



The myclimate Household Calculator

The household calculator quantifies the relevant greenhouse gas emissions of a typical household and creates its carbon footprint. The calculated greenhouse gas emissions are based on current emission factors, scientific publications and international and internal statistics.

The goal is to provide users with a simple application that enables them to specify their emissions by inputting a small amount of data, and the calculated result can be used to raise their own awareness or to offset emissions. The resulting greenhouse gas emissions correspond to the amount of CO₂ equivalents that can be reduced in myclimate carbon offsetting projects.

myclimate strives to fully map the greenhouse gas emissions caused and, in the current version of the household calculator, also includes other sustainable heating technologies such as solar thermal energy, various heat pump technologies or even fuels from renewable raw materials such as pellets, woodchips or biogas. Any PV electricity that is fed into the grid is also taken into account. The household calculator covers the relevant activities in the energy area of a household. If you require a more comprehensive footprint for a person, please use the [myclimate personal footprint calculator](#).

An overview of the methodology applied can be found in this document. For a specific and detailed analysis or evaluations and calculations with an adapted data basis, please contact info@myclimate.org. myclimate will be happy to support you within the framework of a service order.

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Methodology

General Information

The greenhouse gas balance includes the relevant consumption of heating energy and electricity in the household. All emissions are considered over their entire life cycle. The dataset used to calculate the climate balance comes from the ecoinvent 3.6 database and follows the IPCC 2013 (Intergovernmental Panel on Climate Change) evaluation method. This method uses greenhouse gas potential over a 100-year time horizon (GWP 100a).

The climate impact is generally indicated with the unit “kg CO₂e”, i.e. “kilogram of CO₂ equivalents”, which adds up the effects of all greenhouse gases. The most common greenhouse gas is carbon dioxide (CO₂), which is produced when fossil fuels are burned. Besides CO₂, other greenhouse gases such as methane (CH₄) and nitrous oxide (N₂O) are emitted in numerous processes.

System Limit

myclimate aims to map the resulting greenhouse gas emissions as fully as possible. This includes direct emissions from the activities as well as emissions from upstream and downstream processes. Direct emissions occur, for example, in the on-site combustion of fuels for heat generation. Indirect emissions include the extraction, processing and transport of the fuel and also the production of purchased electricity that is consumed. Here, transport and conversion losses are taken into account in addition to the electricity mix of the respective country.

Calculation Methodology

In the first step, the user defines the country in which the house or apartment is located. This is taken into account for the calculation of country-specific emissions in the area of electricity (conventional or from renewable energies), as well as for the purchase of local district heating.

The heating energy consumption can be estimated based on the living space and the building standard. The information is provided with the unit kWh/(m²*a), i.e. as the energy demand of a building in kilowatt hours (kWh) per square metre (m²) and year (a).

However, a more precise result can be determined by directly entering the heating energy consumption (e.g. with the help of the annual utility bill or heating bill).

The user has various options when it comes to the heating technology. If an estimate of consumption is made via the building standard, the first heating energy technology selected is taken into account for the calculation of emissions.

Finally, the users record their electricity consumption with a distinction between green electricity (from renewable energy sources) and conventional electricity. This can be taken from the utility bill or

estimated using typical values taken from literature. What's more, the user can specify whether he/she obtains certified green electricity (in Switzerland naturemade for example; or in Germany with ok-Power Label).

In the case of heating technologies that use electricity (such as heat pumps), electricity consumption should also be noted in this category under electricity. The calculation always uses the country-specific electricity mix.

When entering solar electricity from your own photovoltaic system, the total amount of energy generated is noted, as well as the amount of energy fed into the grid. This results in the own requirements, which is taken into account in the balancing process (indirect emissions from the production of the systems).

All activity and consumption data is linked to background data, which means greenhouse gas emissions are calculated using current emission factors. The dataset used is ecoinvent 3.6, the world's largest internationally recognised database for eco-inventories, as well as scientific publications, internal empirically established values and publicly available statistics. The geographical focus of the factors is Europe. If European factors are unavailable, globally valid factors are used as a rule. A safety margin of 10% is added at the end because the entries and calculations of the simple calculator are subject to uncertainties.

For an even more specific and detailed analysis of the energy consumption of your household with an individually adapted data basis, please contact info@myclimate.org. myclimate will be happy to support you within the framework of a service order.

Data Sources

ecoinvent database, 2020. <https://www.ecoinvent.org/home.html>.

International Energy Agency, 2020. <https://www.iea.org/>.

IPCC, 2013. Climate Change 2013: The Physical Science Basis.