EPEE

The voice of the refrigeration, air conditioning and heat pump industry in Europe

Decarbonising heating & cooling in Europe

Buildings are huge carbon polluters

Buildings account for more than 40% of energy consumption and 36% of greenhouse gas emissions in the EU. This is mostly caused by the heating and cooling of all types of buildings and spaces.

Today, most of the energy for heating and cooling comes from fossil fuels. And this will not change without policy that helps expediate green solutions.

The European Commission has proposed that at least 49% of the energy usage in buildings come from renewable sources by 2030.

Heat pumps can save up to 600 million tonnes of CO_2 by 2050

EPEE projects a massive forthcoming replacement of fossil fuel heating systems by electric heat pumps.

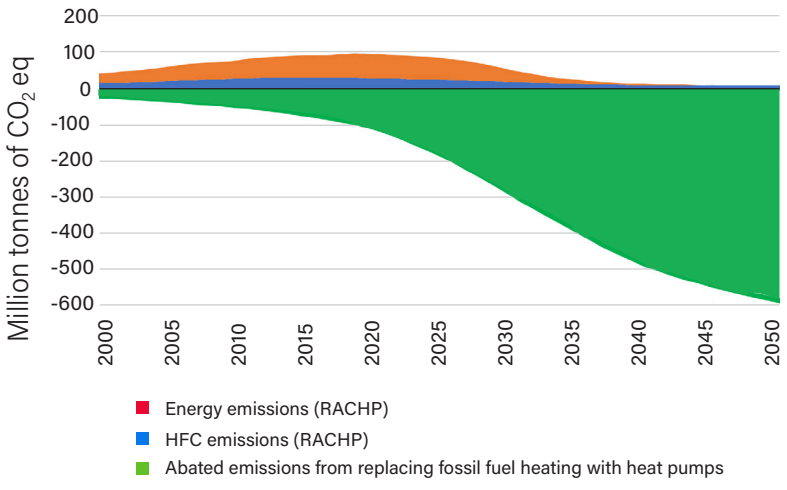
The emission savings potential of heat pumps (green area) far offsets the emissions caused by the equipment energy consumption (red area) and by HFC refrigerants (blue area) used in refrigeration, air conditioning and heat pumps (RACHP).

What are heat pumps?

Heat pumps work like fridges and air conditioners in reverse. They transfer thermal energy from one place where it is not needed to another place where it is.

Heat pumps can run on decarbonised electricity, making them the ideal replacement for unsustainable fossil fuel heating systems and support a sustainable energy mix.

EU28 emissions from RACHP equipment & abated emissions through heat pumps



By 2050, heat pumps could help Europe avoid up to 600 million tonnes of CO2 emissions — as much as 15% of all current EU greenhouse gas emissions.

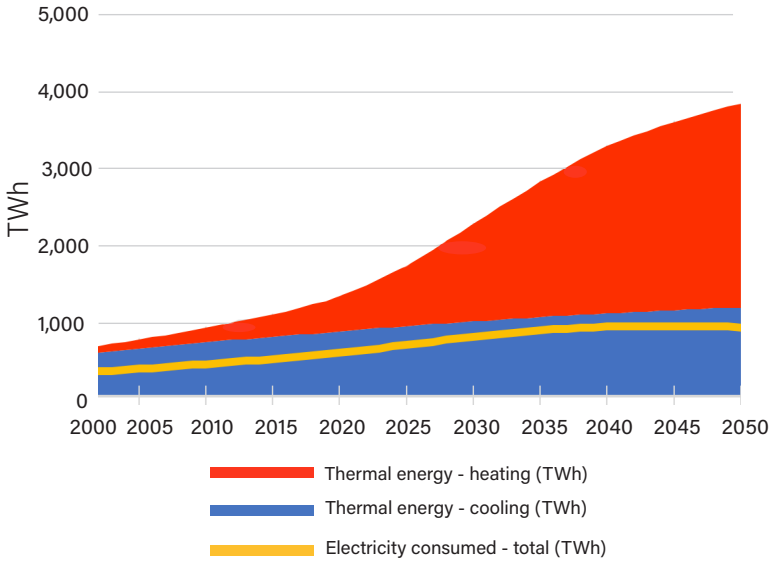
Optimising energy efficiency

CO_2 emissions from electric heating and cooling will fall to very small amounts by 2050, as European energy becomes almost fully decarbonised.

Thermal energy, i.e. heat and cold delivered by RACHP, is projected to triple in 2050 (blue and red areas). However, the actual electricity used (yellow line) to generate this massive capacity is projected to rise by very litte in comparison.

This is due to two main reasons:
Firstly, heat is produced much more efficiently in electric heat pumps than through burning of fossil fuels. Secondly, electrical heating and cooling equipment will become even more efficient, thanks to technology developments and the right EU policies.

EU28 RACHP: Thermal energy delivered vs energy input needed



HFC emissions from RACHP are responsible for 2.1% of current greenhouse gas emissions in the EU and are decreasing rapidly thanks to the successful implementation of the F-gas Regulation.

HFC refrigerants explained

Heating and cooling equipment contains fluids called refrigerants. Commonly used refrigerants are hydrofluorocarbons (HFCs), HFC blends, H(C)FOs and non-fluorinated gases.

HFCs are F-gases, or fluorinated gases, which, if not handled properly, can leak and contribute to global warming. Their use is therefore strictly controlled and phased down - internationally through the Montreal Protocol, and at the EU level through the EU F-gas Regulation.

Enable a green transition of heating and cooling through:

- **Implementing ambitious building renovation targets and tools in the Energy Performance of Buildings Directive, and financially enabling investments in renewable and highly efficient heating and cooling systems.**
- **Mainstreaming the "Energy Efficiency First" Principle across all relevant policies, which is crucial for the optimal decarbonisation of the heating and cooling sector.**
- **A revised F-gas Regulation which serves as a central tool to govern all refrigerants to ensure optimum energy efficiency and allow the EU to reach its carbon reduction targets**

For more information, visit:
https://www.epeeglobal.org/