

WORKING FROM HOME CARBON EMISSIONS

PREPARED FOR:

GENERAL CIRCULATION



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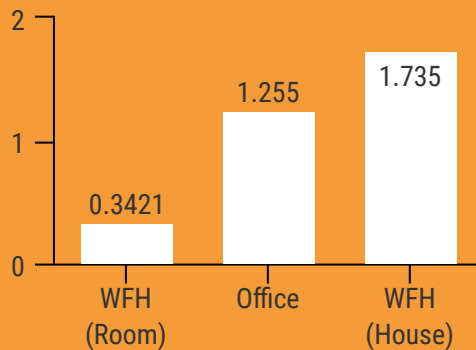
WORKING FROM HOME vs THE OFFICE

As a consequence of the coronavirus pandemic (COVID-19), a significant proportion (estimated at 47%) of the working population in the United Kingdom is working from home, where they would normally have been office based. This produces a challenge from a carbon reporting perspective. Although significant reductions in Scope 1 & 2 emissions may materialise, if an organisation is reporting on all 3 scopes, then some emission sources would be transferred. This could create the incorrect perception of large emissions reductions and affect baseline periods for organisations setting Net Zero strategies and defining targets.

This paper discusses options for accounting for this change in work patterns, as well as a comparison of the relevant carbon footprints of your options. The analysis will also provide insight for organisations who are reflecting on what is the most sustainable option going forward, as the economy sets out on path of recovery from the impacts of the pandemic. There are three emission scenarios to compare (see below). In each case, we have assumed an employee working 46.4 weeks per annum (260 working days minus the statutory leave standard 28 days) at 42.5 hours per week on average (EUROSTAT, 2019). If your organisation works a different pattern, you should pro-rata the results of our methodology.

COMPARISON OF EMISSIONS

Typical annual emissions
(tCO₂e)



WORKING FROM THE OFFICE

We have assumed based on real estate research 10m² of office space per employee. We have calculated emissions based on CIBSE Type 3 AC Office Standard consumption of 97 kWh/m² for heating, and 128 kWh/m² for electricity. Commuting emissions have been calculated from our Net Zero Club benchmark at 707 kgCO₂e as the national average. Commuting emissions on average vary regionally (see page 03). Each of these figures is per year. As per the CIBSE benchmark, the office is assumed to be air conditioned which will increase electricity usage relative to home electricity (as most homes are not air conditioned).



WORKING FROM HOME (AREA USED HEATED)

We have assumed that the average room occupied is a bedroom which based on data from the LABC Warranty database is 13.37m² in size. Using national domestic consumption benchmarks, we have derived a benchmark of 100 kWh/m² for heating, and 25 kWh/m² for electricity. For this calculation we are only calculating the emissions from the area used, and no commuting emissions are included.



WORKING FROM HOME (WHOLE HOUSE HEATED)

We have assumed, based on data from the LABC Warranty database, that the average house size is 67.8 m² in size. Using national domestic consumption benchmarks, we have derived a benchmark of 100 kWh/m² for heating, and 25 kWh/m² for electricity. For this calculation we are calculating the emissions from whole house, and no commuting emissions are included.

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DISCUSSION KEY POINTS

IMPLICATIONS OF THE CHANGE

The carbon emissions of working from home are included within the Greenhouse Gas Protocol (used to report 90% of global emissions) under Scope 3, Category 7 (Employee Commuting), under the title "Employee Teleworking". Therefore, there is already inclusion within carbon accounting standards for this type of reporting.

Inclusion is optional, but given that it is likely material reductions in Scope 1 & 2 emissions from offices, and any Scope 3 employee commuting reported, will have materialised due to the pandemic and working behaviour changes, we would recommend the inclusion of a reporting line for working from home emissions. On transparency grounds, we would recommend it is stated separately, and any change in Scope 1 & 2 emissions is also explained. We would recommend this practice is maintained for as long as your business is operating "abnormally" due to the pandemic (including for any part reporting years), with suitable explanatory notes. As most household heating systems are whole-house, we would recommend, unless you can evidence otherwise, that you report using the whole-house method. The reason for this recommendation is that, on a comparable basis, you are less likely (compared to office emissions) to be materially misreporting, than for the room method, as the variance is significantly larger for the room-based method.

PROPOSED CALCULATION METHODOLOGY

Subject to the assumptions of working hours stated on the previous page, we have calculated the following consumption and associated carbon emissions total for the electricity, heating and commuting emissions for each scenario on a per employee basis. The data presented should be able to be used as a reference data set for organisations seeking to address this issue. This is a new area, with no formal calculation standard, and this document has been prepared in good faith. The scope of the calculation includes:

- Electricity and gas used in an office or for working from home
- Travel to and from the office (where commuting occurs)
- Where applicable, electricity and gas used in the home during the working day

The scope of the calculation excludes:

- Situations outside the "average" office and home
- Embodied carbon within the respective buildings/premises
- Any specific carbon reduction initiatives that would vary either the office or home from "average"

Our proposed calculations per employee for normal working hours are as shown within the table presented.

Carbon factors are 0.28813 kgCO₂e per kWh for electricity (Electricity + T&D + WTT); 0.18387 kgCO₂e per kWh for gas. Commuting is average, for regional figures see overleaf on page 03.

CATEGORY	IN OFFICE	WFH (ROOM)	WFH (WHOLE HOUSE)
ENERGY USAGE	(kWh per annum)		
Heating	970	1337	6780
Electricity	1280	334.25	1695
CARBON EMISSIONS	(tCO ₂ e per annum)		
Heating	0.1784	0.2458	1.2466
Electricity	0.3688	0.0963	0.4884
Commuting	0.7078	-	-

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COMMUTING

REGIONAL COMMUTING EMISSIONS BENCHMARKS

TABLE OF REGIONAL COMMUTING EMISSIONS PER EMPLOYEE (FTE)

REGION	EMISSIONS	UNIT
UK Average	0.7078	tCO2e per annum
North East	0.7552	tCO2e per annum
North West	0.7285	tCO2e per annum
Yorkshire and The Humber	0.7002	tCO2e per annum
East Midlands	0.7700	tCO2e per annum
West Midlands	0.7706	tCO2e per annum
East of England	0.7470	tCO2e per annum
Central London	0.1176	tCO2e per annum
Rest of Inner London	0.2056	tCO2e per annum
Outer London	0.5864	tCO2e per annum
South East	0.7078	tCO2e per annum
South West	0.6923	tCO2e per annum
Wales	0.7650	tCO2e per annum
Scotland	0.6742	tCO2e per annum



**THANK YOU FOR BEING
A ZERO HERO!**

KEEP UP THE GOOD WORK