

WHAT HAVE WE ACHIEVED WITH ENERGY SAVING MEASURES?

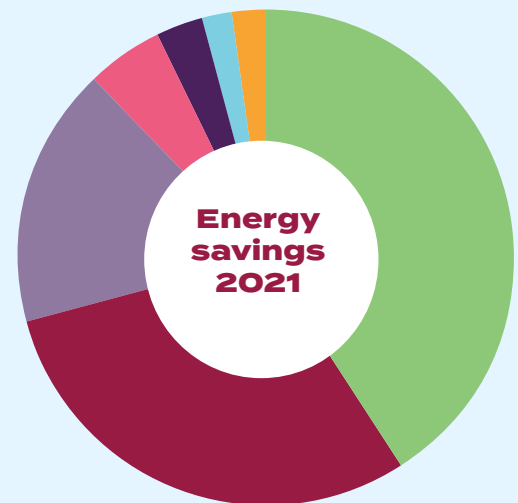
In the winter of 2022–2023, we quickly focused on the implementation of energy saving measures to reduce peak electricity [consumption as part of the Down a Degree campaign](#). These measures saved a total of 4 TWh of energy, which is an equivalent of more than 80% of the electricity consumed in Helsinki in 2021. Furthermore, we managed to avoid power cuts.

Energy efficiency work in Finland has been carried out on a long-term basis by implementing energy efficiency and energy saving measures that have a long-lasting impact.

The Energy Authority and Motiva put together impact assessments of the long-term energy saving measures carried out in different sectors. The analysis includes both the energy saving measures implemented in Finland as well as the EU regulation.

Energy efficiency and saving measures have undisputable impact

The combined impact of the energy saving measures of different sectors in 2021 was around 85 TWh. The amount is significant when compared to the total energy consumption, which was 377 TWh, or to the final consumption, which was 307 TWh. Without energy efficiency and saving measures, the total energy consumption would have been 23% higher and the final energy consumption 28% higher. The majority of the savings were achieved in final energy consumption. Energy savings have also been a major factor in the 33% reduction in greenhouse gas emissions (excluding the land use sector) over the period of 1990–2020.



- Ecodesign **41%**
- Energy efficiency agreements **30%**
- Buildings **17%**
- Influencing the passenger car stock **5%**
- Transport fuel taxation **3%**
- Energy audits **2%**
- Other transport measures **2%**

Figure: The combined savings impact of energy saving measures in different sectors in 2021.



One major source of savings is the ecodesign of equipment, which has, according to the Nordic NordCrawl study, been estimated to have generated as much as 32.5 TWh of energy savings in Finland by 2020. On estimate, Ecodesign has contributed to about 41% of the total energy savings in 2021. Similarly, the [European Commission](#) has estimated that ecodesign delivered half of the European level energy savings in Europe in 2020.

Among the most effective Finnish measures have been the [energy efficiency agreements](#) concluded within the business, municipal, real estate and oil sectors since 1997. In 2021, the energy saving impact of the existing agreements was 25.2 TWh. The energy consumption of the sectors covered by the agreements accounts for around 60% of Finland's total energy consumption, and the population of the municipalities that have signed up is as high as 80% of Finland's population.

Building regulations are a particularly long-lasting energy-saving measure. The Finnish Environment Institute (Syke) estimates that the impact of these savings was 7.9 TWh in 2021. Furthermore, the impact of renovation grants was estimated at 0.7 TWh and the impact of heat pumps for small and terraced houses subsidised with grants and the tax credits for household expenses at 6.2 TWh.

In the transport sector, the biggest savings come from emission standards for passenger cars. Some years ago, the Technical Research Centre of Finland Ltd estimated that their energy saving impact for 2020 was 4.5 TWh. Finland's high fuel and VAT taxes are also estimated to save around 2.2 TWh per year in passenger car use if the EU minimum levels of energy taxation and VAT are used as a benchmark.

The impact of information measures is difficult to verify

Overall, a wide range of energy efficiency measures have been implemented in Finland. The impacts of some measures cannot be assessed, or they overlap with other measures. That includes all the different information measures, such as communication and national and regional energy advice for consumers. Concrete data was provided by a [study implemented in Porvoo](#), which showed that households that received energy advice during the winter season reduced their electricity consumption by an average of 10% compared to households that did not receive advice.

Thanks to sustained and committed energy efficiency work, Finland met all the 2020 targets required by the Energy Efficiency Directive. Producing reliable international comparisons on energy efficiency is very difficult. However, the studies that have been carried out provide evidence that in many sectors Finland does well by [international comparison](#), as long as the analysis is carried out at a sufficiently detailed level and with sufficient data.

Savings potential can still be found, for example, in longer pay-back period investments by companies and the use of heat recovery in district heating. The building stock is partly in need of renovation and more efficient use, and the transport system still needs to become more energy efficient. Existing tools, such as hourly metering, are not yet fully exploited in energy efficiency work. Some of these themes were also highlighted in the findings of the International Energy Agency's (IEA) [Energy Policy Review](#), completed in spring 2023.

Additional information:

Heikki Väisänen, Energy Authority

heikki.vaisanen@energiavirasto.fi

Johanna Kirkinen, Energy Authority

johanna.kirkinen@energiavirasto.fi

Lea Gynther, Motiva

lea.gynther@motiva.fi