikes. The waiting list based on the total available spaces is currently around +200% capacity.</p> <p>This action will be considered via the draft Active Travel Strategy being prepared in 2021 for consultation in Autumn 2021.</p>
<p>25. Promote the use of electric cars by continued installation of free electric charging points across the city.</p>	<p>Ongoing. Glasgow City Council has been very active in the installation of charging points for electric cars.</p> <p>The city now has 225 public EV chargers and 124 fleet EV chargers deployed. Work is ongoing to provide dedicated charging for electric taxi fleets.</p> <p>Due to the rise in electric vehicle ownership and the infrastructure required to support its use, Glasgow City Council agreed to implement a tariff for charging. This tariff is expected to come into force in 2021.</p> <p>The Car Club operating in the city has also introduced electric vehicles for hire, helping those who don't own a car to have access to an electric option.</p>

<p>26. Improve traffic management in congested areas of Glasgow and using measures such as Air Quality Management Areas.</p>	<p>Glasgow introduced Scotland's first ever Low Emission Zone in 2018, applying initially to local service buses only.</p> <p>This is now being rolled out for Phase two, including private vehicles.</p> <p>The preferred scheme design for the Glasgow Low Emission Zone is currently undergoing public consultation.</p> <p>General enforcement is scheduled to begin on 1st June 2023 and will contribute to improving traffic management and congestion as well as its primary objective of improving air quality.</p>
<p>27. Promote local production of renewable electricity through GCC-led projects that bring a return on investment</p>	<p>PV installations are complete in 31 locations which cumulatively generate in the order of 598,000kWh annually, avoiding approximately 143tCO₂</p> <p>An addition programme of up to 200 locations is being developed.</p> <p>The GRREC generated 20,117MWh of renewable energy in its first year of operation (2019).</p> <p>Future action will be incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>28. Promote local production of renewable electricity through community based projects.</p>	<p>This action is ongoing and to be incorporated into the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>29. Develop a Glasgow Recycling and Renewable Energy Centre to produce energy from waste to supply heat locally.</p>	<p>Complete. The GRREC became fully operational in 2019.</p>
<p>30. Establish a city-wide Energy Services Company (ESCo) to facilitate, coordinate, maintain and develop a district heating network in Glasgow.</p>	<p>GCC carried out a five stage business case appraisal on the feasibility of establishing an ESCo to further develop district heating and renewable energy projects.</p> <p>While the business case recognised the strategic benefit of an ESCo it also projected negative net present value due to the costs associated with the development of district heating, compounded by the application of non-domestic rates at a level which negated many of the benefits associated with district heating.</p>

	<p>Glasgow City Council has been working with the Scottish Government and the Scottish Cities Alliance to find a solution. Limited success has been achieved through discounts to NDR but no permanent solution as yet.</p> <p>The opportunity to establish an ESCo is reviewed with each project presented.</p>
<p>31. Roll out for households in the city the local collection of food waste and enable anaerobic digestion/ energy generation from this waste.</p>	<p>A food waste collection service was provided to all properties within the city during 2016.</p> <p>Food waste collected from residential properties via the brown bin, is taken for in-vessel composting treatment, producing a range of composts.</p> <p>Food waste collected from flats and tenements, within the grey bin, is taken for treatment via anaerobic digestion (AD). Energy from the AD operation is fed back into the national grid.</p>
<p>32. Develop anaerobic digestion of sewage waste at a sewage treatment works (potentially Dalmarnock) to generate energy for the plant.</p>	<p>The opportunity to utilise anaerobic digestion hasn't come to fruition however work has been undertaken to look at heat recovery from sewerage works and continues to be a focus as one of a number of potential heat recovery options.</p> <p>To be considered in the developing Local Heat and Energy Efficiency Strategy (LHEES).</p>
<p>33. Promote further urban forestry for capture of carbon dioxide.</p>	<p>GCC will continue to promote and facilitate more planting of trees throughout our assets. This includes:</p> <ul style="list-style-type: none"> • The creation of Phase 2 of the Cart-Kittoch Woodland involving every Primary school in Glasgow. • Piloting the "Tiny Forests" projects across the city and • Assess and seek funding for additional planting as well as installation of street trees where appropriate. <p>A Woodland strategy will also be developed to form part of the suite of planning framework documents.</p>