

Greenhouse Gas Inventories for SWEEG: Updated Methodology for 2021 Reporting Year

CENTRE FOR ENERGY AND THE ENVIRONMENT

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Cover image: One of the areas where new data has significantly changed reported emissions is agriculture.

Management Summary

This report documents changes to the methodology the Centre for Energy and the Environment (CEE) has used to estimate greenhouse gas emissions for the 2021 reporting year.

The CEE first produced its current series estimates of greenhouse gas emissions on a territorial basis for district and unitary authorities in Devon in 2019, initially reporting emissions to 2016 and subsequently extending the data series to 2019. One of the main data sources was government-reported carbon dioxide emissions (CO₂) from stationary and mobile combustion within the geographic boundaries of local authorities. This dataset has been enhanced in recent years and is now used for all emissions data with the exception of emissions from waste management and f-gases.

The only methodology change this year is for emissions from wastewater. These were previously based on a figure for fugitive emissions supplied by South West Water to Devon County Council, pro-rated to districts on the basis of the number of households. The latest South West Water Annual Performance and Regulatory Report provides a figure for fugitive emissions, which has been used in this update. It is again apportioned to districts on the basis of the number of households. Historic values have been estimated on the basis of wastewater volumes.

The historic time series has been revised to reflect updates to source data. The discontinuity in emissions from agricultural livestock and crops has been eliminated since the latest data includes estimates of emissions from these sources for years prior to 2018, which were previously unavailable.

1 Introduction

This report documents the changes to the methodology the Centre for Energy and the Environment (CEE) has used to estimate greenhouse gas emissions for local authority areas for the 2021 reporting year.

In 2019, the CEE produced estimates of greenhouse gas emissions on a territorial basis for district and unitary authorities in Devon for data years 2008 to 2016. Subsequent annual updates extended the time series to 2019. The methodology used is described in detail in internal document 964 ¹.

Government-reported CO₂ emissions data for local authority areas were expanded significantly for the 2020 reporting year, and the territorial greenhouse gas emissions calculations were revised to incorporate these data, as described in Internal Document 1017 ². The only methodology change this year is for emissions from wastewater. These were previously based on a figure for fugitive emissions supplied by South West Water to Devon County Council, pro-rated to districts on the basis of the number of households. The latest South West Water Annual Performance and Regulatory Report ³ provides a figure for fugitive emissions, which has been used in this update. It is again apportioned to districts on the basis of the number of households. Historic values have been estimated on the basis of wastewater volumes.

The historic time series has been revised to reflect updates to source data. The discontinuity in emissions from agricultural livestock and crops has been eliminated since the latest data includes estimates of emissions from these sources for years prior to 2018, which were previously unavailable.

2 Impact of methodology changes and revised data

Emissions for geographical Devon (including Plymouth and Torbay), calculated using the old and new methodologies and the latest available data, are compared in Figure 1. Differences are seen to be insignificant.

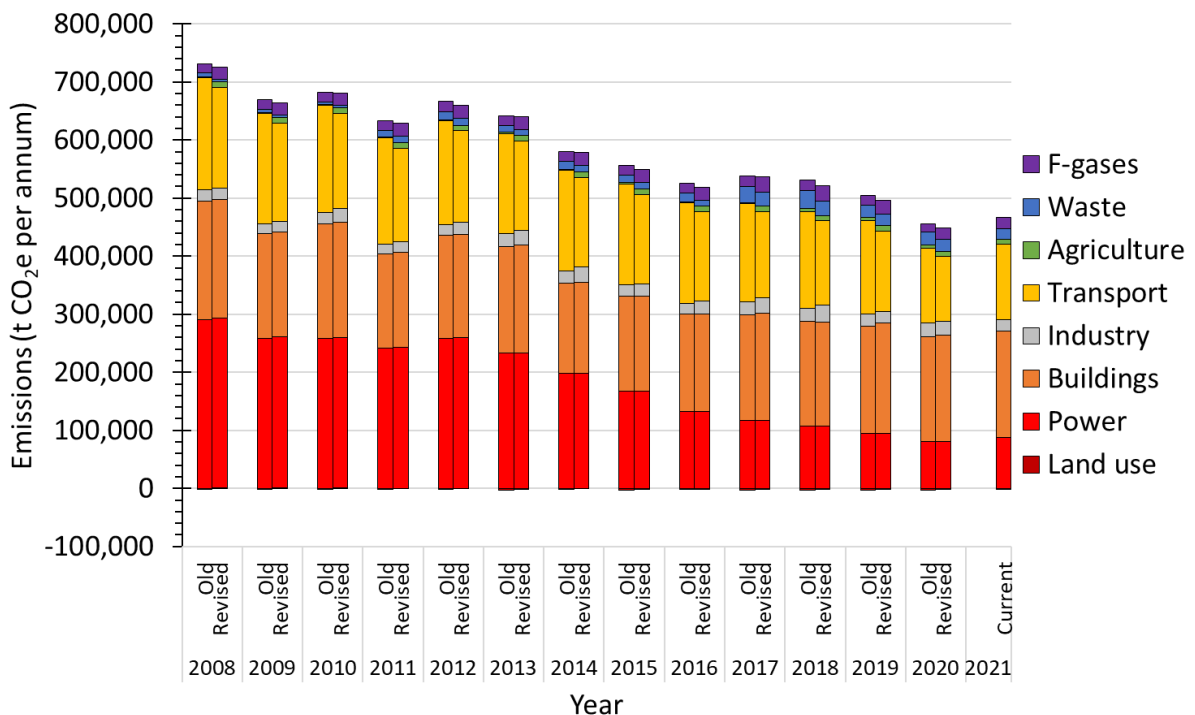


Figure 1. Comparison of total carbon dioxide-equivalent emissions for Devon (including Plymouth and Torbay) calculated using the old and new methodologies.

Figure 2 shows emissions from wastewater treatment calculated using the previous and revised methodologies. For 2021 the revised emissions are 78% higher than the old method would have reported; for historic years wastewater volumes have been significantly higher and the estimates are up to 5.6 times the value returned by the old methodology.

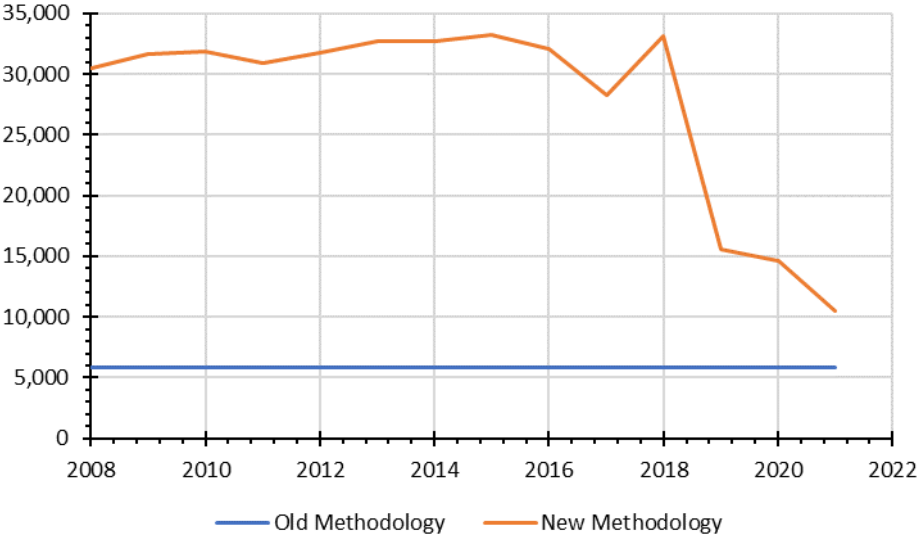


Figure 2. Comparison of total carbon dioxide-equivalent emissions for Devon (including Plymouth and Torbay) calculated using the old and new methodologies.

References

- 1 **Greenhouse gas inventories for SWEEG: methodology paper. Revision 3.** 2021, T.A.Mitchell. SWEEG Internal Document 964.
- 2 **Greenhouse Gas Inventories for SWEEG: Updated Methodology for 2020 Reporting Year. Revision 7.** 2022, T.A.Mitchell. SWEEG Internal Document 1017.
- 3 **Annual Performance Report and Regulatory Reporting 2022. Version 2 – January 2023.** 2023, South West Water. Available at: https://www.southwestwater.co.uk/siteassets/document-repository/annual-reports/5185_sww_aprr_2022_hyperlink_v4.pdf, accessed 26/7/2023.