

Heat Pump Study in Finland for 2030: Savings Billion per Year, Investments 12 Billion, 3000 Workplaces

The environment, the economy and the consumer's wallet will benefit, if heat pumps become more common in Finland. It will lower our energy consumption, create consumer savings, increase employment and improve Finland's trade balance, says a report commissioned by The Finnish Heat Pump Association (SULPU) from sustainable business consultancy Gaia Consulting.

The study looked at the economic and environmental impacts of SULPU's vision, which assumes a total of 12 billion euros of investments in heat pumps between now and 2030. This would create approximately 3.000 new jobs in the industry. According to the vision, circa 8 billion euros of the investments are allocated for existing building stock.

"Our goal is that in 2030, the approximately 2 million heat pumps in Finland will produce a gross amount of 22 terawatt-hours of heat, saving approximately 15 terawatt-hours of energy annually," says Managing Director **Jussi Hirvonen** from SULPU.

The study concentrated on changes in the heating methods of existing detached houses, row houses, apartment buildings, as well as commercial, office and storage buildings. These building types cover about 80 % of the entire Finnish building stock. The study also looked at the techno-economic potential of heat pumps in new buildings. It included ground source, air source, air-water and exhaust air heat pumps.

"The calculation doesn't include industrial or service buildings. If the results are scaled to the entire existing building stock, heat pump investments can lower the annual heating costs of existing buildings by approximately 840 million euros from their current level. For the average heat pump life cycle, total savings would amount to circa 15 billion euros. The calculation takes into account the operating and maintenance costs of heat pumps and the heating methods that are being replaced by them. It doesn't include the cost of investment capital or government subsidies," says Senior Consultant **Aki Pesola** from Gaia.

If the investments, interests and government subsidies are taken into account, heat pumps would create annual net savings of approximately 350 million euros and life-cycle net savings of more than 6 billion euros.

Savings in heating costs as well as changes in energy consumption depend on which heating methods are being replaced by heat pumps. Based on the presumptions of the study, and looking at the entire existing Finnish building stock, the need for fuel in existing buildings will drop by about 8 terawatt-hours by 2030. Power consumption will remain somewhat unchanged as the number of heat pumps increases, even though the pumps themselves consume electricity, because the net electricity consumption can be cut by replacing electric heating.

A reduction in energy consumption would also reduce our trade deficit. In 2030, the deficit would be about 230 million euros lower per year than it is now, if heat pumps were installed in the existing building stock. Carbon dioxide emissions from heating buildings would diminish by approximately 2 million tons per year from their current level.

The most significant impact of SULPU's vision to the Finnish state would be a reduction in excise tax income. The increasing energy subsidies and tax credits for domestic costs as well as the reduction in value added tax income would also weaken state economy. Other tax impacts would remain minimal. With the current tax and government subsidy policies, annual state income would be about 260 million euros lower in 2030 than it is now. The tax income of the Finnish municipalities, on the other hand, would grow, as income taxes would increase by approximately 16 million euros from their current level.

More information:

- The report Lämpöpumppuinvestointien alue- ja kansantaloudellinen tarkastelu (in Finnish)
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