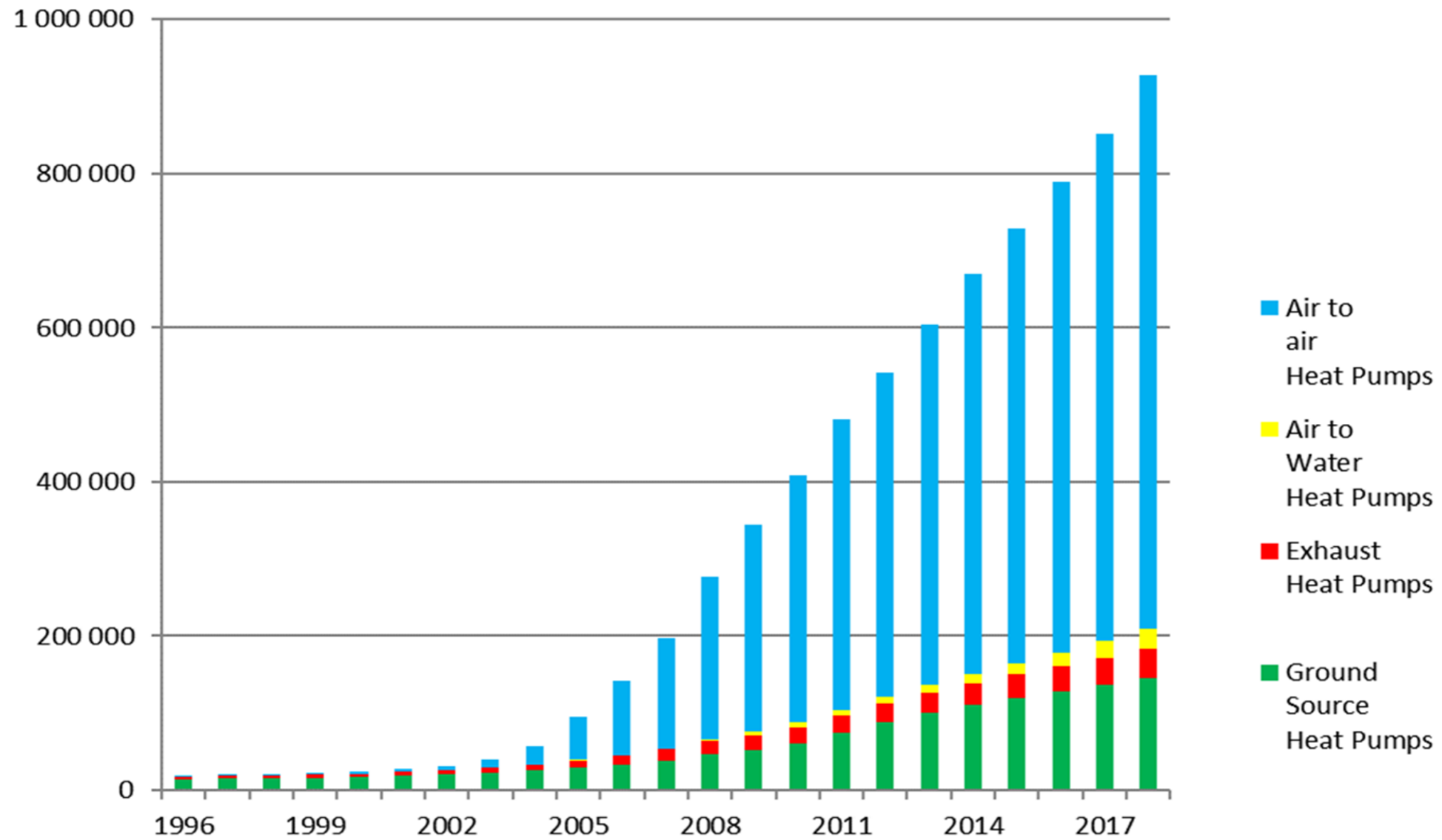


Heat Pump Market in Finland

Jussi Hirvonen, Finnish Heat Pump Association SULPU ry

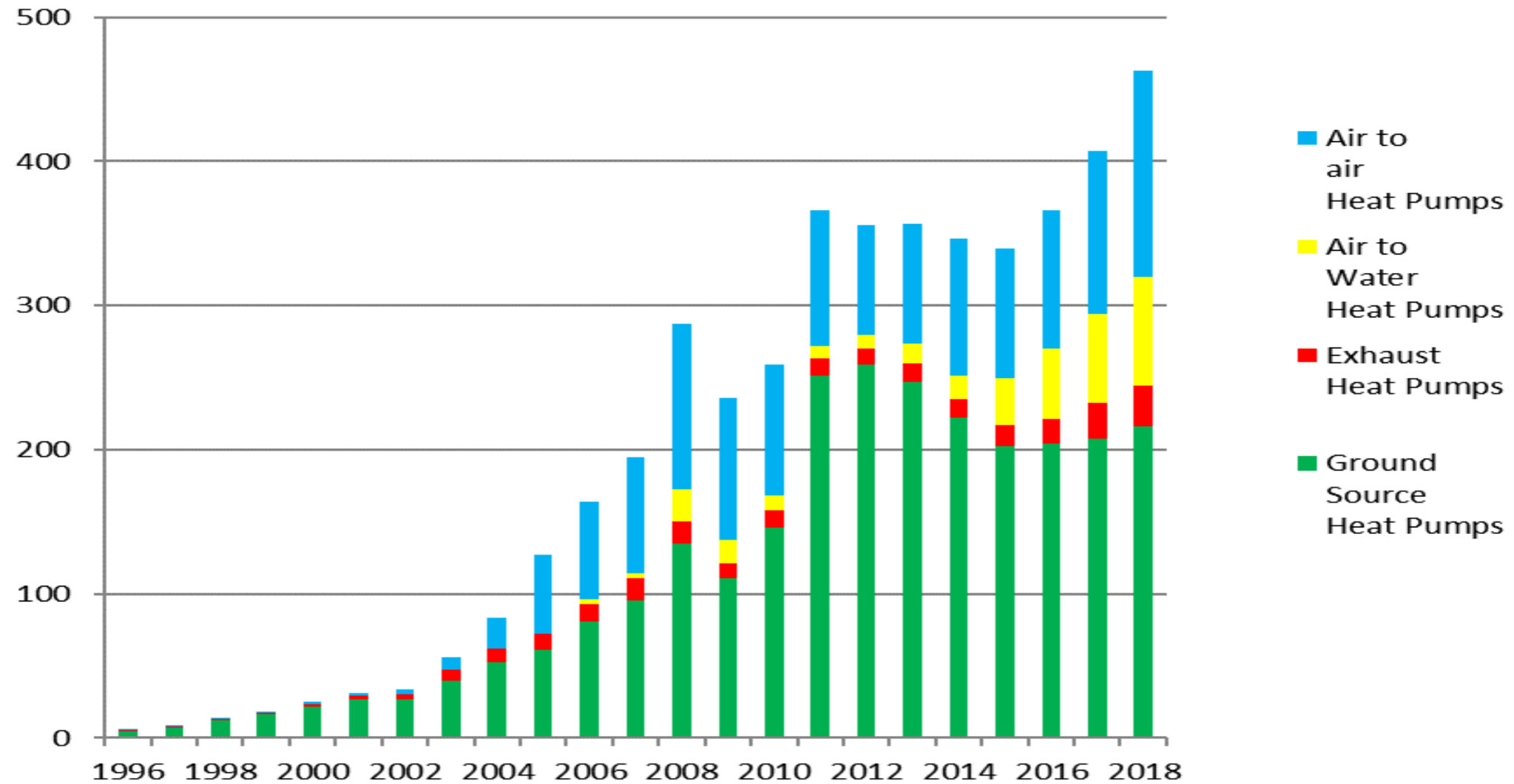
One million heat pumps soon in Finland!



Annual Heat Pump investments in Finland (MEUR)

(Megawatt-size district heating/cooling , shopping center, service building , industrial HPs as well as planning , service, etc. are missing from figures below)

MEUR



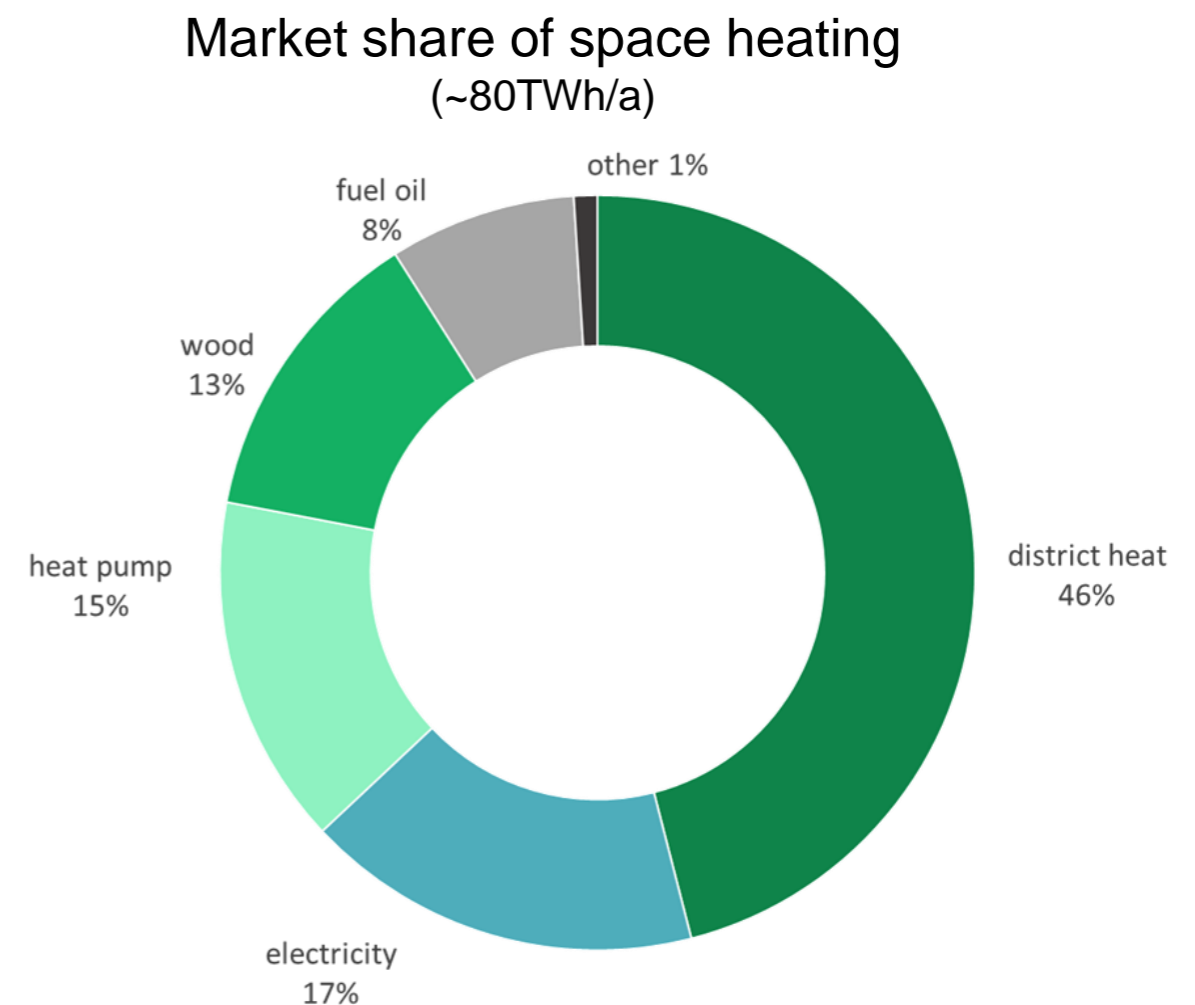
Average investment: GSHP 27.000€, AWHP 15.000€, EAHP 9.000€, AAHP 2.400€
(emphasis by the capacity of sold heat pumps)

Heat Pumps – a success story in Finland – without subsidies!

- Heat Pump sector is big, over 10 TWh/a, 15 % of heating of Finland (80 TWh/a)
- Investments in 900.000 heat pumps 4 billion euros, the biggest separate investment in RES and energy efficiency
- Market-based, made mainly by private consumers
- Investment level now about 0.5 billion/a , +1 TWh/a

- Bridge technology between heat and electricity=> demand response, storage technology
- Suits as well to individual as centralized heating and cooling systems

- Very domestic (>70 %)
- Very employing (3000-5000 persons)
- Small business/company draughty



Heat Pump Market is in renovation. How to grow it?

Only 8% of 75.000 annual heat pump installations are installed in new buildings

Already 80% buildings of the building stock in 2050 are built today

Potential

- Oil burners (160.000) or water based electric heating systems (100.000) to GSHP or AWHPs, **4 TWh/a**
- Direct electricity heated houses or cottages to AAHPs or GSHPs, AAWPs (0,5 million of 1,2 million still without HP or wrong HP), **5 -10 TWh/a**
- 30.000 district heat apartment houses => Exhaust HP (+ GSHP), **3-5 TWh/a**
- Commercial and service buildings (shopping centres , IKEAs , office houses etc.), **5-10 TWh/a**
- Industry, **xx TWh/a**

Actions by National Heat Pump Association, SULPU

- Continuous heavy information/media show about possibilities and cases in all media
=> pressure to end customers, contractors, entrepreneurs, power utilities, politicians,
new business models, new and more market players
- Heat pumps to political programs of all parties as an act against climate change
- Political message: more taxes on fossil fuels rather than subsidies
- Support and use of studies like: <http://smartenergytransition.fi/en/clean-district-heating-and-cooling-system-how-can-it-work/>
 - **Finland's heating and cooling can be made without burning**
 - **Heat pumps in key role as well as CO2 free electricity**

Practical example of the possibilities to save energy (coal)



One 20 t dumper coal to CHP



or One exhaust Heat Pump in one apartment house

- 38.000 apartment houses with exhaust ventilation, saving potential with ExHPs 3-5 TWh/a
- If you combine ExHP and GSHP => saving of two dumpers (40t) / house
- Key for rapid growth is to find new business models: Sold and saved kWhs have to be in the same business model.
- District Heating Companies have find a real will to save energy and start to invest also on the other end of theirs pipes.

Business models saved and sold kWhs have to match

Heat Pumps in Finland

7

TWh of Renewable
Energy annually
Production >10 TWh/a
15 % of whole heating business

200

M€ improvement in
Trade Balance annually

3-5000

jobs annually

500

M€ of private
investments annually

>10

% Return on
Invested Capital

>2

million tons in decreased
CO₂-emissions annually



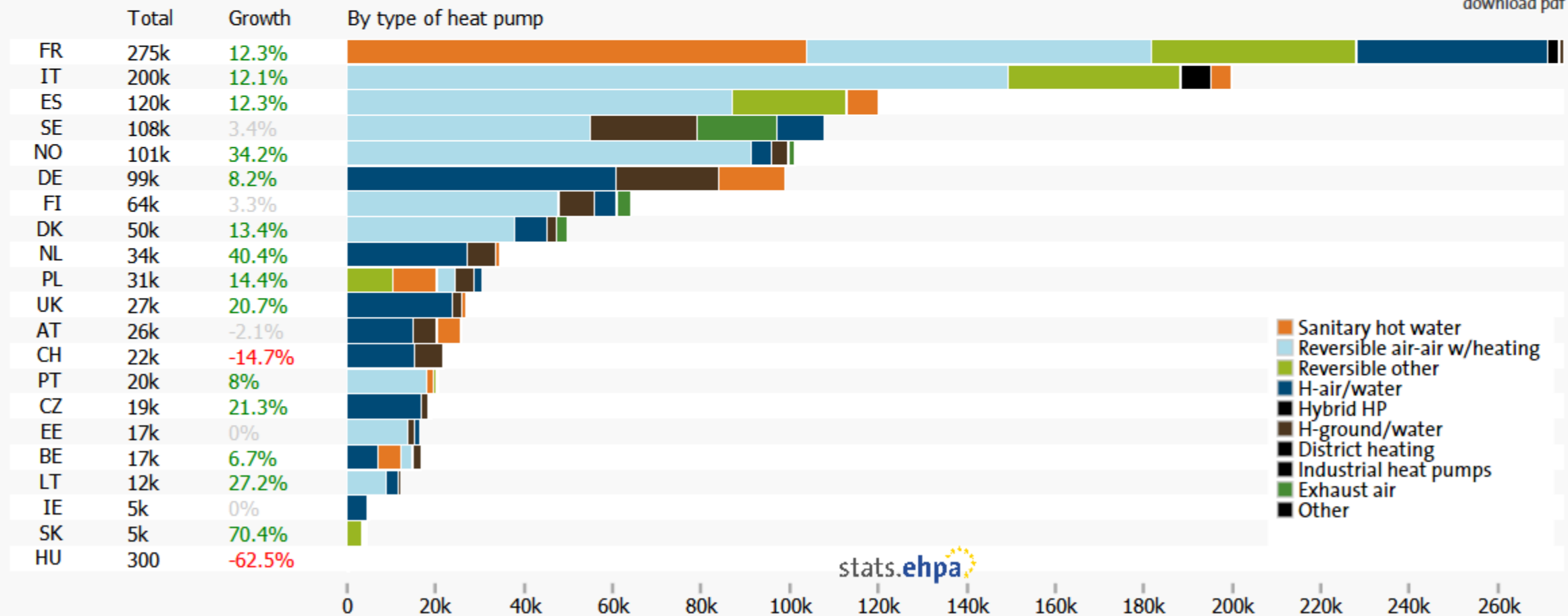
Heat pumps by type 2018

Sales

Normalize (divided by households, in hundreds)

Show %

[download pdf](#)





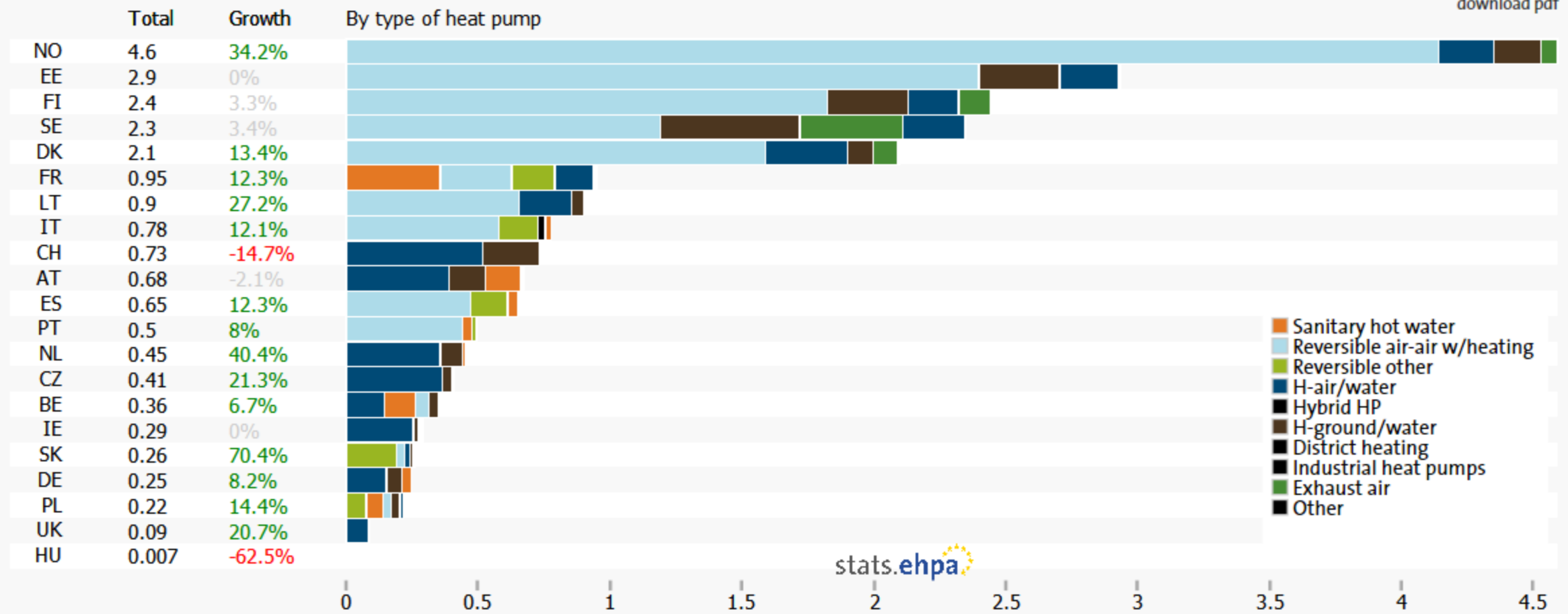
Heat pumps by type 2018

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Finland



Thanks!