

Heat pump sales shot up by 22% – investments exceed half a billion

Heat pump sales increased by 22% and even more in euros. More than half a billion euros were invested in the 75,000 installed heat pumps in 2018. As many as 900,000 heat pumps have already been sold in Finland. Their total annual output is 10 TWh which corresponds to 15% of the heating of Finland’s residential and service building stock. Between 6 and 7 TWh of renewable energy and waste heat is recovered annually and used in heat pumps. It is noteworthy that this huge investment in the environment and in fighting against climate change has been made mainly by house owners using their own money. The excellent profitability of heat pumps has made consumers’ decision-making easier. People have also started to understand the significant role of heat pumps in heat decarbonisation and demand response.

Growth in all heat pump types

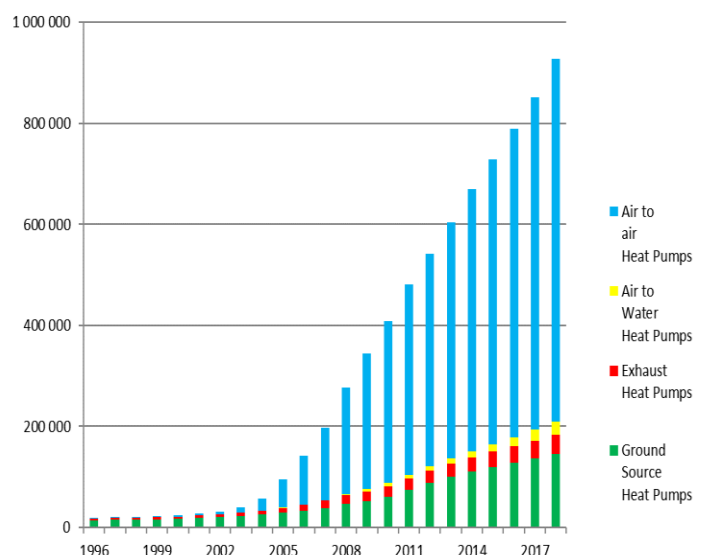
According to Finnish Heat Pump Association SULPU ry statistics, 76,000 heat pumps were sold in 2018, an increase of 21.7% compared to the previous year. The number of air-to-air heat pumps sold reached 60,000, ground-source heat pumps 8,000, air-to-water heat pumps 5,000, and exhaust-air heat pumps 3,000. Heat pumps of all types were on the increase, states Executive Director Jussi Hirvonen, with satisfaction.

The strong growth in air-to-air heat pump sales was driven by the summer heatwave. The number of ground-source heat pumps sold picked up again, too. The breakthrough of inverter-regulated ground-source heat pumps and the strong increase in larger installation sites are noteworthy. An increasing number of shopping centres, service buildings, industrial buildings, and churches get their heating and cooling in an environmentally friendly manner from the earth. The sales of air-to-water heat pumps increased the most, 25%. Their performance, reliability, and applicability to heating systems in Finland have improved quickly, thus enabling rapid growth. Small exhaust-air heat pumps are mostly sold to new detached houses.

Deployment of exhaust-air heat pumps in apartment buildings increased at a fast pace. Heat pumps utilising waste heat recovery from exhaust air have already been installed in several hundred apartment buildings. This reduces the consumption of district heating or other energy of an apartment building by up to 50%. A growing number of apartment buildings decided to switch completely from district heating to a heat-pump based solution.

Heat pump investments in 2018 exceed half a billion – investments in heat pumps amount to as much as 4 billion

The value of 76,000 heat pump system deliveries is EUR 450 million. When the megawatt-size heat pump systems for district heating/cooling production, industry, shopping centres, and other service buildings as well as other ancillary operations such as planning, delivery supervision, maintenance, and other services (not included in the SULPU statistics) are added, the heat pump sector reached annual investment levels exceeding half a billion in 2018. This meant approximately one extra TWh per year to CO₂-free heat production. It should be noted that the majority of this investment consisted



of investments made by individual consumers using their own money, as it was a good investment for them.

The heating business concerning residential and service buildings amounts to between 70 and 80 TWh per year. Of this already 15%, approximately 10 TWh per year, is clean, individual heating generated by heat pumps. This has been achieved through Finland's close to one million heat pumps, in which consumers have invested EUR 4 billion. Heat pump investments in the production end of district heating and cooling as well as in industrial waste heat recovery are also growing.

The sector has seen the emergence of new business models. The heat pump heat-sales model, or the so called service model, means that the heat pump investment is made by the seller who delivers the thermal energy, and, if desired, cooling, to the customer. The customer is invoiced for the energy in the same way as for electricity or district heating. This service model became more common not only in service buildings and industrial sites but also in apartment buildings using exhaust air and geothermal heat. This is an easy and appealing choice for apartment buildings. No investment is required; it merely means sitting back and enjoying lower energy costs.

Heat pumps play a key role in heat decarbonisation

The heating market is big, and its very high levels of CO₂ emissions come from oil heating and from district heating generated from coal, peat, and oil. When we talk about the fight against climate change, it must mean heat decarbonisation as quickly as possible, phasing out fossil fuels, and, in the long term, phasing out burning. This will mean more energy-efficient heating that moves away from fossil fuels such as coal, peat, oil, and gas, is increasingly electricity-based, takes into account increased cooling needs, utilises waste heat, and evolves from being centralised and production-oriented to being local-energy oriented, and is more CO₂-neutral. Heat pumps have caught up with this trend – somewhat secretly – without any political or financial support or guidance, on market terms. Regulatory taxation on fossil fuels brought on by the pressure to prevent climate change will be beneficial for heat pumps.

Heat pumps enable the electrical system's demand response, efficient energy storage and cooling, and the use of other waste heat.

Heat pumps are the perfect tool for demand response and for managing the grid's electricity demand. A heat pump provides a unique technology bridging heat and electricity. It has the ability to utilise as storage volumes of water, buildings, energy wells as well as bidirectional cooling/heating features. A heat pump provides a unique technology bridging heat and electricity and can utilise as storage volumes of water, buildings, energy wells as well as bidirectional cooling/heating features. With heat pumps' thermal power linked to demand response, heat pumps could already provide approximately 4,000 MW of thermal power and, last year, an additional 500 MW was generated. According to the principles of operation of a heat pump, controllable electric power provides approximately one third of the thermal power. The remaining two thirds is free energy, recovered by this brilliant apparatus from around the building.

Profitable, job-providing, domestic, and combatting against climate change

The profitability of heat pump investment to the customer is excellent. Strong arguments for heat pumps also include ease of use, low-maintenance, minimal need of space, and cooling features. The impact on the Finnish trade balance of the saved fuel and electricity is already in the region of one hundred million. The heat pump sector is very domestic and already employs between 3,000 and 5,000 persons. The sector plays a significant role in the fight against climate change. The reduction of CO₂ emissions in Finland is already in the megaton range.