Heat pumps for people

Thomas Nowak
European Heat Pump Association
Thomas.Nowak@ehpa.org

Clean energy for people – 21 June 2022
evaporation
compression
Evaporation + compression = heat pump
You have a heat pump already – in your fridge

- **Evaporation**
- **Compression**
Heat pump based heating and cooling system

Energy for compressor

ambient energy

cooling

energysource

Heat Pump

Kompression

Verdampfung

Expansion

Kondensierung

Heat distribution

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Heat pump benefits are undisputed
The development curve of heat pump recognition-rejection

OK, maybe geothermal?

energy efficient vs. renewable

HP?  HP use too much electricity

OK, maybe geothermal?  Seriously?

district heating?  Seriously?

ok, also industrial

HP renewable and efficient .......... but only residential

“technology neutrality”

Well, ok, HP work, but too expensive ...

... Maybe for new builds, but not suitable for renovation

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Markets are growing
Heat pump sales in 21 European markets

est. +34%
HP sales by country | 2021

![Bar chart showing HP sales by country in 2021](chart.png)
HP sales per 1000 households | 2021
Heat pumps* are mature and used everywhere - today

*this includes “heatpump + joule-effect”, “heatpump + fossil” or “heatpump + other” hybrid solutions
EU manufacturing landscape 2021: 170 factories

Jobs

Export potential

Perspective
Heat pumps work in renovation
Waterside holiday home update by air-water heat pump

A very compact 7kW Vaillant aroTHERM Split air-to-water heat pump provides 75% of the cottage’s energy from the ambient air.
Nida Social Housing benefits from ground source heat

A ground-source heat pump to provide all the heating and hot water via a ground source heat pump for a complex of 5 houses with 25 family apartments.

Technical details of the application

- Heating capacity: 38,4 kW
- COP: 4,09
- Refrigerant: R 407C
- Heating source: Boreholes 10 x 100m
- Supplied temperature: +40 °C
Single-family house in Italy
Renovation of single-family house of 250m² built in 1972 in Castelli Calepio.
Traditional structure of reinforced concrete structure and brick.
An energy-neutral home with solar panels & heat pump the Netherlands

A silent Panasonic Aquirea T-CAP heat pump was chosen to provide a comfortable indoor climate and transform the house into an energy-neutral home.

Technical details of the application

Heating capacity: 12 kW
COP: 4.74
Refrigerant: R410A
Heating source: Underfloor heating
Under occupancy renovation of social housing – in Blackburn, UK

- 145 apartments of “together housing”
- Shared ground loop
- HP installation per appartment
And finally: district heating

- Water based heat pump
- 2x 2,65 MW
- Affordable heating for energy poor
  - a goal of West Dunbartonshire Council
- Better environmental quality
What next? In Bulgaria and in Europe!

1. We need ambition and trust by policy makers for all heat pump technologies
2. Making clean heating economically most attractive will bolster demand
3. In legislation, set a priority for heat pumps, create long-term legal certainty and avoid disruption,
4. Skills: capacity and level of skilled experts
   Installers – planners – architects – engineers – entrepreneurs
5. R&D for even better heat pumps, in particular for renovation
   □ S$^3$ smart – small – silent
The lights will stay on with 50 million heat pumps

Online Policy Seminar

The European Heat Pump Association aisbl / founded 2000

166 Members
Heat pump manufacturers
Component manufacturers
National associations
Consultants
Research & test institutes

22 countries represented

International cooperation
CECA, IEA, IEA HPC, IRENA, HPCJ

Vision
In a fully decarbonised Europe, heat-pump technologies are the number one heating and cooling solution, being a core enabler for a renewable, sustainable and smart energy system.