Understanding the Community Carbon Audits

September 2022

This guidance note helps explain the data presented in the Community Carbon Audits.

A more detailed explanation of the process to create the audits is included in the Methodology document.

Data sources: The data sources available have dictated the methodology behind the audit. The UK Government produces a number of carbon and energy data publications and datasets for a variety of purposes, including international responsibilities to report on carbon reduction efforts. Datasets from three trusted sources were used to produce the audit:

- UK Government Department for Business, Energy and Industrial Strategy BEIS produces the local and regional energy consumption and carbon intensity data
- Office for National Statistics ONS produces the geographic divisions for datasets and the population estimates.
- The University of Leeds (working on behalf of the UK Government) produced the figures used for the consumption and public services emissions.

Emissions are in Tonnes of Carbon Dioxide Equivalent TCo2e. This measure accounts for a range of gas emissions that impact the atmosphere and is the most commonly used unit to measure emissions. It is important to understand that carbon emissions are generated by the fuel burned, rather than by the actual appliance, oven or heating system. Measuring the fuels consumed means that some of the variables such as the efficiency of the appliances do not need to be known.

Energy is in Kilowatt Hours kWh. We are used to buying electricity in kWh but buy vehicle fuel in litres and solid fuel in kilograms. All the fuels have a known energy density – how many kWh are in a kg or a litre. All the fuels are converted into kWh to allow comparison and for consistency.

Financial costs are based on average figures over summer 2022. This was a time of significant price changes. The unit costs for each fuel used are provided. It should be noted that the total and average cost figures will become inaccurate even in the immediate future.

Household figures use the number of electricity meters recorded in the community area as it is assumed each hone has one meter. Households are also used for the averages rather than a per person figure. This means the average household size impacts the share of consumption and public administration figure as

these are first calculated on a per person basis. There are a number of problems using a per person figure when it comes to energy. A TV does not consume more electricity (and so produce a certain more emissions) if there is one person watching or 5 people watching. However, if we used a per person figure, the carbon emissions would become 1/5th for each person. Energy data is per home not per person and the likely rise in energy use due to higher occupation is already recorded in the data. In practice a home occupied by one person does not double its energy use when occupation changes to two people.

Population figures are the estimates produced by ONS

Domestic energy: The total energy use and direct carbon emissions from private transport and from homes due to heating, lighting and appliance use. Figures from 2019 were used as the Covid 19 pandemic likely had a significant impact on domestic energy consumption

The figures create an average across the community and any particular home will differ, but the average can be used as a bench mark to determine whether a household has more or less than average. House size, occupation, heating system and building materials all impact on a homes' energy consumption.

The averages for vehicle fuel use assume that each home has one car, either petrol or diesel. If your household has two cars, add each fuel type together.

Figure for mains gas and electricity are highly accurate as the data is generated from the billing information your energy suppliers use.

There are no accurate datasets for other fuels – coal, heating oil, LPG and wood pellets or logs. These figures are created by working out the number of homes that are not heated by gas. A percentage split is then estimated based on local knowledge for the number of homes that use each of these fuels. The annual consumption figure in kWh is the same as for the homes using mains gas.

The figures are based on a home using only one of the fuel types for heating and cooking. In practice, many homes will use two or more fuels, but this cannot be accurately accounted for. Electricity used for heating and cooking in a home with another form of space heating is already accounted for in the electricity data.

Consumption: Indirect carbon emissions from the production of goods and services that are consumed. These are effectively non-domestic emissions as the emissions are produced by extraction, manufacturing, supply chain and consumption of these commercial goods and services.

The dataset that produced these figures is divided into 34 consumption categories. This would produce a complex chart with many of the categories appearing as very small percentages. For clarity, the 34 categories were condensed into 14 and similar categories added together. For example, the original dataset separated out clothing and footwear, but for the purposes of the audit, these were combined into one category.

Public Services: Indirect carbon emissions from public services including non-profit organizations, local government and central government. It also includes a number of technical categories used for measures such as GDP.

Total community emissions are the sum of the three sources