

Greenhouse Gas Emissions Report

2017/18

Stockton-on-Tees Borough Council



(Covering the period 1 April 2017 – 31 March 2018)

‘Stockton-on-Tees is a Climate Local signatory’

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Organisation report

The Council's vision is of an economically prosperous Borough that is dynamic, exciting and inviting, and to make the Borough a better place to live and a more attractive place to do business. The responsibility to the environment is taken seriously, and the Council continues to deliver significant carbon reductions from its own assets and operations, make excellent progress in reducing the levels of fuel poverty across the Borough as well as delivering on the wider environment and sustainability agenda. The Council does not do this in isolation however, and focuses its efforts on dovetailing environmental improvement with strong economic growth and ensuring the financial sustainability of our citizens.

'Big Plans Bright Future' (the Council Plan for 2018-2021) is explicit in our support for tackling clean growth and states that the Council will:

- Work with the Tees Valley Combined Authority to develop low carbon initiatives that support those sectors and businesses that are most affected by environmental regulation
- Work with partners, commercial organisations, and the wider community to reduce Borough-wide CO2 emissions
- Take account of predicted changes to the future climate, and the potential impact to Council services and local environment, implement appropriate schemes, adaptation measures and ensure business continuity

The Council has been a 'Climate Local' signatory since March 2015, and delivering against the most comprehensive Climate Change Strategy and Action Plan to date since 2016, in order to drive improvement on both mitigation and adaptation, endorsed by the Council's Cabinet. At a sub-regional level the Council work alongside the neighbouring four Tees Valley Local Authorities in attempting to identify opportunities to tackle emissions and adapt to climate change through the Tees Valley Combined Authority, the LEP for the region. This is evidenced by the current work to deliver the Tees Valley Energy Analysis study, funded by BEIS, to identify future low carbon opportunities.

Stockton-on-Tees Borough Council has long prioritised energy, carbon saving and wider climate change focusing on its own activity but also at a Borough wide level evidenced by being one of the earliest signatories of the Nottingham Declaration on Climate Change in 2002, jointly forming the Tees Valley Climate Change Partnership in 2005 with the neighbouring 4 local authorities and partners, and supporting Climate Local in 2015. The Council is regularly recognised by the Association of Public Service Excellence (APSE) for the work to reduce energy consumption and emissions in the domestic sector, and finalists for Council of the year in energy in 2 of the last 3 years.

Low carbon is at the heart of Council business and continuous improvement in carbon reduction while tackling broader environmental and social priorities will continue through our Climate Change Strategy and Action Plan (2016 – 2021) and the Affordable Warmth Strategy and Action Plan (2017 - 2021).

The Council has set three key targets in reducing greenhouse gas emissions:

1. Reduce greenhouse gas emissions from Stockton-on-Tees Borough Council activity by 21% on 2014/15 levels by March 2020
2. Reduce total greenhouse gas emissions from the Borough of Stockton-on-Tees by 18% on 2013 levels by March 2020
3. Reduce per capita greenhouse gas emissions from the Borough of Stockton-on-Tees by 21% on 2013 levels by March 2020

Excellent progress has been made in reducing emissions from Council activity in the last 12 months, despite an extended winter period, exceeding set targets for the fourth year in a row. Service leads across all directorates deserve credit for continuing to deliver improvements in energy and fuel saving. The Council rationalised all climate change, energy efficiency and renewables strategies makes targeting and performance managing emissions reductions much easier.

There are however significant risks in meeting emissions targets including the current challenge to make financial savings and a reducing amount of resources to invest. However there are opportunities including being more efficient with energy, being innovative in ways of working, and raising awareness across the organisation about the importance of emissions reduction and climate change.

The Council awaits the outcomes of the 2017 consultation by BEIS on 'Leading by example: cutting energy bills and carbon emissions in the public and higher education sectors', particularly the target setting and reporting arrangements, and how the Council can contribute to the pursuit of clean growth.

Published on the web

This report, as well as additional information on the Council's carbon reduction activities, can be accessed via the Council's website at the following link:

<https://www.stockton.gov.uk/environment-and-housing/climate-carbon-and-energy/>

Figure 1: Stockton-on-Tees Borough Council's Greenhouse Gas Emissions in 2017/18 in tonnes of CO₂e

| | Tonnes of CO ₂ e | | | | | | | | | |
|---|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | Change in 2017/18 |
| Scope 1 | | | | | | | | | | |
| Gas consumption | | 9,081 | 7,992 | 10,300 | 8,409 | 5,342 | 5,064 | 4,498 | 4,119 | -8.4% |
| Owned fleet transport | | 2,423 | 2,530 | 2,521 | 2,665 | 2,843 | 2,761 | 2,589 | 2,407 | -7.0% |
| Process emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Fugitive emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Total scope 1 | 11,594 | 11,504 | 10,522 | 12,821 | 11,074 | 8,185 | 7,825 | 7,087 | 6,526 | -7.9% |
| Scope 2 | | | | | | | | | | |
| Electricity buildings | | 9,658 | 9,088 | 8,644 | 8,443 | 8,564 | 7,965 | 7,086 | 5,867 | -17.2% |
| Electricity street lighting | | 6,097 | 6,813 | 6,671 | 5,894 | 5,848 | 4,922 | 3,531 | 2,169 | -38.6% |
| Total scope 2 | 16,821 | 15,755 | 15,901 | 15,315 | 14,337 | 14,412 | 12,888 | 10,617 | 8,036 | -24.3% |
| Significant scope 3 | | | | | | | | | | |
| Business mileage | | 625 | 630 | 567 | 568 | 457 | 412 | 406 | 383 | -5.6% |
| Tees Active Ltd electricity | | 868 | 2,021 | 1,919 | 1,996 | 1,765 | 1,688 | 1,445 | 1,409 | -2.5% |
| Tees Active Ltd gas | | 871 | 1,444 | 1,714 | 1,623 | 1,639 | 1,579 | 1,572 | 1,525 | -3.0% |
| Total scope 3 | 3,276 | 2,364 | 4,095 | 4,200 | 4,187 | 3,861 | 3,679 | 3,423 | 3,317 | -3.1% |
| Total gross emissions | 31,691 | 29,623 | 30,518 | 32,336 | 29,598 | 26,459 | 24,391 | 21,127 | 17,879 | -15.37% |
| Carbon offsets | - | - | - | - | - | - | - | - | - | |
| Green tariff | - | - | - | - | - | - | - | - | - | |
| Total annual net emissions | 31,691 | 29,623 | 30,518 | 32,336 | 29,598 | 26,459 | 24,391 | 21,127 | 17,879 | -15.4% |
| Intensity measurement - Total number of Borough households | 79,557 | 79,992 | 79,135 | 79,595 | 80,144 | 80,144 | 81,925 | 81,492 | 89,950 | 8,458 |
| Tonnes of CO₂e per household | 0.40 | 0.37 | 0.39 | 0.41 | 0.37 | 0.33 | 0.30 | 0.26 | 0.20 | -23.3% |

1. Organisation Information

Stockton-on-Tees Borough Council is a single tier (unitary) local authority responsible for all local government functions within the administrative boundary of Stockton-on-Tees. The Council's registered address is:

Stockton-on-Tees Borough Council
Municipal Buildings
Church Road
Stockton-on-Tees
TS18 1LD

Telephone: 01642 – 393939

Email: customer.comments@stockton.gov.uk

Web: www.stockton.gov.uk

2. Reporting period

The reporting period for this Greenhouse Gas Emissions (GHG) report is 1 April 2017 – 31 March 2018 (2017/18 financial year).

3. Total emissions and change over time

In 2017/18 the Council's total gross emissions were calculated at **17,879 tonnes** of CO₂e, and net emissions were **17,879 tonnes** CO₂e. It's CO₂e per household served was **0.20 tonnes**. The breakdown by area of operation is shown in figure 2 below:

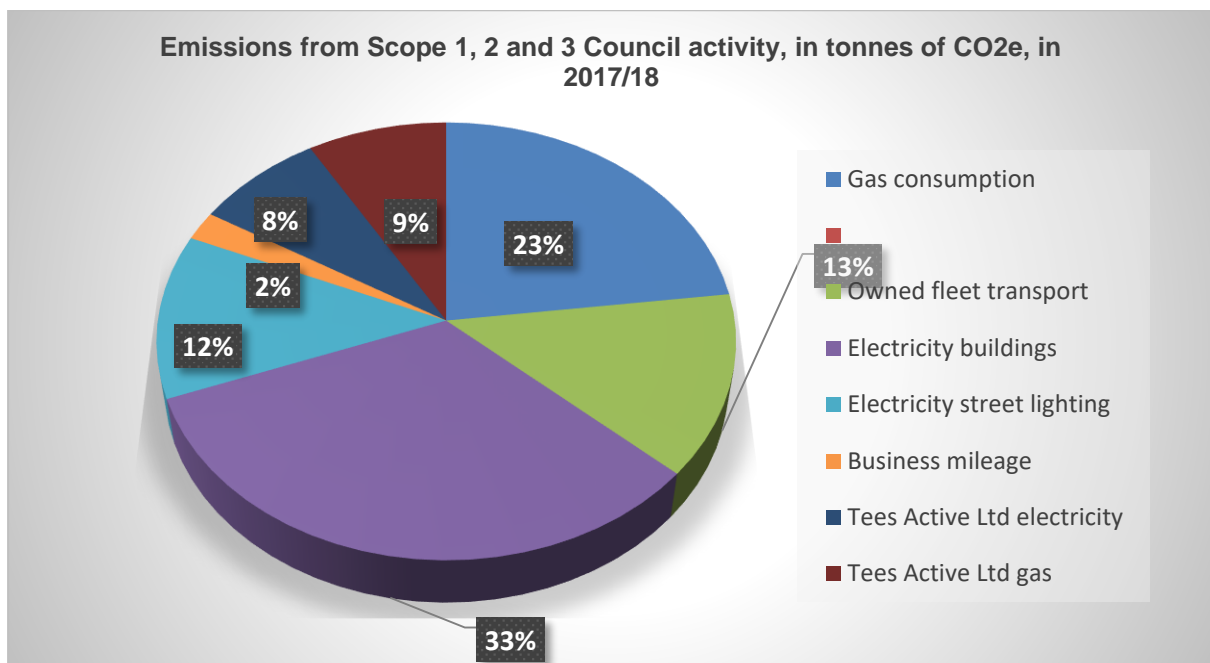


Figure 2: CO₂e emissions (in tonnes) by area of operation

Reported emissions from all Council activity under scopes 1, 2 and 3 have decreased this year, by 15.4% in 2017/18 (or 3,271 tonnes). There are a number of significant aspects to note from the results in 2017/18:

- This is the third year in succession that all seven areas of Council emissions activity have shown a decrease on the previous year
- The area showing the largest reduction was street lighting, with a 38.6% reduction in CO₂e on the previous year
- Significant reductions in primary energy consumption, despite the extended winter period, including emissions from gas consumption, down by a further 8.4% on 2016/17 levels
- Progress in reducing the Council's emissions from fleet services with CO₂e emissions reduced by a further 7% in 2017/18

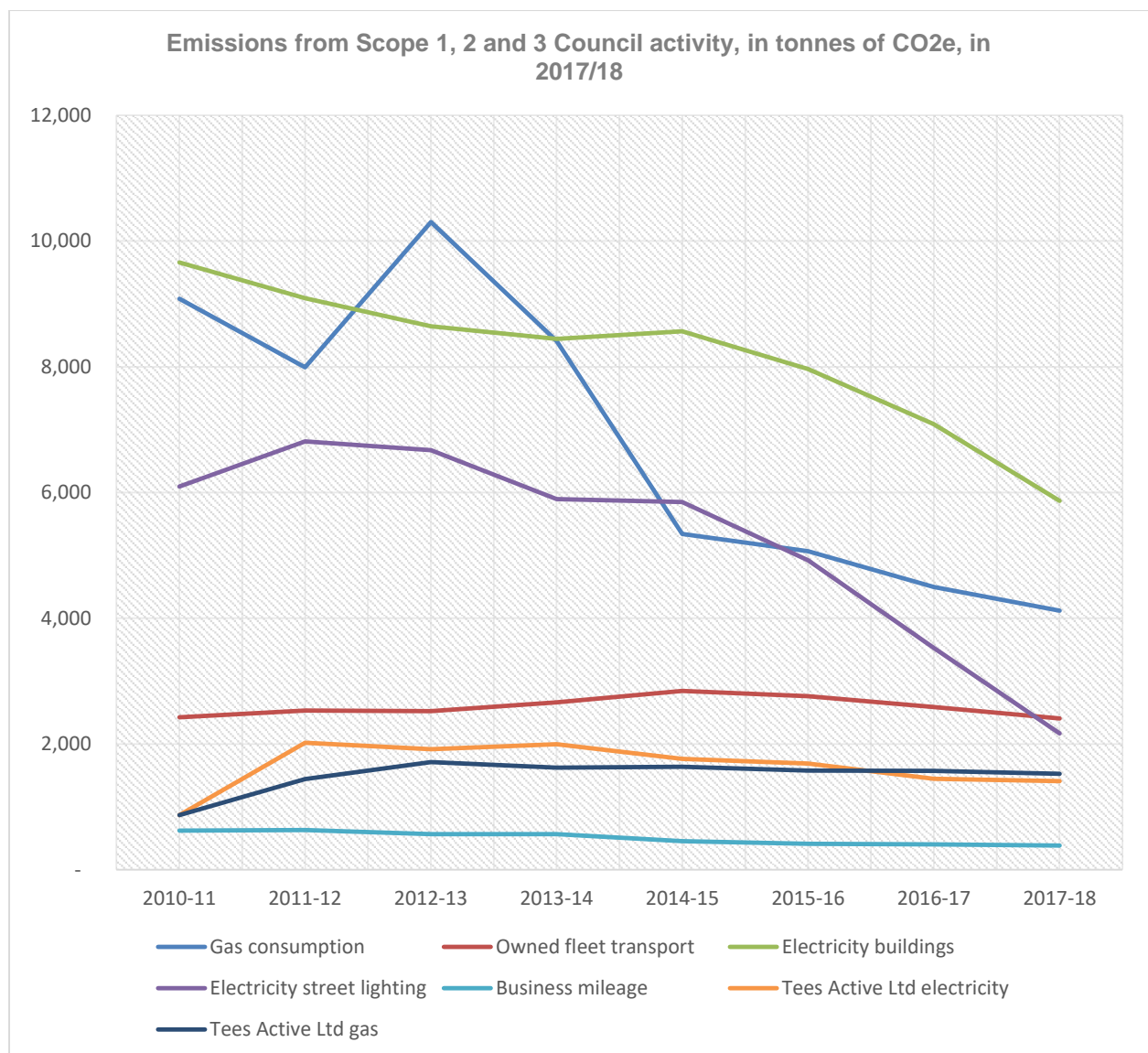


Figure 3: CO₂e emissions (in tonnes) by activity

There are a few issues to note on the results 2017/18:

- 2017/18 was an extended heating season than the last few years due to the relatively colder and longer winter, last experienced in 2013/14, but despite this primary energy consumption has reduced
- The carbon emission factors under the governments 'conversion factors for company reporting' have been amended by Defra in the last 12 months reflecting cleaner energy and subsequently this has contributed to lower emissions for SBC
- Continued progress by Tees Active in increasing energy efficiency across all leisure facilities, principally through improved monitoring techniques and the installation of voltage optimisation equipment
- This was the third complete financial year of the implementation of the street lighting LED replacement programme, and the CO₂e savings observed clearly demonstrate its effectiveness. CO₂e emissions from the 28,000 lighting assets has reduced by a further 38.6% in the last 12 months, and have fallen by 63% since the replacement programme began
- Emissions from gas consumption have reduced by 60% since 2012/13, while overall scope 1 emissions have fallen by 49% in that time
- Emissions from business mileage have now seen a reduction of 39% since 2011/12 as measures to bring those costs down continue to be effective.

Figure 4 below shows the change in emissions since 2010 and the direction of travel required to meet our future targets.

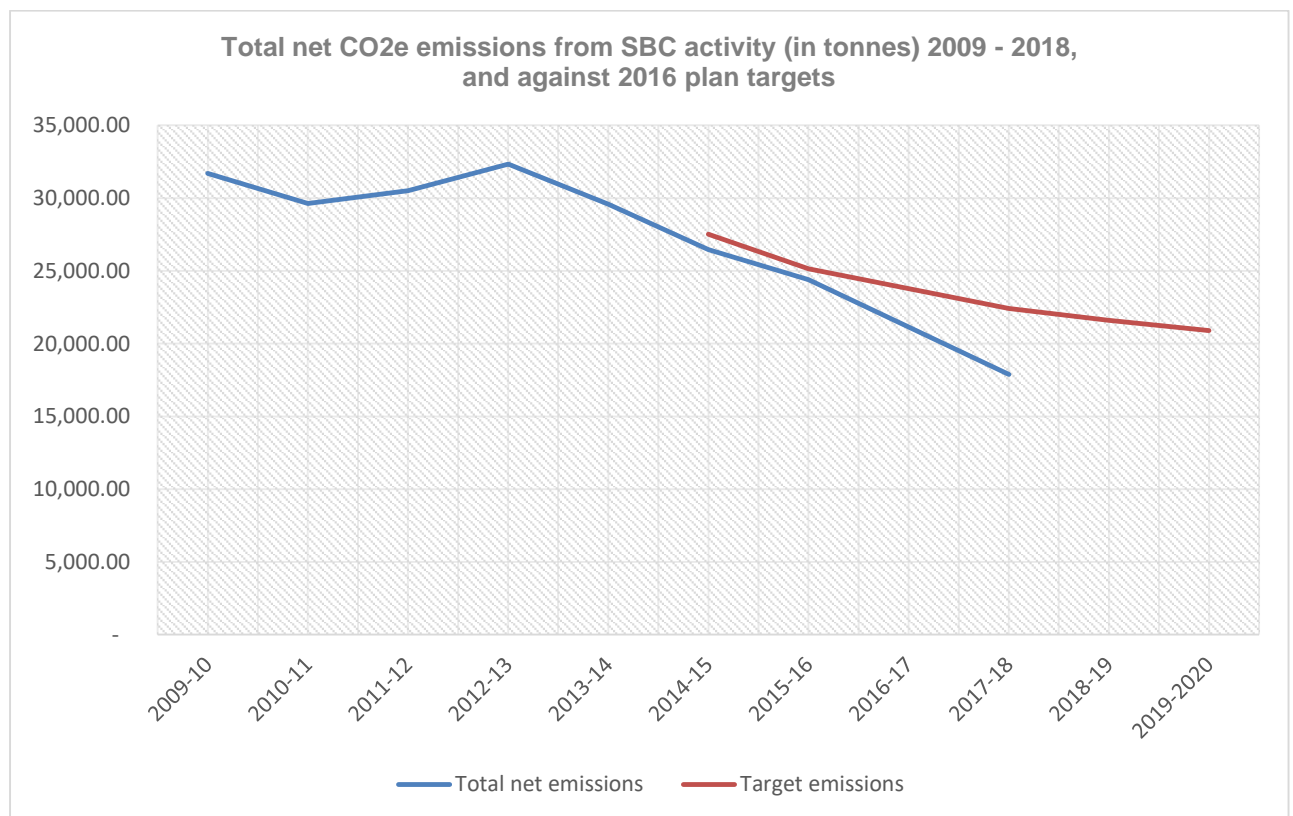


Figure 4: Annual CO₂e emissions (in tonnes) since 2010

Despite an overall 15.4% reduction in emissions in 17/18, the Council will continue to seek to improve performance on:

- Emissions from electricity consumption, as this area represents the source of one third of total council emissions.

- Emissions from fleet services; with great progress already made in recent years, there are wider benefits to tackling fuel consumption, such as improvement in air quality and the cost benefits of operating electric vehicles.
- **Overall, progress is significant and the Council has observed a 43.6% reduction on our 2009/10 baseline net greenhouse gas emissions, and a 50% reduction in tonnes of CO₂e per household.**

4. Commitments and approach

Stockton-on-Tees Borough Council has a strong tradition of leading the way in responding to the challenges of mitigating and adapting to climate change. It remains committed to reducing its impact on climate change and acknowledges the threats posed by it and the response that needs to be taken by the Council, its partners and citizens of the borough. The Council's vision on page 3 recognises the importance of mitigation through reducing its emissions and creating a low carbon economy, but equally of the need to adapt to the changes that will take place.

The Council's commitment thus far is demonstrated through this annual reporting process with a 44.7% reduction in CO₂e since 2012/13 alone, a reduction of 14,457 tonnes per annum. And there are plans in place to go further.

'Climate Local'

In March 2015, the Council became an official signatory of the 'Climate Local' initiative, acknowledging the increasing impact that climate change has on our community and committing to tackling the causes and effects of a changing climate on our Borough. It fully supports the 'Climate Local' initiative, incorporating the Climate Local Commitment and the Council Framework on Climate Change, and its first commitment was met in 2016 with the publication of the Council's Climate Change Strategy and Action Plan.

Climate Change Strategy and Action Plan for Stockton-on-Tees 2016 - 2020

The Council adopted a new Climate Change Strategy and Action Plan in 2016 focusing on four priorities for cutting carbon, and three key priorities to prepare and adapt to climate change. The strategy sets out three key targets in reducing greenhouse gas emissions, as set out in section 9 of this report.

District Heat and Power

The Council, through funding from BEIS and working with the Heat Network Delivery Unit (HNDU) is investigating the feasibility of developing large scale heat and power networks in Stockton-on-Tees. The scheme is based on three individual networks in Seal Sands, Billingham and Stockton utilising process heat from industry. With Masterplan and Techno Economic Feasibility stages undertaken, the project has the potential to secure CO₂ reductions across the Borough in excess of 150,000 tonnes per annum, and potential benefit the Council in reducing its own energy consumption and as such, greenhouse gas emissions. It is hoped that this will move to delivery in 2019.

Approach

The Council continues to use the 'Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance' as its methodology in preparing this report. The Council is registered under the Carbon Reduction Commitment Energy Efficiency

Scheme, although has not participated since 2014/15. The conventions in reporting CRC have been adopted in the preparation of this report, although the Council has chosen to include some of its operations – such as leisure provision - which are not captured under CRC.

5. Organisational boundary

The Council has calculated its GHG emissions by applying documented emission factors from the Defra guidelines (see ‘approach’ in section 4) to its known activity data from across the organisation, within the borough boundary of Stockton-on-Tees. It has a robust process for collecting data for all scope 1 and 2 activities having collected it since the introduction of the former National Indicator Set in 2008 under NI 185 (Emissions from local authority operations), as well as for the CRC process. The sources of information for all emissions are shown in section 6.

6. Operational scopes

We have collected and measured all scope 1 and 2 emissions. The Council continues to include some scope 3 emissions such as business mileage and energy from leisure provision, but not all activities such as waste management, principally due to the lack of accurate and reliable information on all aspects. The following activities have been included:

Scope 1

Gas consumption
Owned fleet transport
Process emissions
Fugitive emissions

Scope 2

Purchased electricity
Street lighting

Scope 3

Business mileage
Tees Active Ltd electricity
Tees Active Ltd gas

Carbon offset and green tariffs are also included (see sections 12 and 13) but did not contribute in 2016/17.

Sources of information

| Emission-releasing activity | Source of information |
|---------------------------------------|---|
| Operational property: Gas consumption | Total kilowatt hours (kWh) used, from 219 metered units, taken from utility bills and collated by Energy Management |
| Fuel used in owned fleet transport | Total of fuel purchased (in litres) from invoices and receipts (all fuels) for i) Diesel fuel depot, ii) diesel fuel via fuel cards, iii) petrol on fuel cards and iv) gas oil purchased. |

| Emission-releasing activity | Source of information |
|---------------------------------------|---|
| Process emissions | N/A |
| Fugitive emissions | N/A |
| Operational property: Electricity use | Total kilowatt hours (kWh) used, from 293 metered units, from utility bills and collated by Energy Management |
| Street lighting | Total kilowatt hours (kWh) used |
| Business mileage | Total mileage recorded from staff mileage allowance claims using Agresso software, and departmental split |
| Tees Active electricity (leisure) | Total kilowatt hours (kWh) used, from 7 metered properties, taken from utility bills |
| Tees Active gas (leisure) | Total kilowatt hours (kWh) used, from 7 metered properties, taken from utility bills |

The number of households in the Borough for each year is the figure for the calendar year i.e. the 2017 figure is represented by 2016/17 statistic. This information is provided by our Taxation Service.

Calculation approach used

All of the data used for calculating the results in this 16/17 report are actual consumption figures for each supply, and the associated conversion factors set out by Defra have been used to calculate emissions.

Conversion tools / emission factors used

The Council has used the standard Defra / DECC GHG conversion factors¹ (revised for 2016) for all of its emissions. These are as follows:

| Fuel Type | Measurement Unit | Emissions Factor kg CO₂e / per measurement unit |
|------------------|-------------------------|---|
| Natural Gas | kWh | 0.18416 |
| Electricity | kWh | 0.35156 |
| Diesel | Litres | 2.60016 |
| Petrol | Litres | 2.19835 |
| Gas Oil | Litres | 2.95351 |
| Average car | Miles | 0.29357 |

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017>

7. Geographic break down

All emissions are from within the boundary of the Borough of Stockton-on-Tees, within the UK. There is no further geographical break down for any emissions.

8. Base Year

Although the Council has been calculating emissions from its operations since 2007, and under the former NI 185 since 2008/09 (with a 2007 base year), it chose the base year for GHG reporting as 2009/10, as a result of possessing verifiable emissions data under the requirements of the Carbon Reduction Commitment for that year. The Council now has eight years of verifiable emissions data against that base year.

9. Targets

In 2015/16 the Council completely reviewed and revised all targets and actions on greenhouse gas emissions, energy efficiency, renewables, SAP, fuel poverty and affordable warmth as part of the development and adoption of a new Affordable Warmth Strategy and a new Climate Change Strategy.

The Council has three key targets in reducing greenhouse gas emissions:

1. Reduce greenhouse gas emissions from Stockton-on-Tees Borough Council activity by 21% on 2014/15 levels by March 2020
2. Reduce total greenhouse gas emissions from the Borough of Stockton-on-Tees by 18% on 2013 levels by March 2020
3. Reduce per capita greenhouse gas emissions from the Borough of Stockton-on-Tees by 21% on 2013 levels by March 2010

The first target on reducing emissions from Council activity is further broken down each year to March 2020.

| 2014/15 (Baseline year) [26,459 tonnes] | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 |
|---|---------|---------|---------|---------|---------|
| Percentage (%) reduction needed on 2014/15 baseline | 5% | 10.1% | 15.3% | 18.4% | 21% |
| <i>Achieved</i> | 8% | 20.1% | 32.4% | | |
| Target net emissions figure (in tonnes) | 25,136 | 23,787 | 22,411 | 21,591 | 20,903 |
| <i>Achieved</i> | 24,391 | 21,150 | 17,879 | | |
| Emissions savings in year (in tonnes) | 1,323 | 1,349 | 1,376 | 820 | 688 |
| <i>Achieved</i> | 2,068 | 3,241 | 3,271 | | |

Figure 5: Table of CO2e progress against Climate Change Strategy targets

10. Intensity measurement

As a public sector body, the Council's core function is to deliver services to the citizens of our Borough. Therefore, it has used an intensity measurement of total number of households within the Borough of Stockton-on-Tees. This figure has grown slightly due to a net increase in the number of properties, the net increase being the number of additional dwellings minus the number of properties that have been demolished.

11. Carbon offsets

During the reporting period the Council has not purchased any carbon credits.

12. Green tariffs

During the reporting period the Council has not purchased any energy through green tariffs.

13. Current usage and own generation

In 2017/18, the Council consumed 22,385,504 kWh of gas, 16,688,981 kWh of electricity in buildings and 6,168,930 kWh of electricity in street lighting. As part of the programme to continually reduce these areas, the Council has also invested significantly, and will continue to invest, in renewable energy technologies. The highlights include:

- 23 individual renewable energy schemes with a combined generating capacity of over 300kW
- Almost 1 million kwh of energy generated since installation programme began
- 6 ground source heat pumps at Billingham Library, Bewley Infants School, Fairfield Primary School, Northshore Academy, Conyers Academy and Rosebrook Primary School, with a combined generating capacity of 298kW

| Year | Renewable energy generated (in kWh) |
|--------------|-------------------------------------|
| 2011/12 | 8,133.43 |
| 2012/13 | 16,707.55 |
| 2013/14 | 72,091.33 |
| 2014/15 | 154,169.30 |
| 2015/16 | 236,806.40 |
| 2016/17 | 221,997.73 |
| 2017/18 | 177,673.63 |
| TOTAL | 887,579.37 |

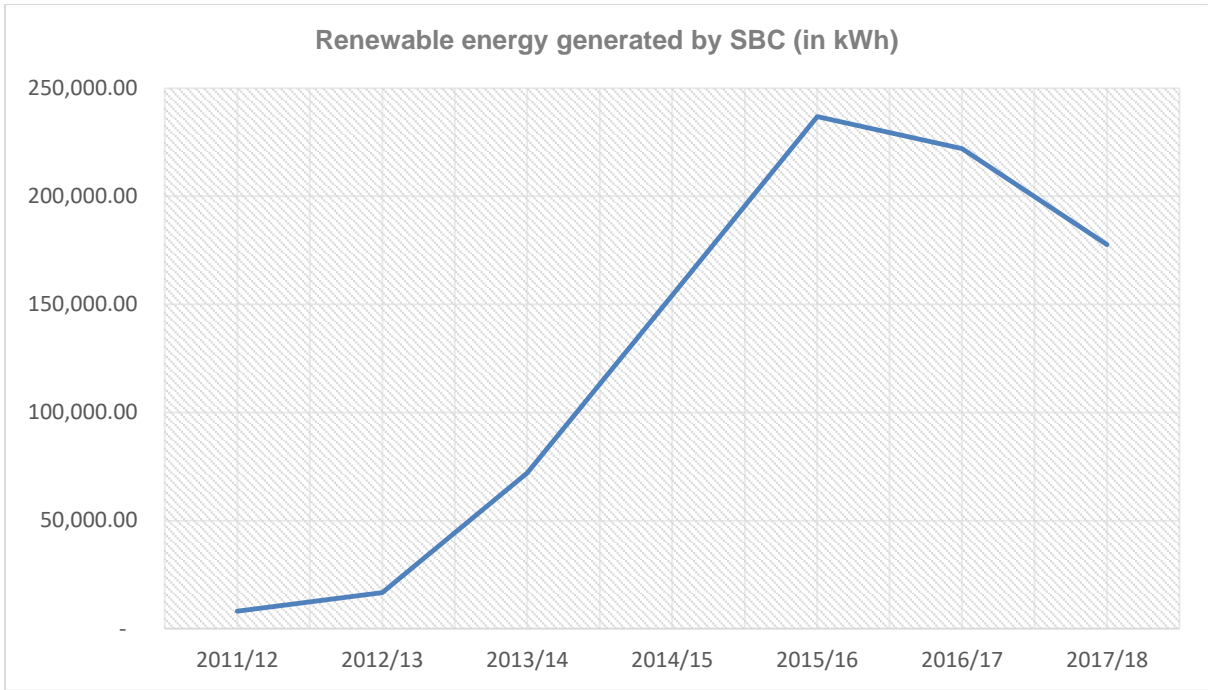


Figure 6: Energy generated by Stockton-on-Tees Borough Council renewable energy installations

14. Useful links

This report can be found at the following link:

<https://www.stockton.gov.uk/environment-and-housing/climate-carbon-and-energy/energy-and-emissions-reporting/>

For information on Stockton's work around climate change, energy efficiency and carbon reduction, click here:

<https://www.stockton.gov.uk/environment-and-housing/climate-carbon-and-energy/>

For information on Stockton's work to signpost for energy saving advice and other services, click here:

<https://www.stockton.gov.uk/environment-and-housing/climate-carbon-and-energy/energy-saving-advice/>

15. Monitoring and review

Measuring the impact and performance of carbon reduction actions is the only way that the Council can improve our performance to reduce our impact upon climate change, and measure its effectiveness. Monitoring will include the following:

- Quarterly performance reports on carbon reduction are presented to the Council's Executive Management Team via reporting of Indicator EH100 CO₂ emissions from the local authority's operations
- A review of the Climate Change Action Plan will be presented to Cabinet in due course
- All reports are published on the Council's website

The full review of this Greenhouse Gas Emissions Report will begin in April 2019 with the 2018/19 report to be published in July 2019. This is subject to the outcomes of the BEIS consultation on public sector emissions targets and reporting arrangements.

16. Contacts

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www.stockton.gov.uk

www.rediscoverstockton.co.uk

References

1. Defra (2017), 'Government conversion factors for company reporting', (www.ukconversionfactorscarbonsmart.co.uk)



