Greenhouse Gas Emission Accounting at Crystallise – part 4

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What?

In part 2 of this series, we used the **results of an employee survey** to assess the modelling assumptions of a base-case model published by Ecoact[1] relating to workstation electricity usage. Here we do the same for **homeworking heating energy usage.**

Why?

By refining our estimates for the sources of greenhouse gas emissions in the company, we are better able to identify which sources are the **best targets for improvements.**

Fourteen Crystallise employees filled in a survey designed to test the assumptions of the base-case model. The results suggested that many of the necessary values are **difficult to directly measure or even to estimate**. However, the results do suggest ways in which Crystallise employees might violate the base-case assumptions. These are shown in the box on the right.

Base-case assumption	Results of the survey
Proportion of heating that is from natural gas = 100%	9 of 14 (64%) of the respondants used gas as their sole or main source of heating
Heating season length = 6 months	The mean reported heating period was 6.8 months, though this varied from 1 to 24 months
Heating use per day = 10 hours	The mean reported heating per day was 8.0 hours, though this varied from 1 to 24 months
Gas usage per year = 12,000 kWh	Only two respondents were able to supply this information, with an average of 20,181kWh
23% of gas usage is for cooking	Only 4 of 11 (36%) used gas in cooking at all.
One third (33%) of homeworkers have at least one household member who would normally remain at home during the day	10 of 14 (71.4%) reported that the home would be heated anyway, due to other occupants

What do we see?

The results were not considered robust enough to justify changes to the base-case model at this time, but they do highlight **avenues for future investigation**. In particular, a larger proportion of respondents (**71.4%**) reported that their homes would be heated even if they were not working there than is currently assumed (**33%**).

Author Comments

A model of heating emissions due to homeworking is particularly difficult to parameterise. Homeworking heating emissions currently represent **over half** of all the emissions from sources covered in the overall Crystallise model. Therefore, **this model is particularly sensitive to the assumptions made about heating**, and these are worth exploring further.

References:
1. Homeworking emissions whitepaper, Ecoact, World Resources Institute, accessed 15th November 2021, https://ghgprotocol.org/ghg-emissions-calculation-tool