

Reduce your energy bill and environmental footprint with efficient heating solutions

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Climate change and heating technologies – what do they have in common?

Heating is a basic need which often appears as a synonym of higher energy bills in winter for a large part of European households. Imagine a space of 19.5 billion square metres: this is the total European residential surface that needs to be heated. Presently this surface is heated by 160.5 million heating units, 60% of which performing inefficiently. **Unfortunately, “inefficient” in this context is a synonym of high energy bills, and high greenhouse gas emissions.**

The continuously increasing greenhouse gas emissions highlight all the challenges that this brings to the fore. Indeed, climate change accelerates, having direct and indirect impacts on the most diverse sectors: ecosystems, health, economic stability, migration, food security, lifestyles... and more.

To face these challenges the European Union, as well as European countries at national level, have put in place policies and tools focusing on greenhouse gas emissions reduction and energy efficiency improvement. The heating sector is a critical one in this sense, and it should endorse efforts to tackle climate change, namely through the development of tools that help the consumer undertake sustainable choices and help reduce harmful emissions by promoting energy efficiency.



(Source: Rudy and Peter Skitterians, Pixabay)

Heating systems installed in European homes are mostly inefficient

Heating and hot water represent 80% of the energy demand of EU households. This significant weigh in the energy demand is also an opportunity for improvement and action to reduce the heating sector impact in greenhouse gas emissions. Three main types of energy sources are used for space and water heating in European dwellings:

- **Fossil energy:** Oil fuel, natural gas, and coal (solid fuel). Today fossil fuels are the most polluting ones, although these were originally promoted to offer poorer households the possibility to access energy at lower costs. Moreover, heating systems using exclusively fossil fuels are less efficient today than new alternatives on the market. However, today fossils fuel boilers represent 76% (121 million units) of the entire installed stock, with gas boilers representing the highest part (58%) of European heating installations (see Figure 1). Nevertheless, fossil fuel technologies on today's market can be distinguished for their efficiency – condensing boilers are more efficient than the traditional ones, as they require less energy to heat space and water compared to traditional boilers, thus, reducing pollution and operational costs.
- **Electricity:** electric heaters represent 15.6% of EU's heating installations stock. The pollution level attributed to the electric heating system depends on the primary energy source used to produce the electricity needed.

- **Renewable energy:** Biomass (wood products) and solar thermal heating systems are the most common solutions between the renewables used by European households to heat their homes and warm up domestic hot water. They represent 5.2% (8.3 million units, see Figure 1) of the heating appliances stock.

60% of the installed stock of heaters in Europe are old and inefficient, resulting in an energy waste and increased air pollution. Today there are several solutions to increase buildings' energy efficiency and changing inefficient heating installations is one of them.

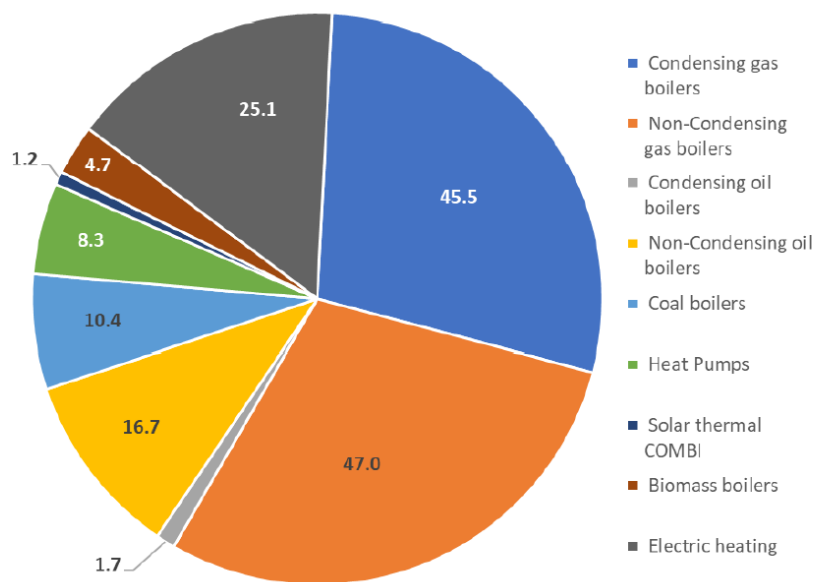


Figure 1. Space heating combi/space heating units (in millions) installed in the EU in 2017 (Source: HARP)

Do you know how efficient is your heater?

Efficient space and water heating solutions are available today, but consumers are rarely informed about the efficiency of the installation they have at home compared to the best appliances on the market. How many homeowners know: that boilers with more than 15 years should be changed; that traditional fuels, coal, oil or gas boilers present now more efficient alternatives on the market; how to choose the most adequate and best efficient option for their home; or that renewables like geothermal, aerothermal or solar thermal are today among the most efficient domestic heating solutions? The lack of easily accessible information and mouth to mouth misconceptions are common barriers to the consumer decision to replace its heating system.

The HARP project, the European Union funded initiative, directly addresses these concerns and can help consumers access accurate information about energy efficient heating and support in the replacement process, identifying the most adequate and efficient solution for their home.



Figure 2. Examples of efficient heating systems - Solar thermal installation (on the left; Source: ESTIF), Air-Air Heat Pump (on the right; Source: EHI)

The HARP project helps you to find accurate information about efficient technologies and the best solution that fits your heating needs!

HARP stands for Heating Appliances Retrofit Planning. It is a project funded by the European Union through the Horizon 2020 framework, joining 18 European partners, and focusing on five EU Member States: France, Germany, Italy, Portugal, and Spain. The mission is to accelerate the European replacement rate of heating systems, by actively contributing to the reduction of energy demand in buildings, in accordance with the energy efficiency targets set by the EU. To do so, the HARP project raises consumers awareness to the opportunities underlying the planned replacement of their old and inefficient heating appliance. HARP uses multiple channels and tools:

- HARP supports professionals and consumers by making information about heating systems accessible to all. Moreover, as the diffusion of this kind of information diffuses the best by experts in the field, HARP is also supporting professionals of this sector.
- HARP supports consumers in identifying the energy (in)efficiency of their current heating equipment and the savings opportunities that arise from their replacement by a more energy efficient solution.

- HARP conducted a field study on households' behaviour to understand how consumers' deal with heating needs and thus adopting the most adequate communication means to reach them.
- HARP highlights the co-benefits associated to energy efficient heating solutions, because the replacement benefits goes further than just direct energy related ones, like air quality, noise reduction, lower environmental footprint, etc.
- Multiples tools are proposed for consumers to facilitate the access to the information about efficient heating: technologies factsheets, infographics, videos, and serious games...
- HARP also developed an online application – the HARPa – which allows consumers to identify the energy class of their existing heating appliance and find the best fitting heating technology for their home, all this for free, without having to spend time or resources!



To get more information about the HARP project and to access the mentioned consumer materials, we invite you to visit <https://heating-retrofit.eu/>. *[The link is to be customized with a national webpage]*



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