As of today

13,599,395
Is it a heatpump? Is it an air conditioner? Is it a dehumidifier? Is it a hot water generator? Or is it a electric grid stabilizer?

- **refrigeration**
  - heating
  - Hot water
  - Integration of services based on the refrigerant cycle
  - cooling
  - dehumidification

- **Demand side flexibility**

- **Air quality**

- **cold**
  - Climate

- **warm**
  - Heat pump markets 2019 | T. Nowak | EHPA "the essence of HP"-series | 20.5.2020
Heat pumps are everywhere
Heat pumps provide heating, cooling and hot water for...

Residential Application

Commercial Applications

Industrial Application

District Heating

Big buildings
Heat pumps balance a “high-RES-electricity grid”

Source: SMA
Reduction of heat islands
Heat pump benefits:
less air pollution in cities: **example Krakow**

Thanks to Port PC for the example
The European Heat Pump Association aisbl / founded 2000

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

22 countries represented

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.
Heat pump manufacturing in Europe

103 sites
2019

1 453 000

http://stats.ehpa.org
Heat pump sales 2019 | by type

- Reversible air-air w/heating
- H-air/water
- Reversible other
- Sanitary hot water
- H-ground/water
- Exhaust air
- Hybrid HP
- Industrial heat pumps
- Other
- District heating
Heat pumps sales 2019 | by country and type

- Reversible air-air w/heating
- Reversible other
- Sanitary hot water
- Exhaust air
- H-ground/water
- H-air/water

©stats.ehpa
Economic benefit

FR  2427.01m
DE  1511.5m
IT  1110.82m
SE  595.03m
NL  408.7m
FI  396.87m
PL  369.1m
NO  352m
ES  332.78m
CH  290.28m
DK  275.44m
AT  258m
UK  213.28m
CZ  194.38m
BE  166.62m
PT  144.63m
LT  82.44m
EE  61.45m
IE  48.81m
SK  36.96m
HU  4.43m

EU total: 9.3bn
market growth ‘05 – ’19 | HP stock\textsuperscript{2019}: 13.2 mill. installed
Heat pump benefits 2019
Based on 13.2 million heat pumps installed

- **Thermal capacity**: 114 GW
- **Useful energy**: 225 TWh
- **Renewable energy**: 143 TWh
- **Fossil final energy savings**: 183 TWh
- **Heat pump benefits 2019**: Based on 13.2 million heat pumps installed
- **Clean air**: No PM at point of operation

- **Auxiliary energy**
  - If auxiliary energy is **green**, heat pumps provide 100% **green heat**
energy demand for heating residential buildings

2 625 TWh

Units sold per 1000 households in 2019

Norway

Runner-up countries

Huge untapped potential for HP in the rest of Europe
If Norway was everywhere ...

- Potential of an increase in sales by factor 5 to 6
- Is the value chain ready?
100% renewable heating is possible – with heat pumps (incl. Hybrids) + a focus on electrification

Figure ES-4: Shares of heat supply in 2015 and 2050.

Source: Global Energy System based on 100% Renewable Energy – Energy Transition in Europe Across Power, Heat, Transport and Desalination Sectors
The electrification of industrial heat

Approx. 27% in 2050
Heat Pumps in the EU heating system 2018

- 6.1 million boilers
  - 1.25 million heating heat pumps (20.5%)
- 7.8 million sanitary hot water
  - 190,000 dedicated hot water heat pumps (2.5%)
- Industrial heating and cooling

- Use of fossil energy for heating dominates in Europe!
- To decarbonise heating and cooling heat pumps are a perfect option

! Data collection in progress
RES in heating and cooling (based on Eurostat Shares)

http://ec.europa.eu/eurostat/de/web/energy/data/shares
2030 targets as set by Clean energy 4 all Europeans package
Heat pumps use renewable energy from air / water / soil, waste energy treated similarly

<table>
<thead>
<tr>
<th>renewable</th>
<th>energy efficiency</th>
<th>CO₂</th>
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</thead>
<tbody>
<tr>
<td>32%</td>
<td>32.5%</td>
<td>40%</td>
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New impact assessment 50/55%?
A European Green Deal
renewable – smart – integrated

“I want Europe to become the first climate neutral continent in the world by 2050. To make this happen, we must take bold steps together ....
A two-step approach is needed to reduce CO₂ emissions by 2030 by 50, if not 55%.”

-President Ursula von der Leyen

1 000 000 000 €
Housing renovation plan will be ‘flagship’ of European Green Deal

By Frédéric Simon | EURACTIV.com

New market players?

Elon Musk hypes up Tesla smart home HVAC, hints at Cybertruck feature

Fred Lambert - Apr. 22nd 2020 3:07 pm ET  @FredricLambert
Main areas influencing massive deployment of heatpumping technologies

- “Heat pumps work in renovation”
- “Heat pumps work in industry” (and district heating)
- Heat pumps stabilise smart, high-RES electric grids

+ COVID-19
connection of recovery and EU Green Deal

- Support schemes to trigger short term demand
- Reform of energy prices to create continuity
Move past the glass ceiling

- Energy/price ratio
- Energy taxation
- No CO$_2$-price signal
- Fossil fuel subsidies
- “We can’t electrify everything” argument
  (+ debated role of H2 / eMethane)
Question to the industry: Are we prepared for growth?
A 100% renewable society is possible – by 2050

http://hpc2.stage3.de/
The European Heat Pump Association AISBL

- EHPA is a Brussels based industry association which aims at promoting awareness and proper deployment of heat pump technology in the European market place for residential, commercial and industrial applications. EHPA provides technical and economic input to European, national and local authorities in legislative, regulatory and energy efficiency matters. All activities are aimed at overcoming market barriers and dissemination of information in order to speed up market development of heat pumps for heating, cooling and hot water production.

- EHPA coordinates a quality initiative including a Quality label for heat pumps and Certification standards for heat pump installers. The association compiles the annual heat pump statistics and organizes a number of events, among them an annual heat pump conference.

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