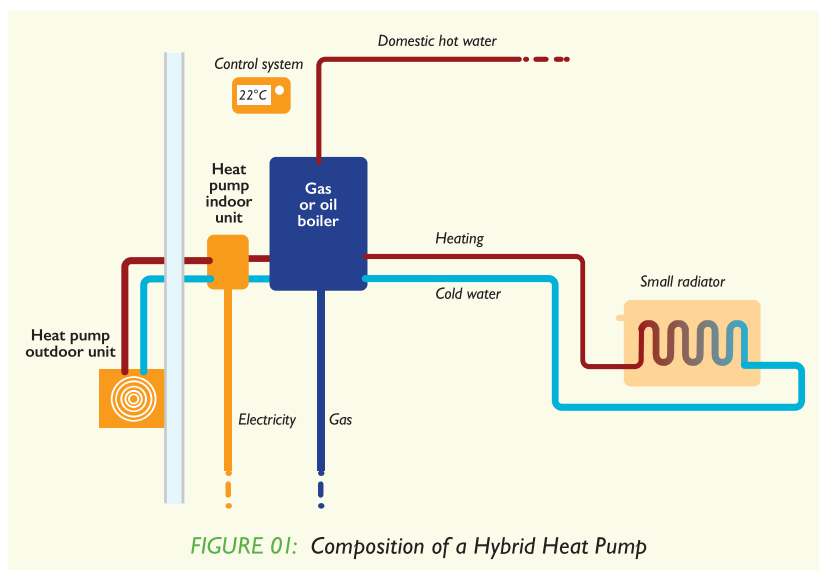


Heating Market Report 2023: Insert on Hybrids

1. What is Hybrid Heating?

A hybrid appliance (or hybrid system) is controlled centrally and uses two or more different and separate energy sources to heat a building and/or provide domestic hot water. The fastest growing variety of hybrid heaters are hybrid heat pumps. This consists of an electric heat pump working in tandem with a traditional boiler and smart controls.



2. The Benefits of Hybrid Heat Pumps

By combining an electric heat pump with a backup boiler, energy consumption and emissions are reduced considerably. A hybrid heat pump can reduce gas consumption by 60–90% compared to a boiler alone. This was shown in a study by Bosch Home Comfort Group, which indicated that after just over one year, a hybrid heat pump can reduce CO₂ emissions from heating by 38%¹. Additionally, hybrid heat pumps can function with several renewable energy sources, including green gases.

Hybrid heat pumps are also particularly interesting for consumers, as they can be installed in a large variety of buildings, without prior modifications to the existing heating infrastructure. Compared to standalone heat pumps, the up-front costs of hybrid heat pumps are considerably lower and can also reduce consumer energy bills. To make hybrid heat pumps accessible to even more households, many national governments have introduced incentive schemes, which help to reduce the investment cost.

The electricity grid also stands to benefit from an increased use of hybrid heat pumps². Given their duality and smart feature, they can switch between energy sources and can therefore avoid using electricity when it is not available in abundance from renewable sources. This is particularly valuable during winter months, when renewable energy sources produce less electricity. By not relying on a single energy source, hybrid heat pumps increase security of supply. Switching between electricity and another energy source means they have a lesser impact on the electricity grid than standalone heat pumps. As a result, fewer investments in the electricity grid are necessary to support the decarbonisation of heating³.

Given all these advantages, hybrid heat pumps are an ideal solution for the decarbonisation of buildings.

¹ Bosch Home Comfort Group ExpertTalk presentation "Hybrid Heating Solutions in existing buildings", September 2021

² Decarbonising the heating sector; JRC technical report 2019, Figure 37, scenario E100All versus BSL

³ "Decarbonisation pathways for the European Building Sector", Guidehouse, July 2022: a balanced mix of renewable energy sources and technologies for heating, including hybrids (pathway B), reduces the additional peak load from electrification of heating by 54% and reduces the cost by 520 billion euro until 2050 in comparison to scenario with a higher electrification of heating (pathway A).

3. Leading markets: Italy and the Netherlands

In 2022, Italy was the leading European market for hybrid heat pumps. A key reason for their success is their versatility, which makes them highly adaptable to Italy's variable climate conditions across regions. The roll-out of hybrid heat pumps was also largely supported by the Italian government through financial incentive schemes, resulting in a doubling of sales of hybrid heat pumps between 2021 and 2022.

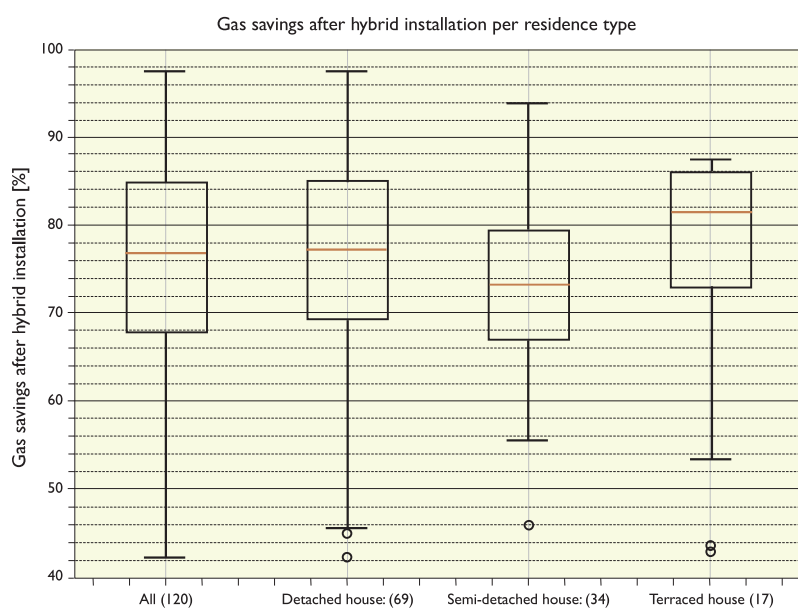


FIGURE 02: For each residence type, the orange line indicates the median value of the savings in gas use after installing a hybrid heat pump. For instance, for terraced houses, the median value is 82, meaning that for 50% of the terraced houses observed, installing a hybrid heat pumps allowed to reduce the gas consumption by 82% or more.

The Netherlands also constitute a major market for hybrid heating systems in Europe. If we look at Dutch buildings, the most common technology installed are condensing gas boilers, representing 94% of the installed stock. Today, other efficient and renewable technologies such as hybrids and heat pumps are becoming more and more common.

This is because the Dutch government has set to reduce natural gas consumption in the coming years and considers hybrid technologies as one of the logical solutions for reaching 2030 climate targets, and beyond. Hence, the use of hybrid heat pumps in renovation is promoted and growing, while electric heat pumps are being installed often in new buildings.

Forward looking to 2030, the aim of the Dutch Heating Industry, the representatives of the installers and the electrical distribution and NGOs is to have 1.500.000 – 2.000.000 hybrid systems installed in the Netherlands.

