



Decarbonisation of the heating sector: heat pumps as an important element for the heating transition

Frankfurt am Main, 20 07 2022. The energy transition is inevitable and renewable energies are the key to a sustainable and independent energy supply. But it will not work without innovations and concrete solutions. This is exactly where ISH 2023 comes in with its topics.

In May 2021, the German government further tightened the CO₂ reduction targets for 2030 for all sectors as part of the amendment to the Climate Protection Act. Overall, CO₂ emissions are to be reduced by 65% by 2030 compared with 1990 levels. By 2045, Germany is to have achieved climate neutrality. For the building sector, the new reduction target is a good 44% for 2030 compared to 2020 emissions, which corresponds to a reduction of around 53 million metric tons of CO₂. Against the backdrop of these even more ambitious climate protection targets, all available options for reducing emissions must be applied in the heating sector. These are essentially four pillars:

1. acceleration of heating system modernisation
2. integration of renewable energies
3. defossilisation of energy sources
4. increase of the renovation rate of the building shell

The expansion of heat pump applications is a key pillar of the heat transition. The German government coalition plans to expand the stock of heat pumps to 6 million systems by 2030. There are currently around 1.1 million heat pumps installed in Germany. At the heat pump summit in June, the German heating industry made it clear that it supports the German government in enabling the accelerated market run-up of heat pumps. On the power generation side, the targets are equally ambitious. According to Federal Association of the Energy and Water Industry (BDEW), renewable energies covered around 49% of gross domestic electricity consumption in the first half of 2022. In order to achieve the climate protection targets and become independent of fossil energy imports, the share of renewable energies in gross electricity consumption is to increase to at least 80% by 2030. The German government is currently setting the course for the accelerated expansion of wind and solar energy and for greater energy efficiency.

Heat pumps therefore play an important role in climate protection in the building sector, because they use renewable energies to generate heat. Air-to-water heat pumps and brine-to-water heat pumps extract heat from the environment, whether the air, groundwater or earth, via a refrigerant circuit. Air-to-air heat pumps use fans to draw in air

from the environment. A heat exchanger then transfers the heat energy to the heating system in each case.

In new buildings, the heat pump has been the market leader for years. In the meantime, manufacturers are also offering technical solutions for existing buildings. So-called high-temperature heat pumps raise the temperatures of environmental heat sources to a level that is sufficient for conventional radiators. While conventional systems operate with a flow temperature of around 50 degrees Celsius, high-temperature systems achieve values of 70 degrees Celsius. The state subsidizes the installation of heat pumps, for both old and new buildings, at 35% of the eligible costs. Even 45% subsidies are possible - if an old oil heating system is replaced by a heat pump.

Despite the increasing importance of heat pump technology in the future, it is of central importance for the success of the heat transition to rely on a broad technical portfolio, with a view to the heterogeneous building stock. This includes, in particular, hybrid solutions that combine a heat pump with another heat generator, hydrogen-compatible heating systems, as well as residential ventilation with heat recovery, wood-based heating, and solar thermal energy.

The ISH – The World’s Leading Trade Fair HVAC + Water – will provide information on the latest technical innovations in heat pumps as well as on all heating technology solutions for achieving climate targets in the building sector from March 13 to 17, 2023 in Frankfurt.

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**Your contact:**

Aleksandra Götz

Tel.: +49 69 75 75-6144

Aleksandra.Goetz@messefrankfurt.com

Messe Frankfurt Exhibition GmbH

Ludwig-Erhard-Anlage 1

60327 Frankfurt am Main

www.messefrankfurt.com

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