

Week 1: household

Informational material on challenge 2: Energy consumption

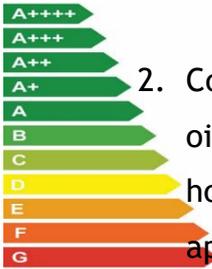
How high is the energy consumption in German households?

Private households in Germany required approx. 665 terawatt hours of energy in 2016 (corresponding to approx. 665 billion kilowatt hours). This means that around a quarter of the energy produced in Germany will end up in private households. It is important to know that the energy industry is the most climate-damaging sector in Germany, accounting for around 300 million tonnes, or about 34% of German CO₂ emissions. If we save energy in our private households, we also directly reduce the emissions of the energy industry.

How can I save energy in the household?

1. Heating: Heaters usually work with oil or gas (so they do not need electricity). With approx. 63%, heating is the biggest energy guzzler in the household. In some cases, the energy requirement is already determined by structural criteria such as the insulation of windows. In addition, the efficiency of the heating system plays a decisive role. This is usually between 50% and 90%. If you are interested in how energy-efficient your heating system and your building are, there are various calculators on the Internet. With the following tips, however, 10-20% of the energy can be saved immediately:
 - Do not place furniture and curtains in front of radiators to ensure air circulation.
 - Leave the thermostatic valve uncovered. The thermostatic valve measures the room temperature and regulates the amount of water needed to heat the room to the set temperature. By the way, there is no point in turning up the heating fully, because only more energy is used, but the room does not warm up more quickly.
 - Do not heat more than necessary. Recommended are 20 degrees in living rooms and 18 degrees in bedrooms. Also turn off the heating when leaving the house.





- Open windows completely for a short amount of time to avoid permanently losing warm air to the outside.

2. Cooling, freezing, washing and rinsing: In contrast to heating, which works with oil or gas, almost all other things in our home require electricity. Large household appliances such as refrigerators and washing machines require approx. 37% of the electricity in the household. The key here is energy efficiency. When purchasing new household appliances, pay attention to the legally prescribed energy label (graphic on the left). It is important to know that "A" is already worse than average. If you want something energy-efficient, you should at least buy "A+++". Refrigerators with the "A+++” label often consume already 50% less electricity than older models from 15 years ago. More tips for saving electricity in large electrical appliances:

- Regulate fridge temperature: 7 degrees in the fridge and -18 degrees in the freezer compartment are enough.
- Let food cool before putting it in the fridge.
- Do not place heat sources such as the stove next to the refrigerator.
- De-ice the freezer regularly. A 5mm thick layer of ice already increases power consumption by 30%.
- Regulate the washing temperature (40 or 60 degrees often suffice).
- Make sure your washing machine and your dishwasher are fully loaded.

3. information technology: TV, PCs and telephones account for about 27% of household electricity consumption. In contrast to refrigerators and dishwashers, PCs are often not worth buying a new device in order to buy a more energy-efficient model. This is because most CO2 emissions from televisions and PCs are generated during the manufacturing process and most of that emissions cannot be offset by higher energy efficiency during their service life. That's why it says here: Use them as long as possible. Maybe you can buy a second-hand PC instead of a completely new one? More tips for everyday life:

- Switch off devices instead of stand-by!
- Pull the plug out of the sockets or switch off the power strips completely if possible.





By the way: There are apps that you can use to calculate your power consumption in comparison to the average. Maybe this motivates you to check where you are from time to time.

In addition to the amount of electricity we need in our private households, it also plays a role where this electricity comes from. Saving electricity, hot water and heating is only of limited use if we get electricity from lignite or hard coal. And there are big differences: While one kilowatt hour (kwh) electricity from a wind power plant causes only about 9g CO₂ (water power even only 3g CO₂), brown coal produces more than 1000g CO₂ per kwh electricity. It is therefore advisable to consider switching to a natural electricity provider that draws its electricity from renewable sources.

References:

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