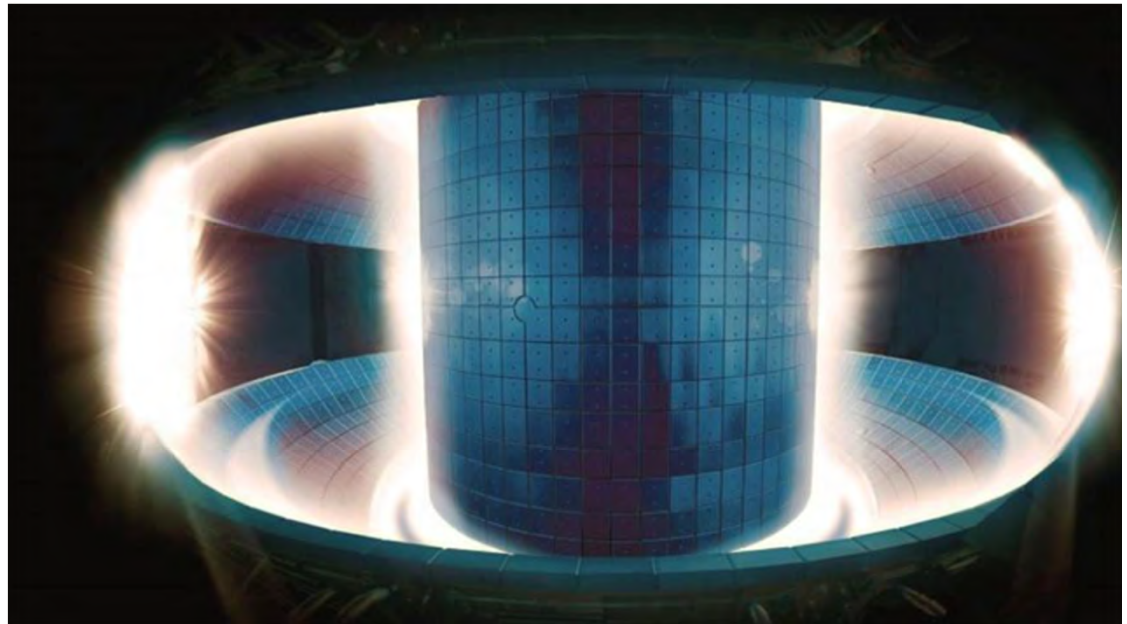


To decarbonise heating and cooling we need a multi billion research program to find a solution that ...

- Uses less energy
- Uses (onsite) renewables
- Emits no CO₂, or particulate matter (PM)
- Helps stabilize the grid (**sector integration bonus**)
- Is manufactured in Europe
- Is easy to install
- For all applications
- Usable across the world



Or we just use, what we have ...



Heat pumps provide heating, cooling and hot water for...

Residential Applications



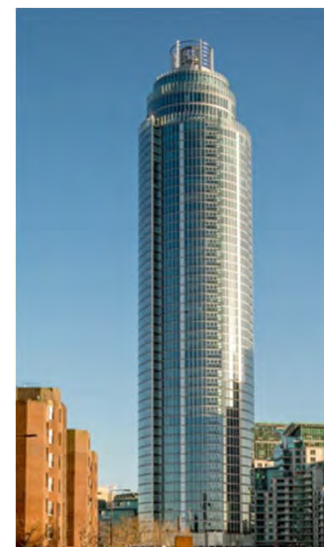
Commercial Applications

Industrial Applications



District Heating

Big buildings



Heat pumps balance a “high-RES-electricity grid“



Heat pump benefits: less air pollution in cities

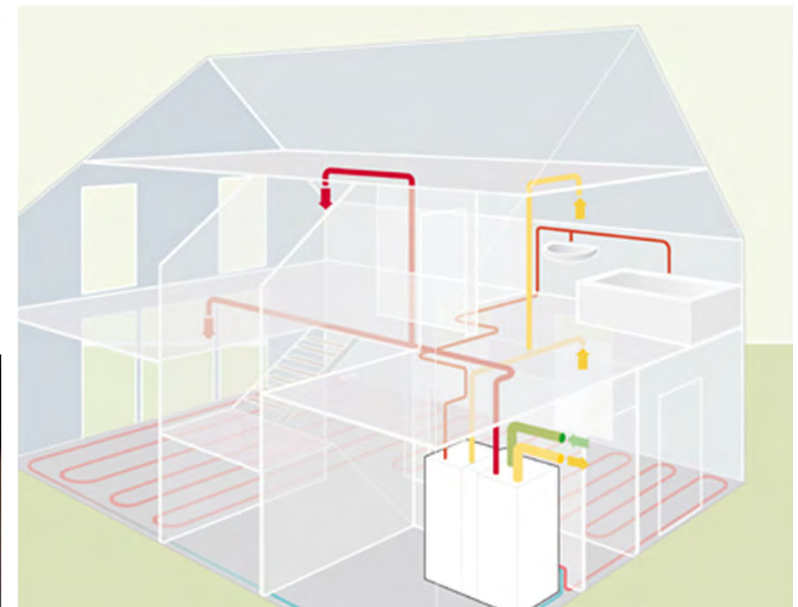
quality

Krakow



Fot. Bogdan
Achimescu

Better indoor air



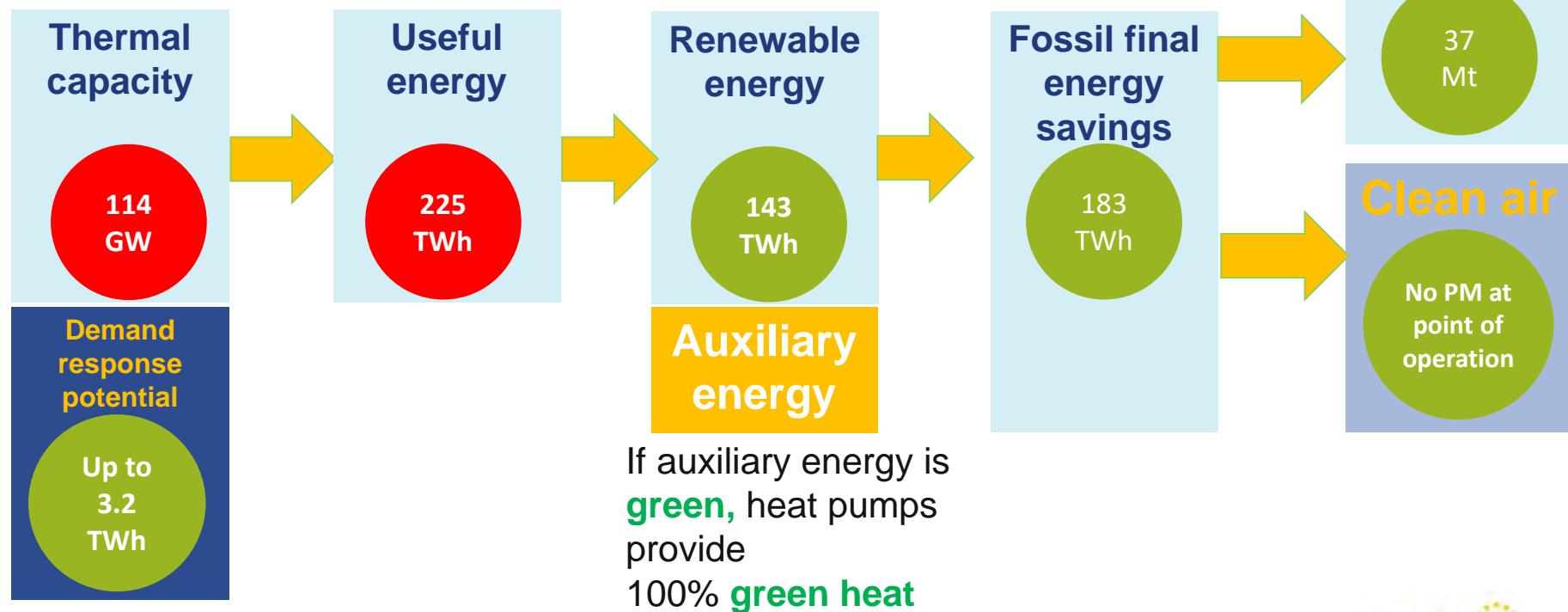
Stacked bar chart showing the number of people in the 'Ground source' category from 2010 to 2019. The chart is divided into three sub-categories: 'Air/water' (dark blue) and 'Air/air' (light blue). The y-axis ranges from 0 to 1.4m. The x-axis shows years from 2010 to 2019. The total number of people in the 'Ground source' category increases over time, with a significant jump in 2019.

Year	Ground source (Total)	Change (%)
2010	~800k	-
2011	~800k	1%
2012	~750k	-7%
2013	~770k	3%
2014	~790k	3%
2015	~880k	12%
2016	~1.0m	12%
2017	~1.1m	11%
2018	~1.25m	14%
2019	~1.4m	14%

*For some definitions of heat pumps the energy source is unknown (e.g. district heating). Those are omitted here.

Heat pump benefits 2019

Based on 13.2 million heat pumps installed





Overcome the glass ceiling

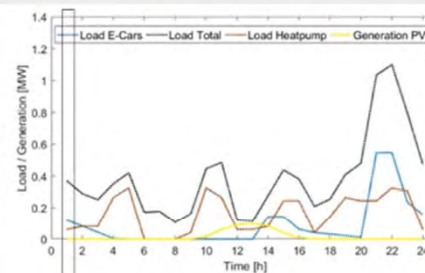
- **Immediate action: install / increase subsidies**
- Modify the energy/price ratio
- Balance energy taxation
- Introduce a CO₂-price signal
- Phase out fossil fuel subsidies
- Prioritize direct and indirect electrification

Will the transmission and distribution grids hold a multiplication of heat pumps by factor x ? and what about e-mobility?

SIMULATION

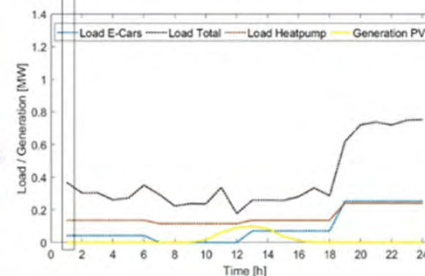
P3

Impact evaluation of charging E-cars, heatpumps, household load and photovoltaic on the distribution grid with and without „smart control“



Evaluation

- Total overloads: 61
- Average load: 389 kW
- Max. load: 1100 kW



Evaluation

- Total overloads: 34
- Average load: 389 kW
- Max. load: 753 kW

A 100% renewable society is possible – by 2050



The European Heat Pump Association aisbl / founded 2000



135

Members

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

22

countries
represented

www.ehpa.org

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.