

Report to Climate and environment emergency executive panel
17 December 2020
Report of Director of place
Subject Carbon Footprint Report 2019 -20

Item

5

Purpose

To consider the council's carbon footprint report for 2019 - 2020

Recommendation

To note the outcomes of the carbon footprint exercise.

Corporate and service priorities

The report helps to meet the corporate priorities for great neighbourhoods, housing and environment, inclusive economy and people living well.

Financial implications

No new financial implications. Funding for specific proposals would be subject to a separate approval process at the appropriate time.

Ward/s: All Wards

Cabinet member: Councillor Maguire - Safe and sustainable city environment

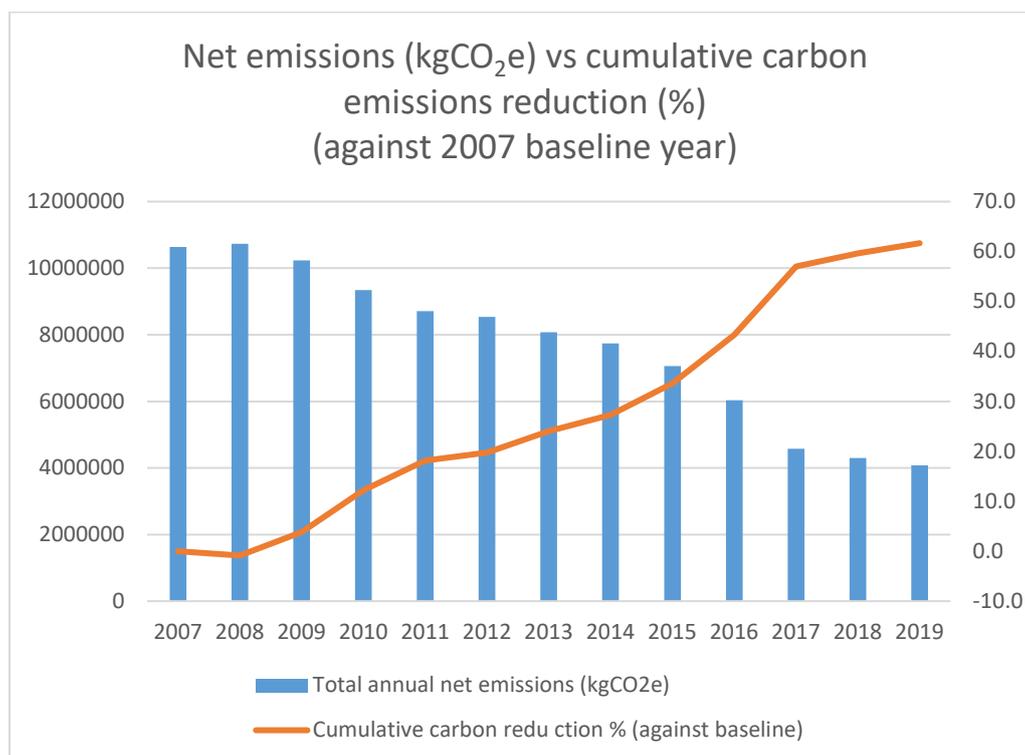
Contact officers

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Report

- 1 For the period 1 April 2019 to 31 March 2020 a further reduction of 2.5% in the council's carbon footprint was achieved. This takes the total reduction in carbon emissions to 62.1% (against the 2007 baseline). Graph 1 shows the annual reduction in net carbon emissions (kgCO₂e), against the percentage reduction in carbon emissions over time.



Graph 1: Net Emissions vs cumulative emissions

- 2 Carbon emissions data is collected from a variety of sources, and in various units e.g. litres fuel used, km travelled, and kWh energy consumed. These are converted using a set of conversion factors provided by the Department of Business, Energy and Industrial Strategy (DBEIS). This allows all data to be expressed as kg of carbon dioxide, or kgCO₂e. This year the council reduced its carbon emissions by a further 266,396kgCO₂e or 266.4 tonnes. The carbon emissions are broken down into 3 Scopes:

Scope 1:

Gas consumption in council assets (kWh)
Gas consumption in contractor assets (kWh)
Fuel use in council assets (litres)

Scope 2:

Electricity consumption in council assets (kWh)
Electricity consumption in contractors' assets (kWh)

Scope 3:

Grey fleet (km)

Public transport (km)
Contractor fuel use (litres)

2019/20 in context with 5 year average data:

- 3 There have been requests in previous years that officers present the council's energy consumption (kWh, litres/km) alongside the carbon emissions figures (kgCO_{2e}). Therefore, both sets of figures have been provided below in Table 1. It should be understood, that although these figures are related, they are not directly comparable, due to the use of carbon conversion factors, which are influenced by external aspects at a national level. Since we are bound to use the conversion factors provided by DBEIS, their influence is also outside of our control.

- 4 The third column of Table 1 shows the amount of energy use either in kWh, litres of fuel used or km travelled. The fourth column shows this year's figures as a percentage increase or decrease against a 5 year average from 2014-19. This is in order to smooth the impact of one-off anomalies in reporting. The fifth column shows the amount of carbon emissions produced by each factor of each scope in the 2019-20 period. Finally, the sixth column shows this year's figures as a percentage increase or decrease against a 5 year average from 2014-19

Table 1 - Data by scope:

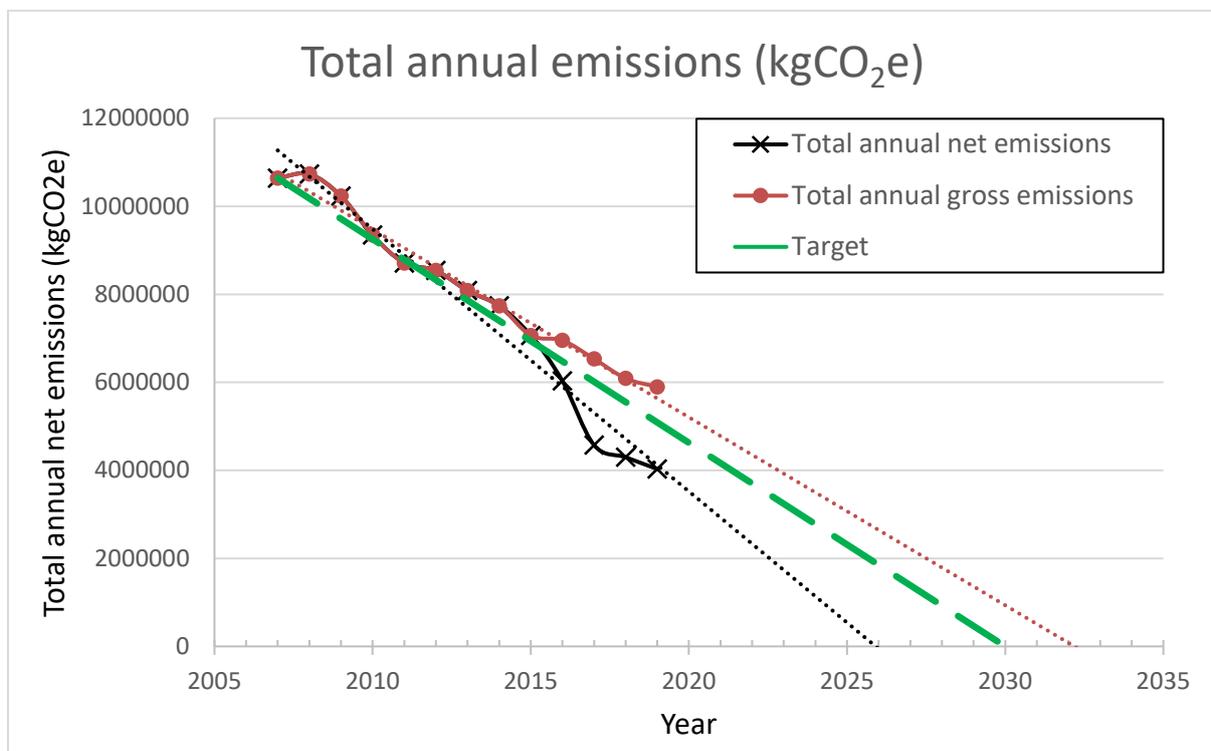
Scope	Detail	2019-20 energy use	Inc/ dec on 5 year average (2014-19)	2019-20 carbon emissions (kgCO _{2e})	Inc/ dec on 5 year average (2014-19)
1	Gas council owned buildings	12,998,072 (kWh)	Decrease (6.67%)	2,389,696 (kgCO _{2e})	Decrease (7.1%)
	Gas contractors	144,102 (kWh)	Increase (24.42%)	26,493 (kgCO _{2e})	Increase (24.1%)
	Fuel council managed vehicles	12,041 (litres)	Decrease (15.85%)	2,932 (kgCO _{2e})	Decrease (14.3%)
	Total Scope 1 emissions (kgCO _{2e})			2,419,121	
2	Electricity council owned buildings	7,107,092 (kWh)	Increase (7.02%)	154,224 (kgCO _{2e})	Decrease (92.0%)
	Electricity contractors	547,842 (kWh)	Increase (72.8%)	140,028 (kgCO _{2e})	Increase (7.8%)
	Total Scope 2 emissions (kgCO _{2e})			1,956,601	
3	Grey fleet (km)	80,221 (km)	Increase (5.6%)	14,882 (kgCO _{2e})	Decrease (2.6%)
	Public transport (km)	45,261 (km)	Decrease (4.19%)	3,031 (kgCO _{2e})	Decrease (19.1%)
	Contractors data (km)	584,467 (km)	Decrease (26.9%)	1,501,664 (kgCO _{2e})	Increase (3.2%)
	Total Scope 3 emissions (kgCO _{2e})			1,519,577	
	Total emissions – All Scopes (kgCO _{2e})			5,895,299	

Commentary:

- 5 Some of the most notable changes are increases in contractors' energy use, both gas and electricity. Officers have checked with contractors and the reason for the increase has been given as more robust and accurate reporting methods. As the council brings more contractors in-house it is hoped that it will be possible to facilitate greater emissions reporting accuracy as the council will have more access and control over the sources of data.
- 6 There has been a drop in contractor fuel use, which it has been suggested by one contractor is due to a drop in miles covered during the period, and a suggestion that this trend will continue significantly in the next reporting year, where contractors have been subject to Covid-19 restrictions. Another contractor has also reported that they are switching away from diesel vehicles early in 2021 to hybrid vehicles. If this is seen across other contractors, as we draw closer to the government's target to ban all new petrol and diesel vehicles from 2030, we should expect to see a reduction in all fuel emissions over time. (The government is to consult the heavy goods vehicle (HGV) industry further before making a decision on bringing in a diesel ban for those vehicles from 2030).
- 7 There has been a 7.2% decrease in gas use in council owned assets. Sheltered housing schemes, by the very nature of the needs of their residents, are one of our largest gas consumers. We continue to upgrade boiler houses and retrofit energy efficient technology wherever possible. Many schemes have had variable speed pumps, loft space pipework insulation, boiler upgrades, smarter controls, and valve and flange insulation fitted, and some have had underground pipework insulation retrofitted too. We continue to work with our asset management team to seek out new opportunities to use Salix funding to finance these works where possible.
- 8 This period is the first time that the council has opted to use carbon offsetting to support its carbon emissions reduction journey. This is a recognition of two things.
 - (a) Norwich City Council began reducing its carbon emissions in 2008, and has been successful at doing this for 12 years. However, it is more difficult to go on saving carbon year on year as the ease of project implementation diminishes.
 - (b) The council has elected to achieve net zero carbon by the year 2030, in recognition of the global climate emergency.
- 9 In order to achieve net zero carbon by the year 2030 retrofitting our assets will not be sufficient, even if it were economically viable. Some assets, such as City Hall, have extreme technological challenges to the adoption of renewable energy and therefore may struggle to become a net zero asset. A similar rationale would apply to the Halls which is a difficult asset to retrofit due to its age and listed status.

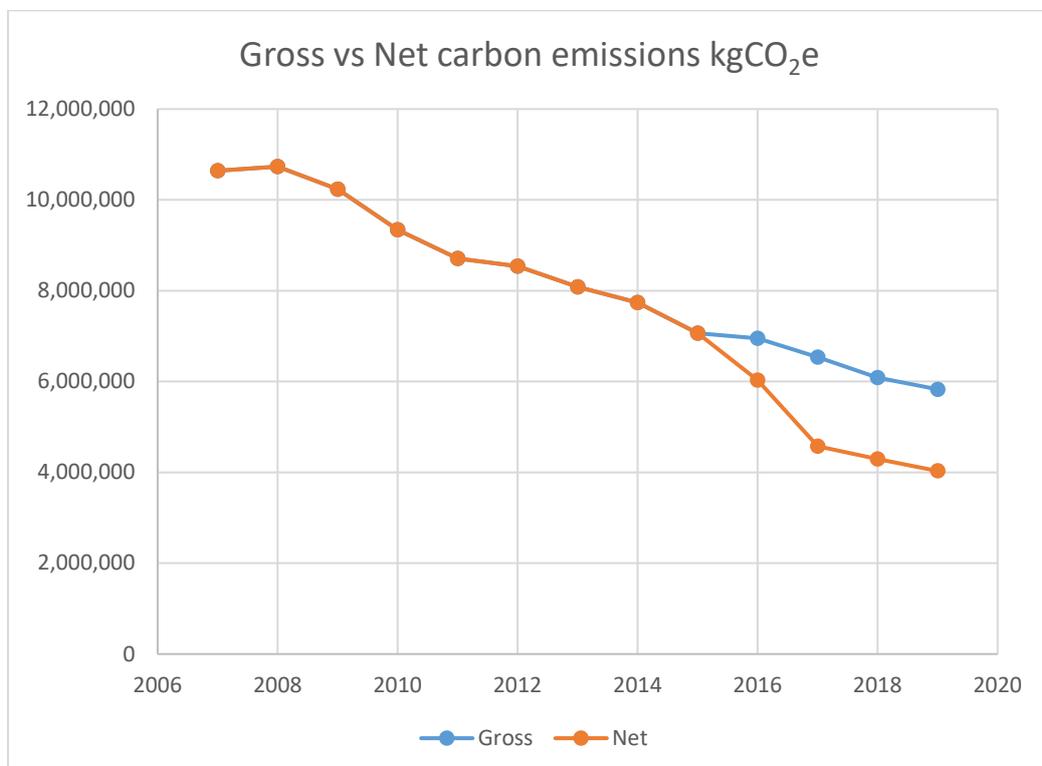
- 10 In 2016, the council moved to an OFGEM approved Green Tariff for electricity provision and this saw a significant reduction in the carbon emissions produced from electricity use. We are still required to report carbon emissions associated with transmission and distribution of electricity, and we report our contractors' energy use, which is often not supplied via a certified Green Tariff. But nevertheless, the reduction in carbon associated with the council's own use of electricity has been slashed thanks to the introduction of the Green Tariff. See Graph 3. Hopefully advances in the use of grid sourced green gas, district heating or progresses in hydrogen space heating will facilitate similar carbon reductions in the future.
- 11 Carbon offsets, through a reputable source, are vital in achieving rigorous carbon emissions reduction targets. Accepted best practice is to use them further down the carbon reduction pathway as a tool to bridge potential technological shortcomings. Therefore, without carbon offsetting it may be that net zero is not possible by 2030 as the assets the council use are old and represent some considerable retrofitting challenges in terms of their age or listed nature and ability to use renewables. This year the council has offset 21 tonnes CO₂e. The scheme selected is independently verified for quality assurance and meets BSI PAS 2060. The scheme supports tree planting in the east of England, which in turn creates valuable habitats for wildlife, whilst sequestering carbon emissions.

Graph 2 below, shows the path the council needs to follow in terms of year on year carbon emissions reduction in order to achieve the target of net zero carbon by 2030.



- 12 The dashed green line (Target) shows the path we need to take in order to achieve net zero carbon by 2030. If we go above this line, we will not achieve the target date.
- 13 The red line shows the council's gross carbon emissions journey: that is without the Green Tariff and without carbon offsetting. We have extrapolated from the data a trendline which suggests that if the council was able to continue as we have been, that we may achieve net zero by 2032. However, this would suppose that we could continue making large energy efficiency improvements to assets by retrofitting, as we did in the early years of the Carbon Management Programme, and this is simply not sustainable, when our assets are limited in terms of renewable generation capacity.
- 14 The black line shows net carbon emissions, and again, using previous data, a trendline has been extrapolated forwards and suggests we could become net zero in 2026. Again, this also would suppose that we can go on making the same emission savings indefinitely, which would be unlikely.
- 15 In order to achieve the target year of 2030 we need to stay on or below the green line. Part of being able to achieve this will include using carbon offsetting to support our carbon emissions reduction journey.

Graph 3 below, represents this is a different way.



- 16 This graph shows very clearly the impact of switching to the Green Tariff in 2016. Since we started in 2008, we have reduced the council's carbon

footprint, year on year, taking it from 10,800 tonnes of CO₂e in 2008, to 4,000 tonnes CO₂e in 2020. This is a fantastic achievement. We now have 10 years to reduce 4,000 tonnes per year, or 4,000,000 kgCO₂e, to 0 tonnes per year. Because we cannot go on indefinitely upgrading and retrofitting our assets to make them more energy efficient, we must look to other methods to help achieve our target of net zero by 2030.

- 17 In addition to the green tariff, and the use of carbon offsetting, we will continue to seek opportunities to implement energy saving technologies on our assets. We will also continue to work with our contractors to encourage them to reduce the carbon emissions they produce whilst carrying out work on council contracts.

Anticipating the impact of Covid-19 on the next reporting period and beyond:

- 18 Through our contact with contractors in seeking their carbon emissions data, it has become apparent that many staff have been placed on furlough during the greater part of 2020, and that work carried out by various contracts has been reduced. This will likely impact the carbon footprint during 2020/21.
- 19 For example, Riverside Leisure Centre has been closed for many months of 2020, as has St Andrews and Blackfriars Hall, and staff numbers at City Hall have also been greatly reduced. Because of this, we might expect to see a reduction in the amount of energy consumed at these sites. With many staff working from home, we might also expect to see a corresponding reduction in grey fleet miles covered, where staff use their own vehicle for work, and are recompensed accordingly. However, the reductions are unknown as some plant requires to be operational to avoid damage and heating systems can't be completely switched off over winter. Therefore, emission savings are likely to result from electrical load reductions and reduced travel.
- 20 One contractor has suggested that their diesel figures may likely be reduced for the period 2020/21 due to the impact of Covid-19, and this may be similar for other contractors. This may result in a possible drop in carbon emissions that is due to Covid-19 and may not be replicable in future years. And there may be a corresponding increase in contractor carbon emissions in the year 2021/22, but the rate of recovery remains to be seen.

Future projects and project development:

- 21 The council has committed significant funding to the retrofitting programme since 2008. The range of energy saving projects have been innovative and diverse. From IT auto shutdown software to intelligent low energy LED retrofitting and renewables, as well as a building rationalisation programme, these projects have reduced carbon emissions as well as cost.
- 22 The council has received grant funding from the decarbonisation fund to further develop energy savings projects at City Hall and the new Depot. These include the use of renewables. In addition, plans are in place for the following:

- Installing EV charges for fleet use
- New energy efficient servers
- New smart LED connected lighting at St Giles MSCP
- Further LED retrofitting at the halls
- Further LED retrofitting in landlord lighting/ parks
- Continued development of renewables and battery storage.

Appendix A – Norwich city council carbon emissions by scope since 2007 baseline year.

GHG emission data for period 1 April 2019 to 31 March 2020 (previous years restated)													
Global kg of CO ₂ e													
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Scope 1	2,419,120	2,576,804	2,714,763	2,593,049	2,499,724	2,640,453	3,121,775	3,446,651	3,136,959	3,549,707	3,745,825	3,873,933	1,682,048
Scope 2	1,956,601	2,012,976	2,239,942	2,462,896	3,432,985	3,836,556	3,478,538	3,644,381	3,774,122	3,972,326	4,311,715	4,691,648	6,603,828
Scope 3	1,519,577	1,499,753	1,579,869	1,897,304	1,131,715	1,261,406	1,480,944	1,449,823	1,800,339	1,821,824	2,173,565	2,167,385	2,355,434
Total gross emission	5,895,298	6,089,533	6,534,574	6,953,249	7,064,424	7,738,416	8,081,257	8,540,855	8,711,420	9,343,857	10,231,105	10,732,966	10,641,310
Carbon offsets	201,770	n/a	n/a	n/a									
Green tariff	1,662,529	1,792,138	1,959,434	920,543	n/a	n/a	n/a						
Total annual net emission	4,030,999	4,297,395	4,575,140	6,032,706	7,064,424	7,738,416	8,081,257	8,540,855	8,711,420	9,343,857	10,231,105	10,732,966	10,641,310

To 31 March 2020, Norwich City Council has achieved a net 62.1% carbon reduction since 2007. It remains in advance of its target to become zero carbon by 2030.