

# Employee Commuting & Homeworking Emissions – Resource List

## Introduction

Below is a list of resources, including methodologies and data collection methods for calculating commuting and homeworking emissions (GHG Protocol Category 7).

The methodologies are important as they set out the methods for how to calculate emissions and outline the data that is required to do this.

Data collection methods such as surveys/interviews can then be used to obtain the primary data from staff around commuting and homeworking practices.

## Employee Commuting

This emissions category (GHG Protocol Category 7) includes emissions from the transportation of employees between their homes and their worksites (e.g., automobile, bus, rail, air, cycling, walking, etc.).

## Methodologies

The GHG Protocol provides [Technical Guidance for Calculating Scope 3 Emissions](#) (See [Chapter 7: 'Employee Commuting'](#)). This document sets out three different calculation methods for scope 3 emissions from employee commuting:

- Fuel-based - involves determining the amount of fuel consumed during commuting and applying the appropriate emission factor for that fuel.
- Distance-based - involves collecting data from employees on commuting patterns (e.g., distance travelled and mode used for commuting) and applying appropriate emission factors for the modes used.
- Average-based - involves estimating emissions from employee commuting based on average (e.g., national) data on commuting patterns

## Data Collection

From experience, obtaining quality data on the amount spent on fuel by employees for commuting can be very difficult to obtain from employees. This

is, however, the most desirable method of all the options as it can help to develop the most accurate results.

Obtaining data for the distance-based method (i.e., distance travelled and mode of transport), is generally much easier to obtain. As stated on pg. 89 of the GHG Protocol Scope 3 Technical Guidance, data can be collected on employee commuting habits via a staff survey. This is what most local authorities tend to use. I have attached a few examples below to give an idea of the types of questions included:

- Clackmannanshire Council (Scotland) – [Staff travel survey results](#)
- Southampton City Council – [Travel Survey for Staff](#)
- Portsmouth City Council – [Staff Travel Survey Results](#) (see Appendix for questions).
- Oxford Brookes University – [2022 Staff Travel Survey Summary](#)
- University of Strathclyde – [Utilising a Travel Survey to Calculate Greenhouse Gas Emissions from Commuting at the University of Strathclyde \(Thesis\)](#).

## **Homeworking**

Within the GHG Protocol, emissions associated with working from home also fall into scope 3 emissions as an optional component of ‘Category 7: Employee Commuting’. The GHGP states that ‘companies *may* include emissions from teleworking (i.e., employees working remotely) in this category.’

It does not, however, provide a methodology for calculating homeworking emissions, due to difficulties in sourcing data to base emissions calculations on, as well as a previous assumption that it would not be as material as other elements. Alternative methodologies to calculate homeworking emissions as part of Category 7 are provided below:

### Methodologies

- [EcoAct’s Homeworking emissions Whitepaper](#) (2020) – this is the first whitepaper published in 2020 and was the methodology that we used to calculate homeworking emissions. The survey questions were designed to obtain primary data from staff around their consumption of energy associated with office equipment, heating, and cooling from homeworking (in line with the EcoAct methodology). Since this was

published, other methodologies have emerged, most adopt a similar approach to this methodology.

- [Green Element's New Methodology for Measuring Remote Working Carbon Emissions](#) (2021) – this methodology gathers data from employees working from home focusing on hours worked, and energy consumed from the workstation, lighting, and heating. This is very similar to the EcoAct guidance, although it provides further guidance around developing surveys and obtaining the data required to calculate emissions.
- [Anthesis' Estimating Energy Consumption & GHG Emissions for Remote Workers White Paper](#) (2021) – an alternative whitepaper that provides three methodological approaches to support in collecting data and quantifying energy consumption and GHG emissions from their remote workers. The three method options include: a) no survey; b) basic survey' c) enhanced survey. Further explained in [this journal article](#).
- [Carbon Trust & Vodafone's Homeworking report](#) (2021) – provides an assessment of the impact of teleworking on carbon savings. The methodology is outlined in section 2 of the report. The methodology is largely assumption-based as opposed to using primary data from staff derived through a survey.

Other helpful reports around homeworking can be found below:

- Energise - [Working From Home Carbon Emissions](#)
- ADEC Innovations – [How to Account for Remote Work in Your GHG Inventory](#)
- VMWare – [Carbon Impact of the Future of Work: The Environmental Implications of Remote Working](#)
- University of Edinburgh – [The Carbon Impact of Homeworking](#)
- University of Exeter – [Assessing the GHG Emissions of Home Working Versus Commuting to an Office](#)
- Institute of the Environment and Sustainability at UCLA – [The Telework Transition](#)

### Data Collection

The data required to calculate homeworking emissions can also be obtained through an annual staff survey. The survey questions can be designed to obtain

key primary data that can be used in the calculations (i.e., office equipment, heating energy, lighting, cooling energy etc.). It is recommended that questions for both staff travel and homeworking are combined into one single survey for ease.

Alternatively, a mixed methods approach could be used to calculate the carbon emissions impact of homeworking (i.e., combination of surveys/interviews/diaries etc.). Whilst this would provide the most accurate and comprehensive findings, this would require additional officer time and effort. Current literature does not yet utilise data beyond traditional census-like surveys to study homeworking habits<sup>1</sup>. Furthermore, the methodologies above do not require a mixed method approach; a survey will suffice.

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<sup>1</sup> Institute of the Environment and Sustainability at UCLA – The Telework Transition:  
<https://www.ioes.ucla.edu/wp-content/uploads/2020/09/The-Telework-Transition-Karchmer-Schumann-UCLA-IoES-Corporate-Partners-Program-FINAL.pdf>