

## CABINET

<b>Date of Meeting</b>	21 <sup>st</sup> Nov 2023
<b>Report Subject</b>	Council Carbon Footprint Update 2022/23
<b>Cabinet Member</b>	Collective Responsibility
<b>Report Author</b>	Chief Officer (Planning, Environment & Economy)
<b>Type of Report</b>	Operational

### EXECUTIVE SUMMARY

The council calculates its carbon footprint annually to measure the quantity of greenhouse gas emissions it is responsible for to monitor and direct decarbonisation efforts towards Net Zero Carbon by 2030. In September 2023, the calculation for the period 1<sup>st</sup> April 2022 – 31<sup>st</sup> March 2023 was completed and submitted to Welsh Government.

The Carbon Emission Update 2022/23 presents the results of the 2022/23 calculation while comparing them against figures from the Council's baseline year of 2018/19, in this case showing a reduction of greenhouse gas emissions in 2022/23. The report also provides explanation as to why emissions have changed, as well as noting any improvements or difficulties relating to the data and methodology. The end of the report concludes with a brief recommendation to investigate the use of digital technologies such as Microsoft Power BI to improve data quality for greater emissions management and reduce the time staff spend collecting the data, and also key considerations for the Climate Change Strategy review in 2024/25, in particular baseline emissions and targets for Supply Chain and targets for Mobility & Transport

### RECOMMENDATIONS

1	To note the contents of the report, and progress made in the past year to improve data collection for the Council's carbon footprint.
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## REPORT DETAILS

1.00	EXPLAINING THE REPORT																																																																						
1.01	<p><b>Background</b></p> <p>The Carbon Footprint Update 2022/23 presents the results of the council's 2022/23 emissions calculation, compares them against the figures from the Council's baseline year of 2018/19 and provides explanations for any changes seen as well as commenting on the work itself.</p>																																																																						
1.02	<p><b>Purpose</b></p> <p>The council calculates its carbon footprint annually to measure the quantity of greenhouse gas emissions it is responsible for to monitor and direct decarbonisation efforts towards Net Zero Carbon by 2030. In September 2023, the calculation for the period 1<sup>st</sup> April 2022 – 31<sup>st</sup> March 2023 was completed and submitted to Welsh Government.</p>																																																																						
1.03	<p>Total carbon emissions for the period 2022/23 were 32,328 tCO<sub>2</sub>e, a 30.4% decrease in emissions compared to the 2018/19 baseline.</p> <div><p>Greenhouse gas emissions for Flintshire County Council by emission source</p><table><caption>Estimated data from the chart (tCO<sub>2</sub>e)</caption><thead><tr><th>Year</th><th>Heating for buildings</th><th>Electricity in buildings</th><th>Electricity in streetlighting</th><th>Water supply and treatment</th><th>Business travel-car</th><th>Business travel-rail</th><th>Supply chain</th><th>Fleet</th><th>Employee commuting</th></tr></thead><tbody><tr><td>18-19</td><td>35,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr><tr><td>19-20</td><td>34,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr><tr><td>20-21</td><td>30,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr><tr><td>21-22</td><td>35,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr><tr><td>22-23</td><td>25,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr><tr><td>22-23 Spend w. 2011 EF</td><td>35,000</td><td>5,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td><td>1,000</td></tr></tbody></table></div> <p>These reductions are mostly due to a decrease in emissions from Procurement; 34.5% lower than the 2018/19 baseline. Additionally, Buildings, and Mobility and Transport, saw reductions of 27.2% and 17.9% respectively.</p>	Year	Heating for buildings	Electricity in buildings	Electricity in streetlighting	Water supply and treatment	Business travel-car	Business travel-rail	Supply chain	Fleet	Employee commuting	18-19	35,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	19-20	34,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	20-21	30,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	21-22	35,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	22-23	25,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	22-23 Spend w. 2011 EF	35,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
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1.04	<p>There remain significant limitations with some of the methodology used, most significantly relating to emissions from Procurement which remains based on the value of spend.</p> <p>However, Welsh Government have updated the emission factors for each of the spend categories. The previous emission factors were calculated by the Centre for Sustainable Accounting last updated in 2011. The new emission factors were calculated by University of Leeds and are better reflective of the current economy. This has demonstrated an average 32%</p>																																																																						

	<p>reduction across the spend categories resulting in the reduced carbon emissions from procurement.</p> <p>This gives the impression that we have actively reduced our emissions from supply chain beyond our 2024/25 target, however, the column labelled '22-23 Spend w.2011 EF' in the Section 1.03 graph demonstrates this is not the case by applying the 2011 supply chain emission factors to 2022/23 spend data. Supply chain emissions in 2022/23 with the new emission factors are 18,894 tCO<sub>2</sub>e, however, if emission factors from 2011 had remained then supply chain emissions would have been 30,838 tCO<sub>2</sub>e. This would have resulted in a total 2022/23 carbon footprint of 44,183 tCO<sub>2</sub>e, which is still a reduction on the 2018/19 baseline by 4.8% due to reductions achieved elsewhere, but much less than the 30.4% seen.</p> <p>Utilising spend value as a means to calculate emissions is still an inaccurate measurement of the real emissions from our supply chain, and therefore we must not take this as a reason to discontinue focussing on reducing actual emissions from our supply chain; on the contrary, the targets within each key theme will be reviewed and considered within the strategy's full review in 2024/25 to ensure we are aiming for ambitious but achievable targets towards net zero carbon.</p> <p>We will move away from the calculation methodology of emissions associated with spend value by working with our suppliers to better understand the emissions associated with the individual contracts we procure. This work will now be accelerated following the recruitment of a Joint Procurement Business Partner for Decarbonisation in Sept 2023 – part funded by Flintshire Council and part funded by Denbighshire Council.</p>
1.05	<p>There have been improvements in methodology for other emission sources thanks to the availability of more reliable data.</p> <p>In terms of Business mileage, 67% of miles claimed now state the car size. This data capture allows us to use a more specific emission factor for each car size and fuel type (as for example a large diesel engine will generate more emissions than a small petrol engine). Prior to capturing this data we had to use an emission factor for an 'average car' which is an average of all car size types and therefore could have been either over or underestimating our emissions from business travel.</p> <p>This more accurate data is expected to improve further as more staff have access to online recording.</p> <p>Water data has also improved for the 2022/23 period where we are now able to utilise a higher tier methodology with a lower standard of deviation based on actual water consumption figures. Prior to this period, we were calculating our water use based on invoice amounts and then converting this into m<sup>3</sup> usage based on that year's standard volume charge (£/m<sup>3</sup>). For 2022/23, actual meter reads were used for 76% of total water consumption.</p> <p>In October 2023 we will be launching an employee travel survey that will help us to gain a better understanding of how and how often our employees are travelling into their places of work. This will help us to</p>

	<p>better determine the carbon emissions from employee commuting and home working.</p> <p>These emission data sets were highlighted in the 2021/22 report as areas for improvement, so it is encouraging to see the progress made to ensure we have a clearer understanding and accuracy over our carbon emissions.</p>
1.06	<p>Other headline figures are also provided in the update;</p> <p>2022/23 Emissions v 2018/19 Baseline Year and Targets</p> <ul style="list-style-type: none"> <li>- Building emissions have reduced 27.2% since 2018/19, aiming for a 35% reduction by 2024/25.</li> <li>- Mobility and Transport emissions have reduced 17.9% since 2018/19, aiming for a 50% reduction by 2024/25.</li> <li>- Procurement emissions have reduced 34.5% since 2018/19, aiming for a 30% reduction by 2024/25.</li> </ul> <p>2022/23 Emissions v 2021/22 Emissions</p> <ul style="list-style-type: none"> <li>- Building emissions: Reduced 8.4% (with a 9% YOY target)</li> <li>- Mobility and Transport emissions: Increased 0.2% (with a 9% YOY target)</li> <li>- Procurement emissions: Reduced 41.5% (with an 8% YOY target)</li> </ul> <p>Land-use Emissions</p> <ul style="list-style-type: none"> <li>- Our land is estimated to have removed 1,513 tCO<sub>2</sub>e</li> <li>- This figure continues using our baseline methodology and noting any substantial land changes for the year.</li> <li>- Welsh Government are developing an improved methodology to better account for our land assets so that we can ensure this data is accurate and better reflect the assets that we have within Flintshire both as an emitter and captor of carbon.</li> </ul> <p>Renewable Energy Generation</p> <ul style="list-style-type: none"> <li>- Total generation from renewables increased by 18% from the 2021/22 period with 3,522,138 kWh generated.</li> <li>- This improvement is due to investments in Solar generation, with both roof-mounted and ground-mounted increasing generation by 10% and 150% respectively. This reflects the generation from the new solar farms at Flint former landfill and Crumps Yard, Connahs Quay.</li> <li>- Renewable generation from Wind and Landfill Gas reduced in this period by 9% and 43% respectively, mostly due to lower wind speeds and maintenance regimes.</li> </ul>
1.07	<p>Data collection for certain emission sources still requires improvement for future calculations, whether to improve methodology used to increase</p>

	<p>accuracy, provide greater detail or reduce the burden on staff. Work is already underway to improve data for business travel, employee commuting and homeworking, as well as a new officer to address emissions from procurement.</p> <p>Additionally, the use of Microsoft Power BI will be investigated to discover how data requests and manual collection can be minimised to reduce demand on staff resource.</p> <p>With the review of the council's Climate Change Strategy due in 2024/25, a number of items in need of particular consideration have been identified and are detailed below.</p> <ul style="list-style-type: none"> <li>- Review of the Baseline and interim emissions target for Supply Chain as knowledge to decarbonise improves and methodology is updated</li> <li>- Update of the total 2018/19 baseline emissions figure following updates to supply chain baseline</li> <li>- Review of the interim emissions target for Mobility &amp; Transport following greater understanding of barriers at Alltami Depot to decarbonise fleet and improvements to staff commute methodology</li> </ul>
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<b>2.00</b>	<b>RESOURCE IMPLICATIONS</b>
2.01	Staff time and collaboration with other council departments (e.g., IT) to identify digital tools to streamline the collection of raw data (e.g., electricity use in buildings).
2.02	Some costs may be involved if a suitable digital tool is identified, but it is currently not clear whether that would be the case or how much.
2.03	Recruitment of a Joint Procurement Business Partner between Flintshire County Council and Denbighshire County Council in Sept 2023

<b>3.00</b>	<b>CONSULTATIONS REQUIRED / CARRIED OUT</b>
3.01	Not Required/ None

<b>4.00</b>	<b>RISK MANAGEMENT</b>
4.01	<p>There are risks when calculating carbon emissions that the quality or lack of raw data or the way in which it is processed and reported may reduce reliability through error or availability. To address this risk, the Climate Change team review the work in detail and is supported by neighbouring local authorities through peer review.</p> <p>Regarding the Carbon Emissions Update 2022/23 report, risks are considered low but issues such as poor use of terminology or presentation of data creating confusion or misunderstandings. To address this, language is carefully considered and a glossary at the end of the report is provided.</p>

	Data is presented in simple tables and detailed further where it is felt useful for the reader.	
4.02	<b>Ways of Working (Sustainable Development) Principles Impact</b>	
	Long-term	Positive: Climate Change Committee will be informed of the council's progress towards Net Zero Carbon by 2030 as well as successes and barriers involve. In doing so, Climate Change Committee will be informed enough to advise and support on potential solutions to barriers identified.
	Prevention	Positive: The update will inform of emissions that have been prevented in the reporting year and how future emissions can be prevented by addressing issues identified.
	Integration	Positive: The Carbon Emission Update 2022/23 forms part of the carbon emission calculation, decarbonisation and reporting process, which in turn integrates with the following priorities under the Council Plan; Green Council, Ambitious Council and Supportive Council. It integrates with the public service board objectives in the Environment priority of the Wellbeing Plan as well as the Smart Access to Energy project in the North Wales Growth Deal. It also integrates with the Environment (Wales) Act 2016 and Welsh Government's decarbonisation of the public sector agenda.
	Collaboration	Positive: The update recommends investigating how digital technology can support the data collection process, thus requiring the support of other council departments such as IT. Additionally, other local authorities may already have solutions to this matter, thus presenting opportunities to learn and progress.

	Involvement	Positive: The update highlights the need to improve data quality such as staff commute miles. In this example it will require staff to provide information relating to how they travel to work and presents further opportunities to collect additional insights to support decarbonisation.
4.03	<b>Well-being Goals Impact</b>	
	Prosperous Wales	Positive: Decarbonising the council brings benefits of reduced energy costs, increased generation from renewables and greater control of activities through improved monitoring.
	Resilient Wales	Positive: Resilience can be increased through reduced energy demand and reliance on fossil fuels. Through the monitoring of emissions and data quality, we can improve decarbonisation strategies and target areas which are less resilient than others.
	Healthier Wales	Positive: Realising progress towards Net Zero Carbon 2030 goals promotes positivity towards climate change helping to address related issues such as climate anxiety and stress. Addressing emissions from the local area (e.g., transport) will also benefit people's physical health.
	More equal Wales	Neutral: No impact identified.
	Cohesive Wales	Neutral: No impact identified.
	Vibrant Wales	Neutral: No impact identified
	Globally responsible Wales	Positive: The update reports on how the council is reducing its contribution to global warming through reduced emissions and makes recommendations on how to progress further.

<b>5.00</b>	<b>APPENDICES</b>
5.01	<b>Appendix 1 – Carbon Footprint Update 22-23</b>

<b>6.00</b>	<b>LIST OF ACCESSIBLE BACKGROUND DOCUMENTS</b>
6.01	None

<b>7.00</b>	<b>OFFICER CONTACT DETAILS</b>
7.01	<b>Contact Officer:</b> Ben Turpin – Climate Change Project Officer <b>Telephone:</b> 01352 703393 <b>E-mail:</b> ben.turpin@flintshire.gov.uk

<b>8.00</b>	<b>GLOSSARY OF TERMS</b>
8.01	<p><b>Baseline Year:</b> The emissions that occurred in the period of 1<sup>st</sup> April 2018 – 31<sup>st</sup> March 2019 are what targets are based on and all future carbon emission calculations compared to.</p> <p><b>Capital Funding:</b> Capital funding is usually utilised to acquire or improve a long-term asset such as equipment or buildings.</p> <p><b>Carbon emissions:</b> Used interchangeably with greenhouse gas emissions; meaning emissions of carbon dioxide, methane etc from human and natural activities and sources. Wider greenhouse gas emissions are collectively calculated into a 'carbon dioxide equivalent' displayed as CO<sub>2</sub>e.</p> <p><b>Carbon Footprint:</b> A measurement of the council's carbon emissions during a defined period of time, given as tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e)</p> <p><b>Carbon sequestration:</b> the process involved in carbon capture and the long term storage of atmospheric carbon dioxide.</p> <p><b>Decarbonisation</b> – Reduction of carbon emissions that result from an activity, material or product</p> <p><b>Greenhouse Gas/ Carbon emissions:</b> Emissions of carbon dioxide, methane etc from human and natural activities and sources. Wider greenhouse gas emissions are collectively calculated into a 'carbon dioxide equivalent' displayed as CO<sub>2</sub>e.</p> <p><b>Methodology:</b> How the collected raw data used for carbon emission calculations is managed and rated in terms of its reliability. This is governed by Welsh Government.</p> <p><b>Microsoft Powe BI:</b> A collection of software services, apps, and connectors that work together to turn unrelated sources of data into coherent insights.</p> <p><b>Net Zero Carbon</b> – Reduce carbon emissions and balance any that remain with carbon dioxide removal activities.</p>



	<p><b>Raw Data:</b> The most basic of data units used for carbon emission calculations. Examples include units of energy (kWh of electricity), vehicle type and mileage, tonnes of a particular waste, etc.</p> <p><b>Revenue Funding:</b> is utilised for items that will be used within a year. Examples include salaries, heating, lighting, services and small items of equipment. Routine repairs are revenue expenditures and can include significant repairs that do not extend the life of the asset or do not improve the asset.</p>
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