

GREENHOUSE GAS EMISSIONS SUMMARY

FINANCIAL YEAR: 2018/19

Carbon
Herefordshire
Management
Lighting Renewable
Methane Nitrous
Oxide LED
Wind Energy
Panels Gas Solar
Footprint

This summary was compiled by:

Energy and Active Travel Team

Herefordshire Council

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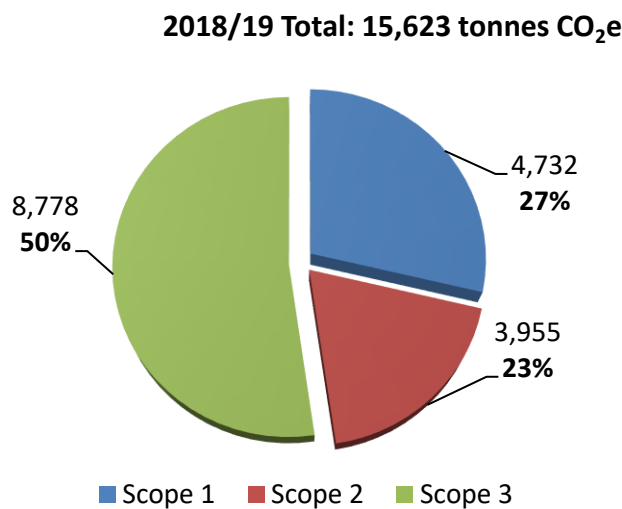
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1. Footprint at a glance

Herefordshire Council	2017/18	2018/19	% of Total (FY 18/19)	Absolute Change	% Change
Scope 1	4,732.06	4,473.65	29%	-258.41	-5.5%
Scope 2	3,955.29	2,973.82	19%	-981.47	-24.8%
Sub-total	8,687.35	7,447.47	48%	-1,239.88	-14.3%
Scope 3	8,778.02	8,175.31	52%	-602.71	-6.9%
Total	17,465.37	15,622.78	100%	-1,842.59	-10.5%

Table 1: GHG emissions comparison (FY: 2017/18 and 2018/19)



Brief summary:

2018/19 was, once again, an excellent year for reductions in emissions. In fact, we exceeded our 2020/21 target, which is an excellent achievement. Most notable was the 24.8% reduction in Scope 2 emissions. This was mainly due to the significant investments in LED office lighting, building rationalisation, some further reductions in the Street Lighting project and a reduction in the national grid emission factor. Scope 3 (indirect emissions from outsourced services such as Balfour Beatty and HALO) remains the largest portion of our emissions but saw reductions. There were also reductions from Scope 1 (direct emissions) which helped to exceed the target.

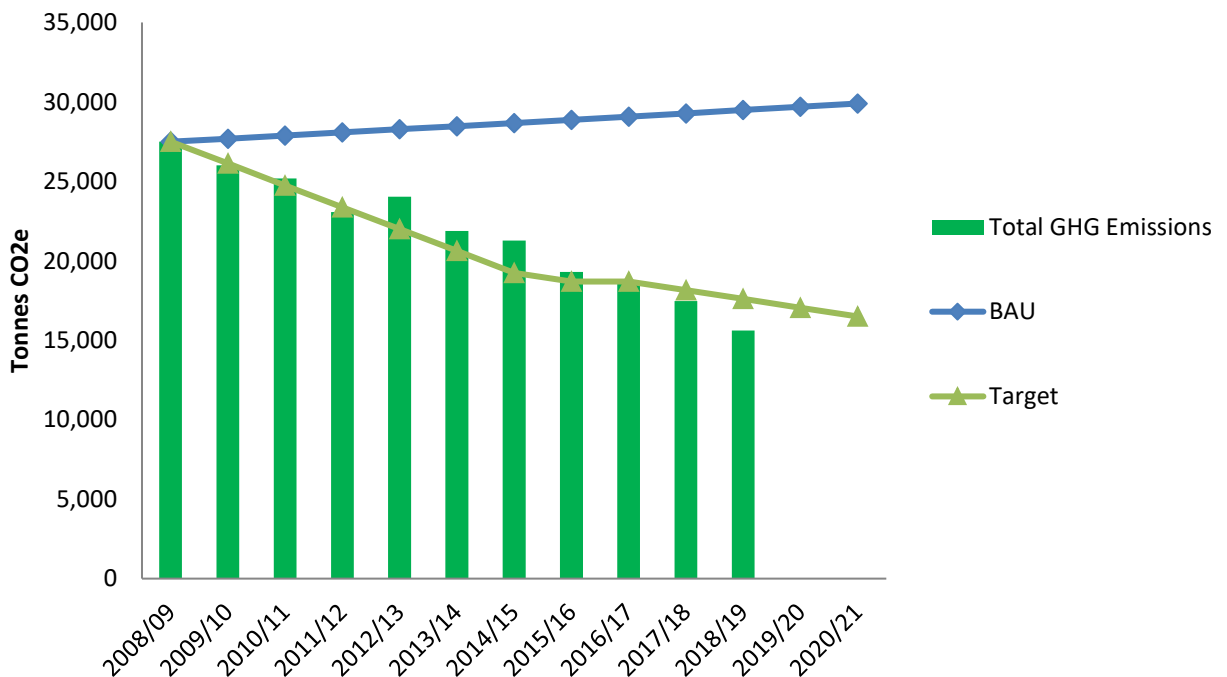


Figure 2: Tracking emissions over time against the baseline and targets

2. Overview

2.1 Background

This summary supersedes previous Greenhouse Gas (GHG) summaries and reports published by Herefordshire Council. It includes amended data for the period 2008/09 to 2017/18 in order to reflect the more accurate and relevant data now available.

2.2 Objectives

- Achieve cost savings through innovative projects, asset rationalisation and by exploring sustainable travel options;
- Increase resilience to increasing energy prices and impending energy security through exploring energy efficiency and local renewable energy generation;
- Show community leadership by actively reducing our carbon footprint and encouraging our partners to embed the “low carbon” ideology;
- Optimise the benefits from funding sources, such as the feed in tariffs for renewable electricity generation and the proposed renewable heating incentives.
- Achieve our carbon reduction target and update our carbon management plan with a view to achieving the recent aspirational carbon neutral target by 2030.

2.3 Reporting

Current Reporting Period: FY: April 2018 – March 2019 (including FY: 2008/09 – FY: 2017/18).

Baseline year: FY: 2008/09

Consolidation approach: Operational Control Approach

Methodology

- The carbon emissions were measured in accordance with the GHG Protocol revised edition, (WRI & WBCSD, 2004, www.ghgprotocol.org/standards/corporate-standard), and under DEFRA's Guidance on how to measure and report your greenhouse gas emissions (2009) www.defra.gov.uk/publications/files/pb13309-ghg-guidance-0909011.pdf
- As per the classification of the GHG Protocol, all Scope 1 and Scope 2 emissions were included. Although discretionary, significant and relevant Scope 3 emissions were also included.
- The operational control approach was used to consolidate all emissions within the specified boundary.
- All emission factors used were from Department for Business, Energy & Industrial Strategy, Greenhouse gas reporting – Conversion factors 2018.
- Global warming potentials were in accordance with the IPCC (1994) and the Department for Business, Energy & Industrial Strategy, Greenhouse gas reporting - Conversion factors 2018. (Note: 2019 factors not available at the time of this report.)
- Activity data in the report was submitted by a number of different suppliers as well as internal sources.

Organisational Boundary: Herefordshire Council's operations.

Operational Boundary: Scope 1 and 2 emissions with significant Scope 3 emissions.

- **SCOPE 1:**
 - Council owned/controlled mobile combustion sources (e.g., petrol and diesel fuel consumed in buses and cars for transportation purposes)
 - Combustion of fuels in stationary sources (e.g., Natural gas, burning oil, gas oil and LPG consumed within Herefordshire Council buildings, boilers)
- **SCOPE 2:**
 - Emissions from the generation of purchased electricity, heat or steam that is consumed in its' owned or controlled equipment or operations (e.g. buildings and street lighting).
- **SCOPE 3:**
 - Business Travel (staff mileage, rail travel by HC staff for business purposes)
 - Electricity, gas, burning oil and LPG consumption in buildings operated by outsourced services for waste management, highways, leisure, cultural services, education (academies) and residential care homes
 - Petrol and diesel consumption by contracted fleet vehicles
 - Fleet and staff mileage undertaken by main outsourced contractors on behalf of Herefordshire Council.

Notable exclusions (also excluded from previous reporting periods):

- Emissions from Hill and Moor landfill site. Waste emissions are mainly from county residences and businesses.
- Fugitive emissions from air-conditioning systems. Fugitive emissions from intentional or unintentional releases, e.g., leaks or spills of hydrofluorocarbon (HFC) emissions during the use of refrigeration and air conditioning equipment.

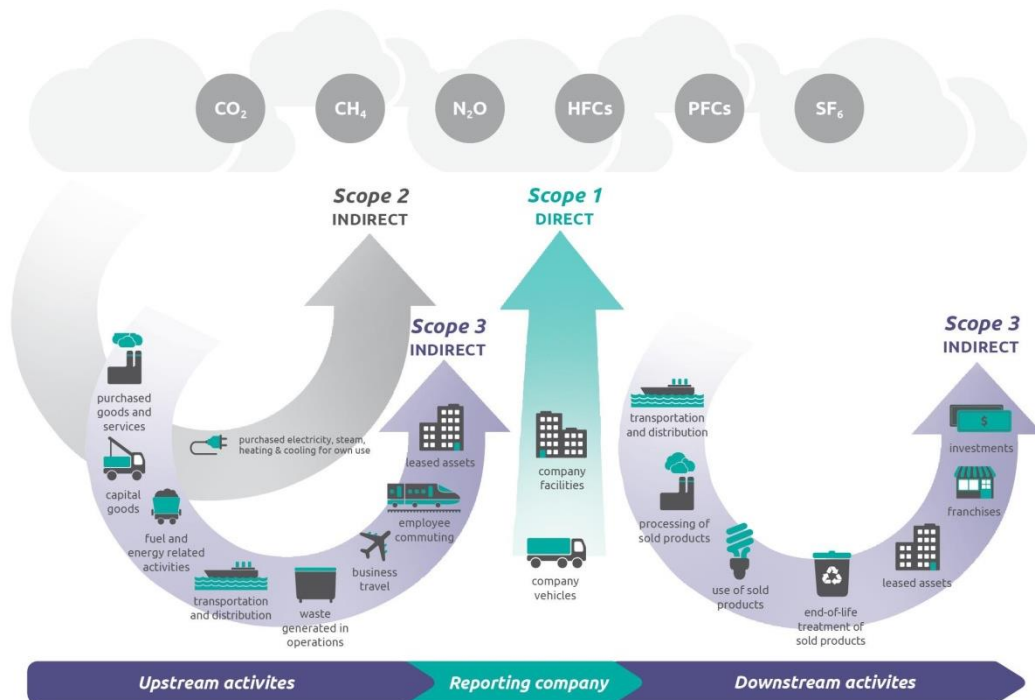


Figure 3: Overview of GHG Protocol scopes and emissions across the value chain (Source: www.ghgprotocol.org)

3. Herefordshire Council: Emissions 2018/19

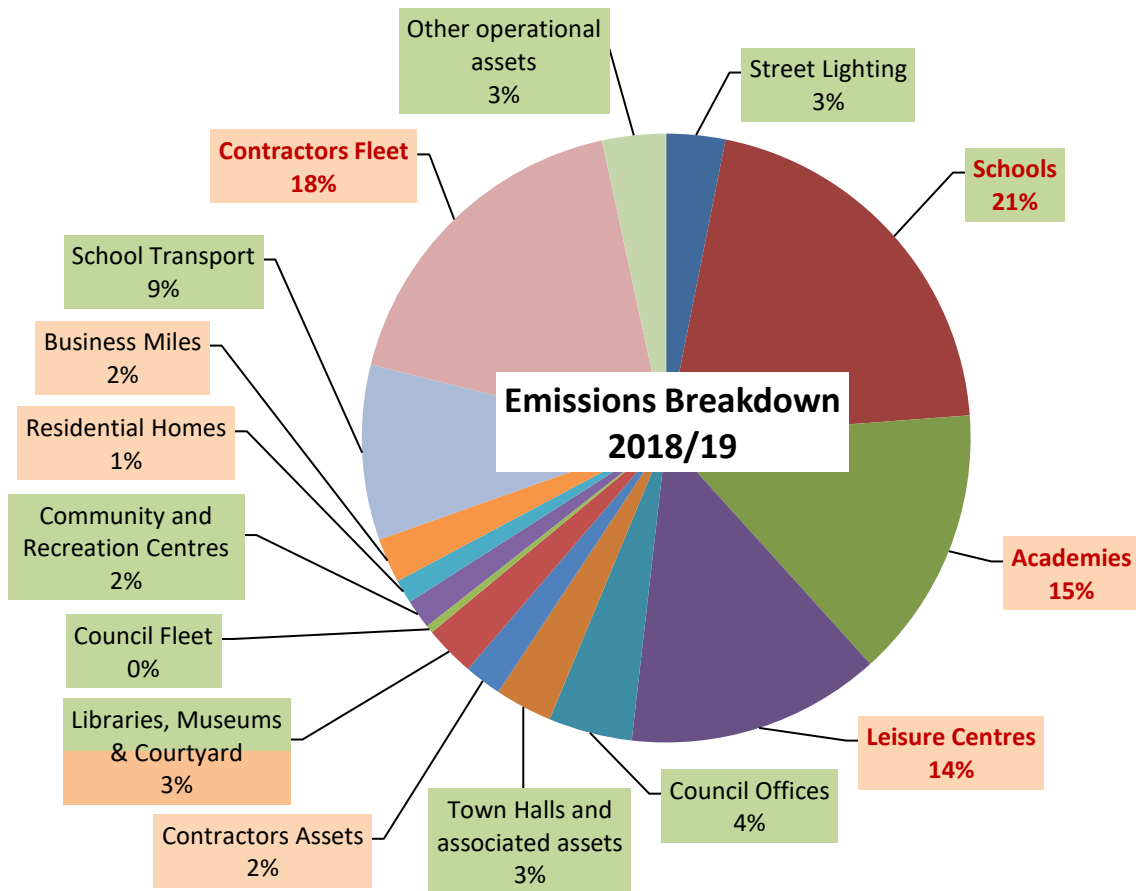


Figure 4: Herefordshire Council GHG emissions breakdown (FY: 2018/19)

Scope 1 & 2 sources (significant contributor) Scope 3 sources (significant contributor)

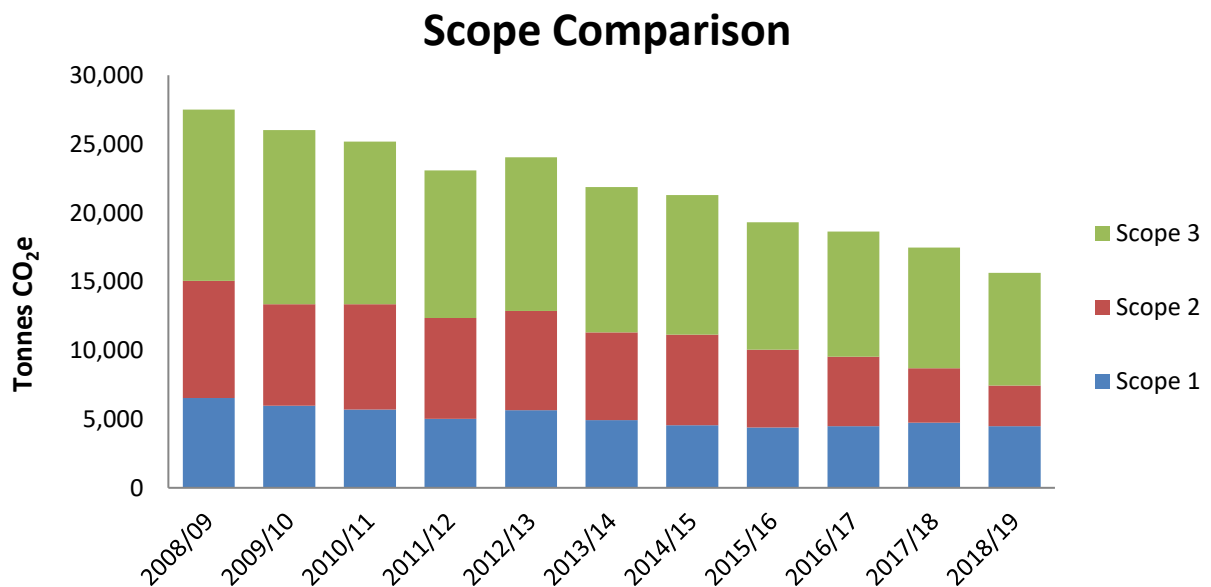


Figure 5: Annual Scope comparisons

4. Targets

4.1 Progress to date against the Baseline

Herefordshire Council	Baseline 2008/09	FY 2018/19
Scope 1	6,531	4,474
Scope 2	8,517	2,974
Scope 3	12,449	8,175
Total GHG Emissions	27,498	15,623
Cumulative tonnes CO ₂ reduction	n/a	11,875
Percentage reduction (2018/19)	n/a	-43.2%
Target reduction (2018/19)	n/a	36.0%
2020/21 OVERALL TARGET	n/a	40.0%

Table 2: Summary progress against baseline and target (emissions in tonnes CO₂e)

Emissions Break-down	2018/19	% Change from baseline	% Change (17/18 to 18/19)	Change in Tonnes CO ₂ e (17/18 to 18/19)
Street Lighting	489	-78%	-19%	-114.53
Schools	3,231	-34%	-13%	-467.97
Academies	2,265	-30%	-11%	-280.07
Leisure Centres	2,109	-40%	-11%	-253.72
Council Offices	695	-72%	-18%	-148.77
Town Halls and associated assets	476	-47%	-5%	-25.79
Contractors Assets	310	-43%	12%	33.07
Libraries, Museums & Courtyard	421	-35%	-22%	-119.08
Council Fleet	65	-52%	-13%	-9.88
Community & Recreation Centres	243	-53%	-15%	-44.21
Residential Homes	197	-67%	-22%	-54.51
Business Miles	371	-62%	-9%	-34.69
School Transport	1,452	-41%	-9%	-144.94
Contractors Fleet	2,770	-15%	1%	17.23
Other operational assets	530	-50%	-27%	-194.74
Totals	15,623	-43.2%	-10.55%	-1,842.59

Table 3: Emissions (2018/19) and progress against baseline (emissions in tonnes CO₂e)

- Total emissions for FY 2018/19 were **15,623 tonnes CO₂e**, showing a decrease of 43.19% on the baseline.
- There was a total decrease of **1 842.59 tonnes of CO₂e** from the previous reporting period (2017/18), which equates to a **10.55% decrease**.
- The most notable decrease in emissions (in percentage terms from the baseline) is from "street lighting" at **78%**. The largest decrease (in terms of tCO₂e) is from "schools" which reduced by **467.09 tonnes CO₂e**.
- **Target achieved two years earlier than expected.**

4.2 Tracking emissions over time

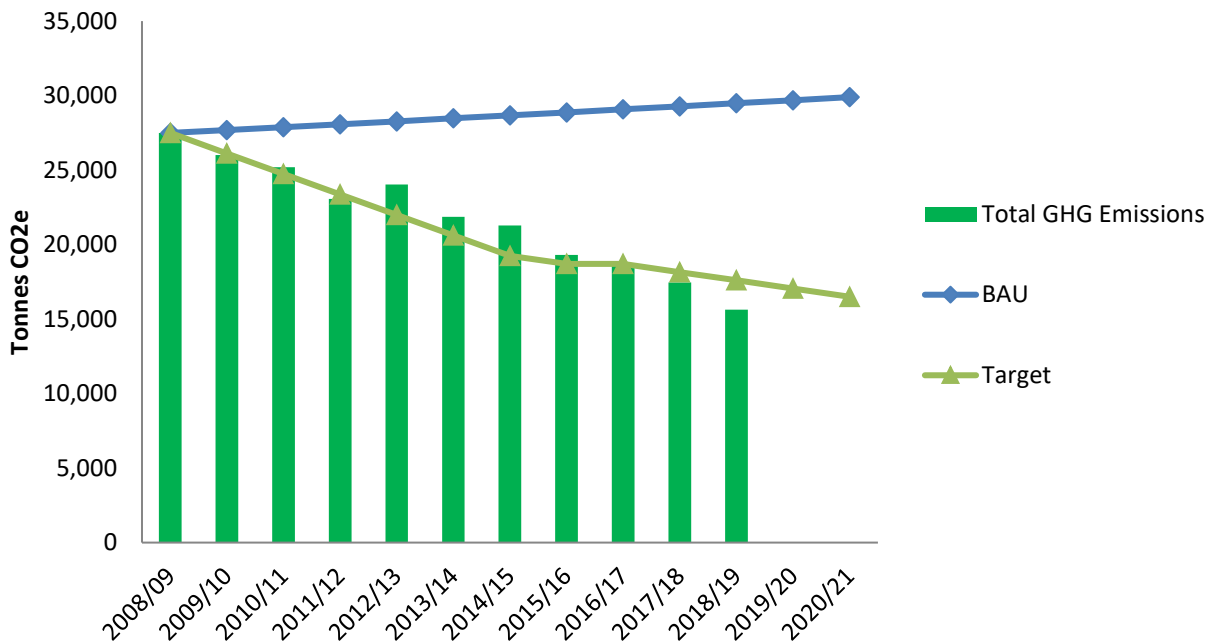


Figure 6: Tracking emissions over time against the baseline and targets

Herefordshire Council committed to delivering a 40% emission reduction in 2020/21 based on 2008/09 baseline as set out in the published Carbon Management Plan (2017-2021). A copy of the plan is available online through this link:

https://www.herefordshire.gov.uk/directory_record/4843/carbon_management_plan

- The 40% reduction by 2020/21 was an ambitious target. We are delighted that we have achieved this target earlier than projected.
- It is a timely achievement as Herefordshire Council declared Climate Emergency in March this year (2019).
- Reductions from past, current and on-going projects (e.g. LED street lighting, office lighting and improved energy management) have been instrumental in achieving the target.
- Importantly, under Scope 2 emissions, there has been a significant decrease in emissions. This was predicted due to the continued reduction in street lighting and office lighting due to the replacement of bulbs with LEDs. There have also been year-on-year lowering in the electricity conversion factor to less reliance on coal-fired power and the increase in renewable energy in the UK energy mix, which assisted the already lower electricity usage.
- We have exceeded our interim target of a 36% reduction by 2018/19 (baseline 2008/09) by achieving a 43.2% reduction. This is hugely encouraging and achieving (exceeding) our ambitious 2020/21 target has been a fantastic achievement.
- Declaring a Climate Emergency has set the council on a new path towards an aspirational target of becoming net carbon neutral by 2030. This is a significant challenge which will need careful planning and bold leadership.

5. Scope Sparkline: 10-year Comparison

Herefordshire Council	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Sparkline
Scope 1	6,531	5,972	5,694	5,012	5,643	4,927	4,545	4,388	4,483	4,732	4,474	
Scope 2	8,517	7,380	7,647	7,327	7,211	6,384	6,603	5,663	5,056	3,955	2,974	
Scope 3	12,449	12,660	11,845	10,734	11,188	10,561	10,136	9,250	9,090	8,778	8,175	
Total	27,498	26,012	25,185	23,072	24,041	21,873	21,284	19,301	18,629	17,465	15,623	

Table 4: Herefordshire Council Scope 1, 2 and 3 emissions Sparkline trend

- The table above shows the numbers and corresponding reduction trajectory over the years.
- The **red dots** show the high point for emissions, whilst **green dots** represent the lowest point to date.
- Scope 2 and 3 had their lowest emissions point in the most recent reporting year, with Scope 1 showing a slight increase before lowering again, making the current reporting year the second lowest year on record for Scope 1.

6. Degree Day Data

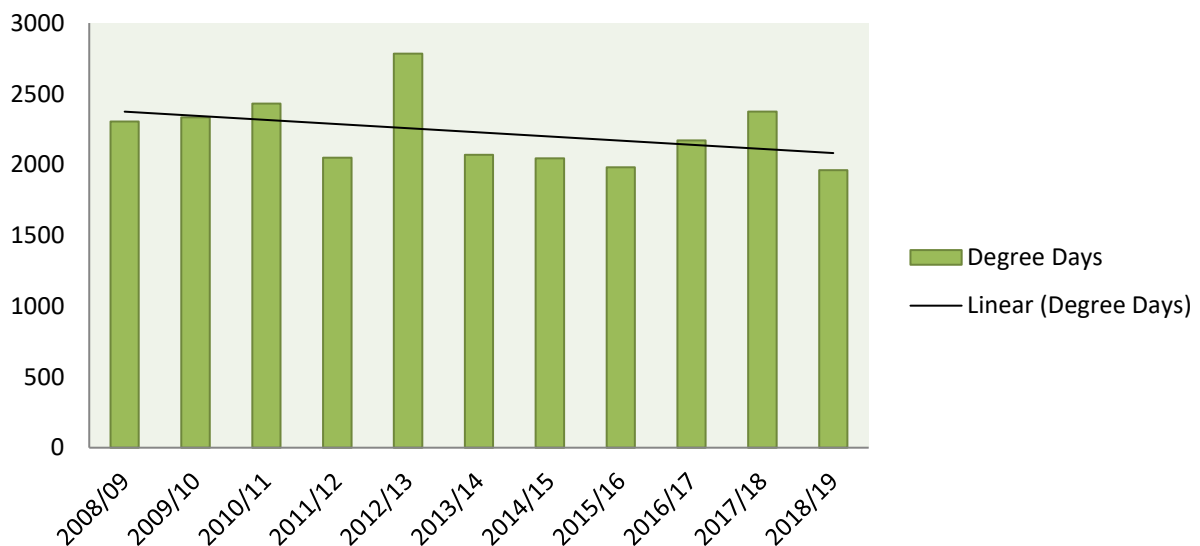


Figure 7: Degree day data

(Source: 2018/19: <http://www.degreedays.net>)

7. Conclusion and Next Steps

- Total emissions reduced by 10.55% (1 842.59 tonnes of CO₂e) from the previous reporting period.
- The interim target of 36% reduction by 2018/19 (on a baseline from 2008/09) was exceeded, with the actual reduction being 43.19%. This is a significant achievement when considering that the 2014/15 actual of 22.6% was some way off the target of 30% that year. The emission reduction initiatives were in place but savings are being realised slightly later than expected.
- The target for the 2020/21 year of a 40% reduction on the 2008/09 baseline has been reached two years earlier than expected. As discussed earlier in the report, this is a timely achievement with the Climate Emergency Declaration by the council in March 2019.
- Uncertainty remains across a number of emission sources due, mostly, to limited or no access to actual data. Assumptions have been made in order to be as consistent and accurate as possible.
- Underlying reasons for changes in emissions is often unclear but reduction projects as well as improved energy management have all contributed to the reduction changes.
- In particular, we have seen significant reductions from the investment in LED office lighting, building rationalisation and some continued reductions in the street lighting project.
- Control over particular significant Scope 1 and 2 sources, such as schools, remains relatively low. This is a concern going forward when trying to influence future reductions and may also require adjustments in Scope allocation for some emission sources. This situation will be part of the planning for the next phase of trying to achieve the aspirational target of being net carbon neutral by 2030.
- Herefordshire Council's Carbon Management Plan for the period 2017-2021 (published summer 2017) aimed to achieve a 40% reduction by 2020/21 (based on 2008/09). Achieving this target early required planning, resources, commitment and innovation from the Energy Team and council as a whole.
- The next stage of achieving net carbon neutral by 2030 is currently being carefully thought-through. Ensuring understanding of the magnitude of the task is important and achieving it will require extensive planning and strong leadership to achieve.

8. Assumptions and Limitations

General

- This is a draft report and Herefordshire Council reserves the right to update the information in the future.
- It is assumed all data is correct at the time of calculation and reporting.
- Where appropriate, the data was back-dated in order to adjust the baseline and make consistent annual comparisons.
- Where data was unavailable at the time of reporting, it was assumed that consumption was in line with the previous reporting period.

Owned/controlled vehicles

- The quantity-based approach was used (i.e. using litres of fuel consumed) where fuel volumes were available for all owned/controlled vehicles.
- Where volumes were unknown the distance-based approach was used.
- No lubricants were measured in this assessment.

Stationary fuels

- The quantity-based approach was used (i.e. using litres or kWh of fuel consumed) to calculate the emissions from stationary fuels.

Fugitive emissions (Kyoto and non-Kyoto)

- No Kyoto or non-Kyoto fugitive emissions were recorded.

Electricity

- No scope 3 distribution or transmission emissions were included.

Business travel

- Business travel emissions were calculated using a distance-based method.
- Assumptions were made about vehicles where vehicle type and engine size was unavailable.

Third party Operations / suppliers

- Emissions from significant third-party suppliers were included where data was available. Mainly electricity, gas, fleet and business travel emissions were included.
- Fuel data from a third-party supplier was supplied which represented a significant change in emissions. Historically, distance-based data has been used to measure these emissions. Volume-based data was received in addition to the distance-based data. The distance-based data has been used for consistency purposes.

Waste generated in operations

- Excluded.

Purchased Goods and Services: Water

- Excluded (no available data).

Purchased Goods and Services: Paper use

- Excluded (may be included in the future).
