

the Austrian heat pump market

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arsenal research

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51 % owned public, 49 % owned by industry

Employees: ca. 200 persons

Location: 1210 Vienna,
Giefinggasse 2

Research and Development
in Mobility and Energy



The Business Fields

- Sustainable Energy Systems
- Renewable Energy Technologies
- Monitoring, Energy and Drive Technologies
- Transport Technologies
- Transport Routes Engineering
- Human Centered Mobility Technologies



Sustainable Energy Systems

- Understanding large-volume buildings as energy systems
- System integration of renewable energies
- Demand for innovative components and subsystems
 - Heat Pump Competence Centre
 - Solar cooling

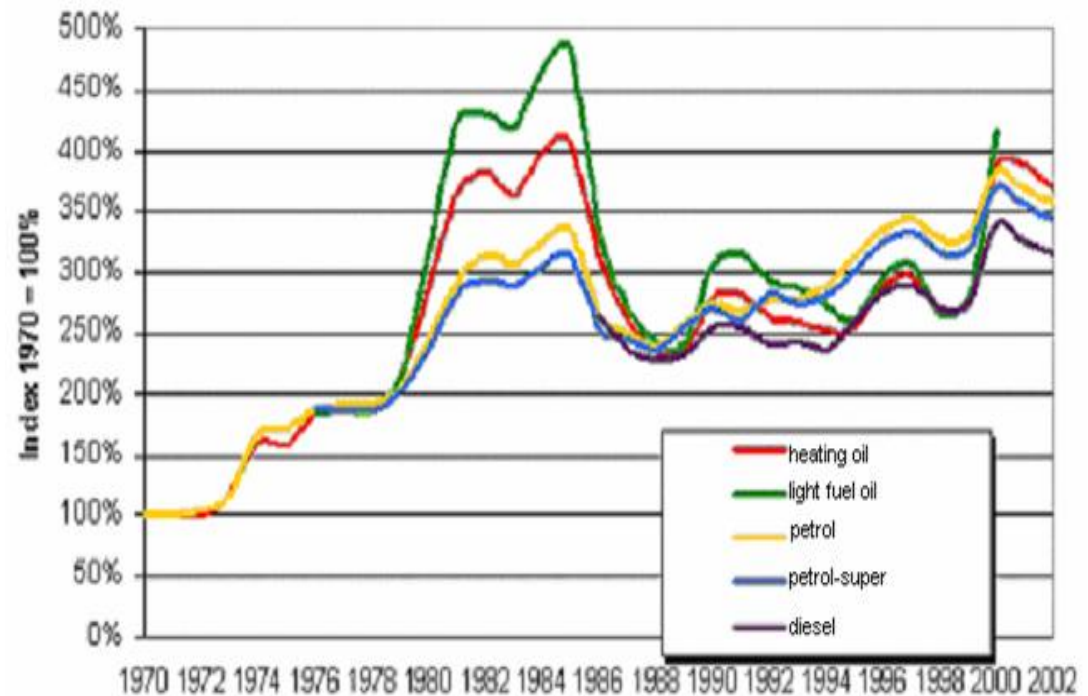


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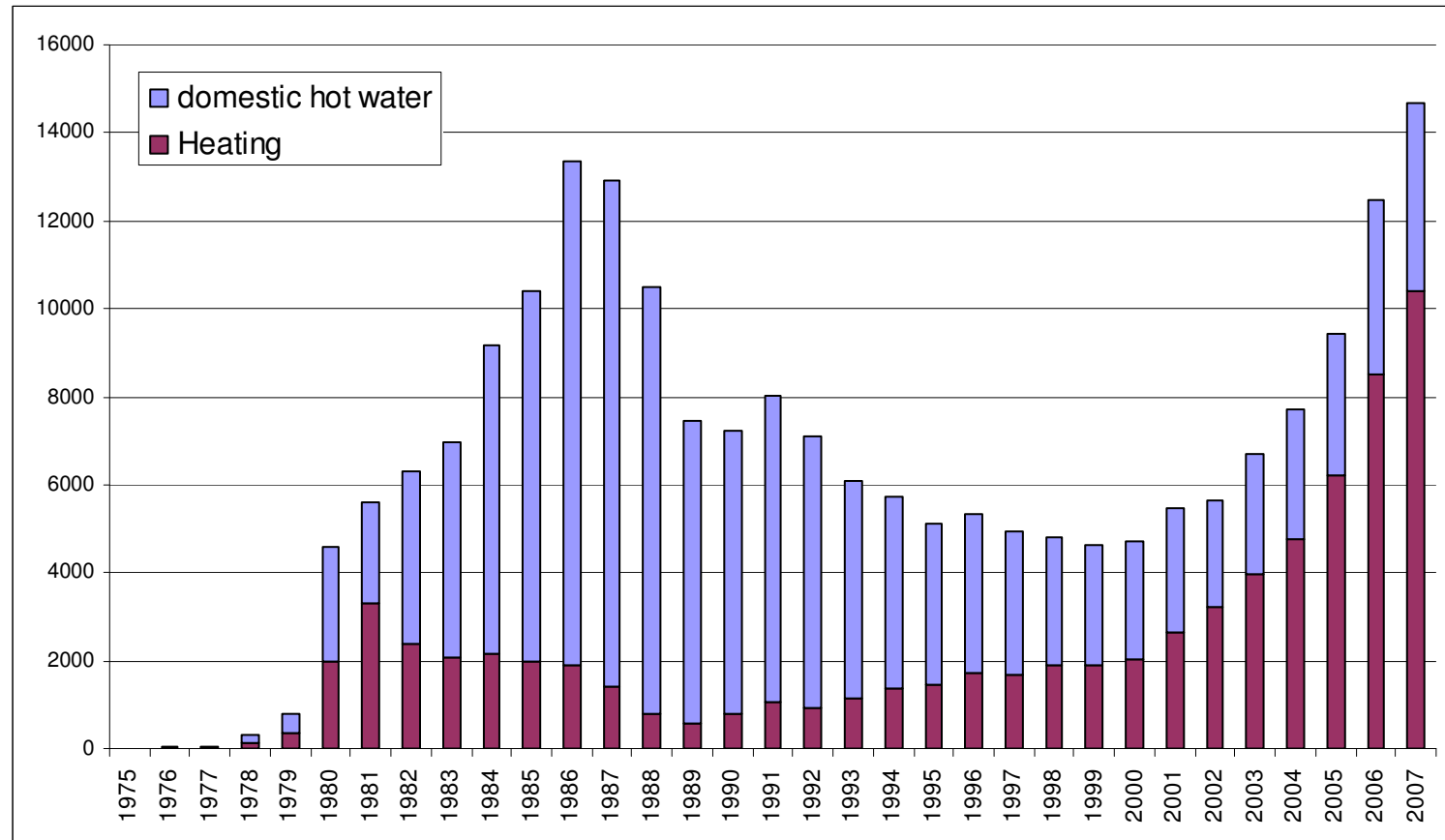
Market development

- **first oil price shock in 1973** showed Austria the dependency on imported energy
- in **1978 the second oil price shock** took place, and this second oil price shock showed a lasting reaction: Nationally and internationally it led to serious considerations how to reduce the dependency on imported oil
- The Austrian heat pump market started after the second oil price shock, **after reaching a peak in installations in the year 1981**



source: AEA 2003

Market development



source: BMVIT 2008

Market development

- majority of **hydronic heat distribution systems** in the 80th had been sized and designed for supply/return temperatures of **90/70°C**
- The main reason for these failing systems were **not the heat pump unit** itself, it was mostly the wrong integration of a heat pump unit into a hydraulic system. Due to the **lack of information and experiences the system integration** of heat pumps were realised in the same way as the integration of oil boilers
- Since the early nineties the heat pump market has a slow, but steadily rising development. The **ground became the main heat source**, and due to better framework (i.e. better insulated houses, **lower supply temperatures** in the heating system, improved compressors and heat exchangers) Seasonal Performance Factors in the range of 4 and more have been achieved relatively soon

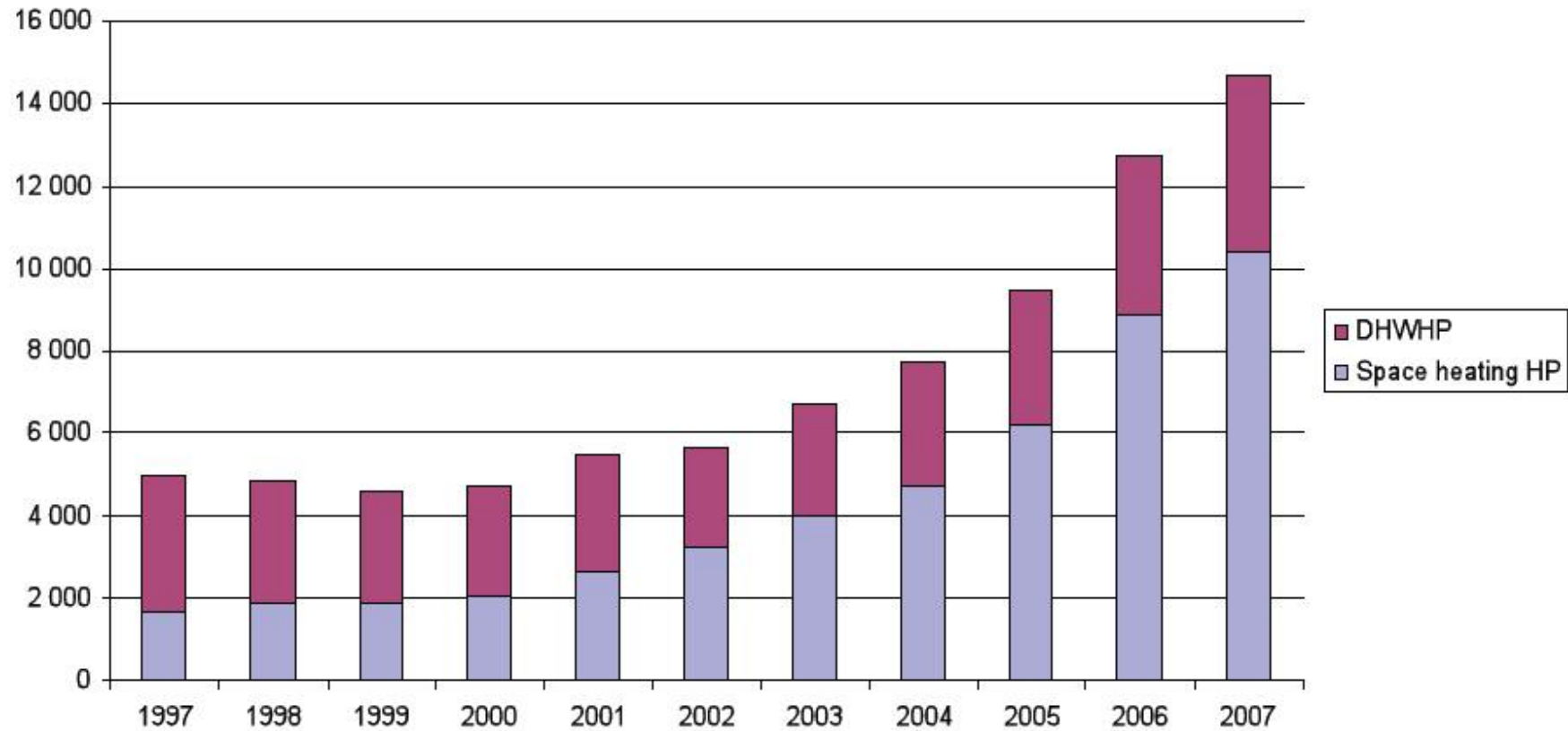
Quality insurance

quality of heat pump heating system is based on the heat pump itself and on the design of the whole system

- heat pump quality label since 1998
- training for the certified heat pump installer
- both label enhance the quality of heat pump systems



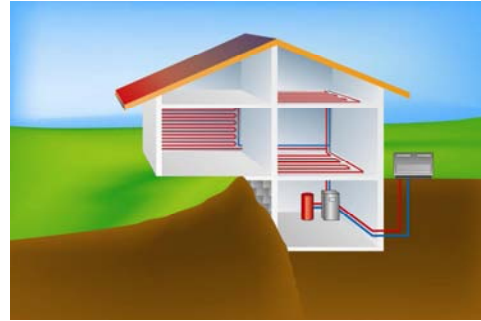
Market development



source: BMVIT 2008

Common systems in Austria

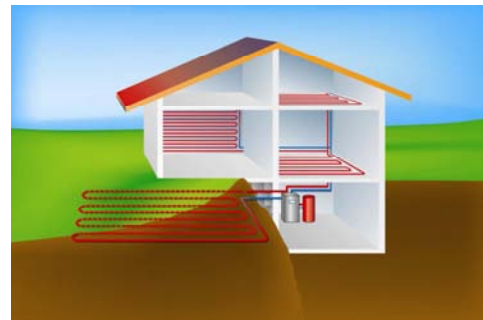
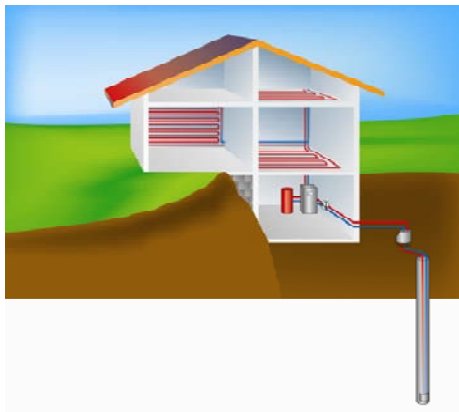
Air



Water

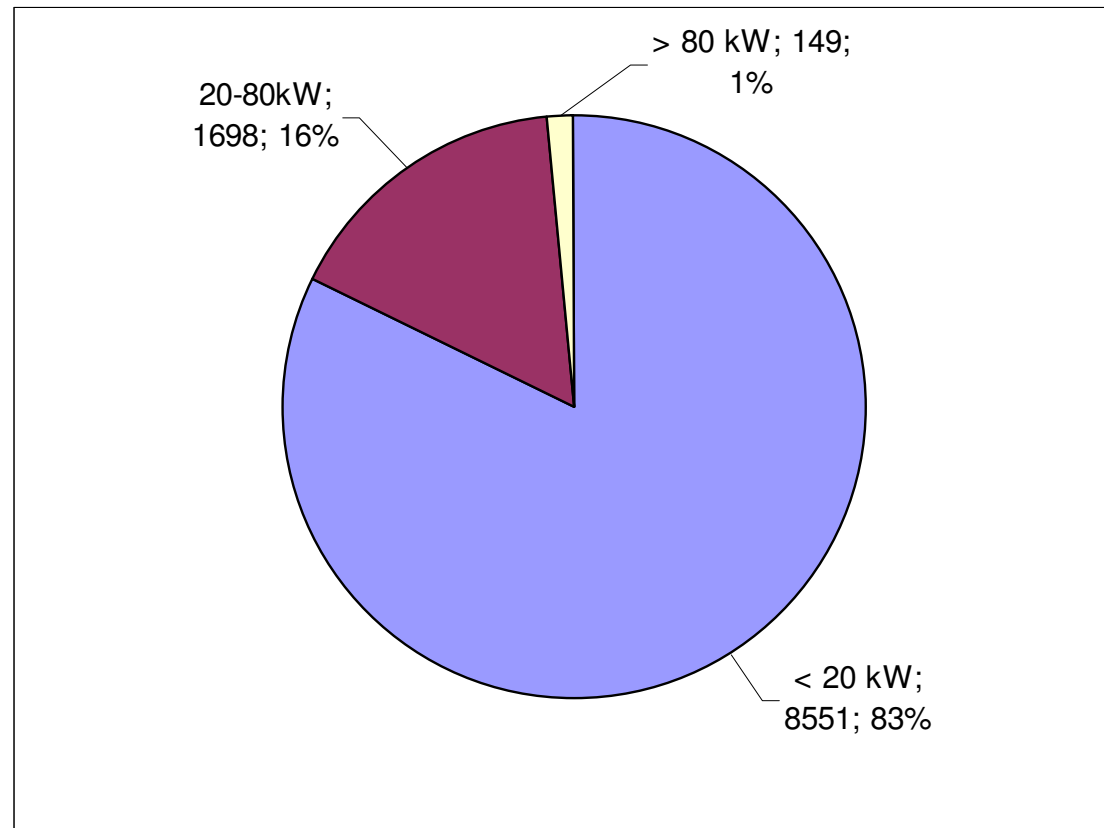


Ground



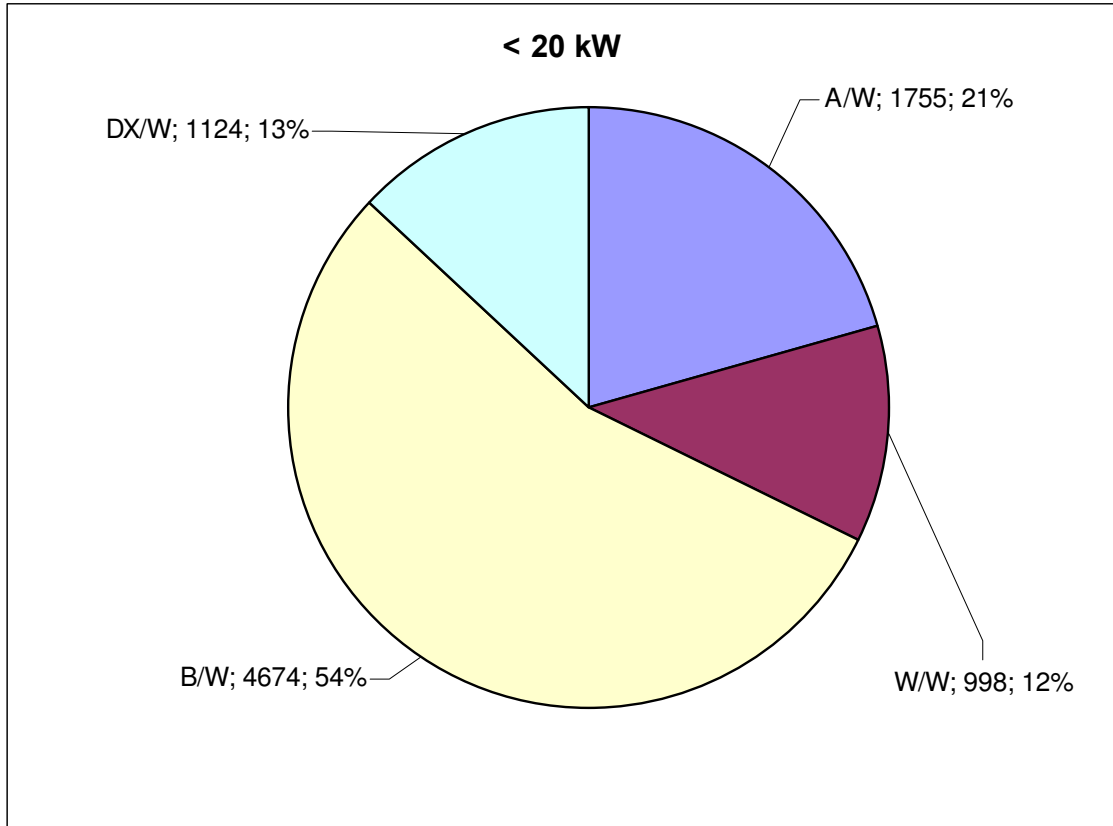
characteristics of the Austrian HP - market

- Market share depending on the heating capacity

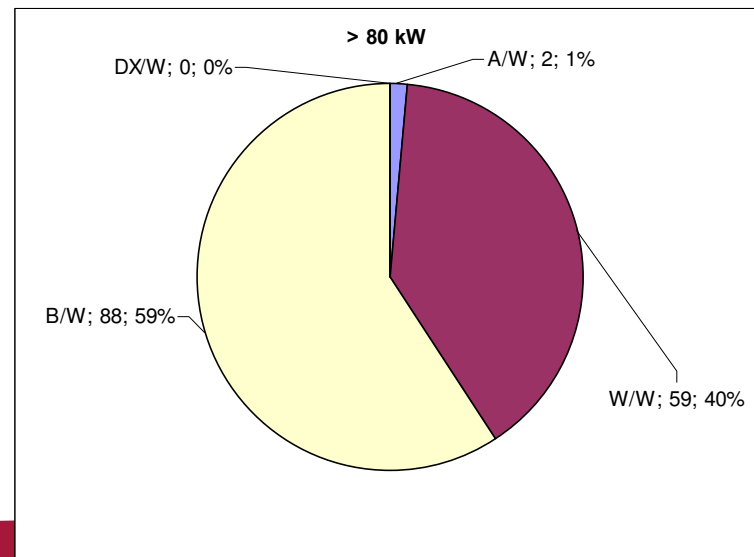
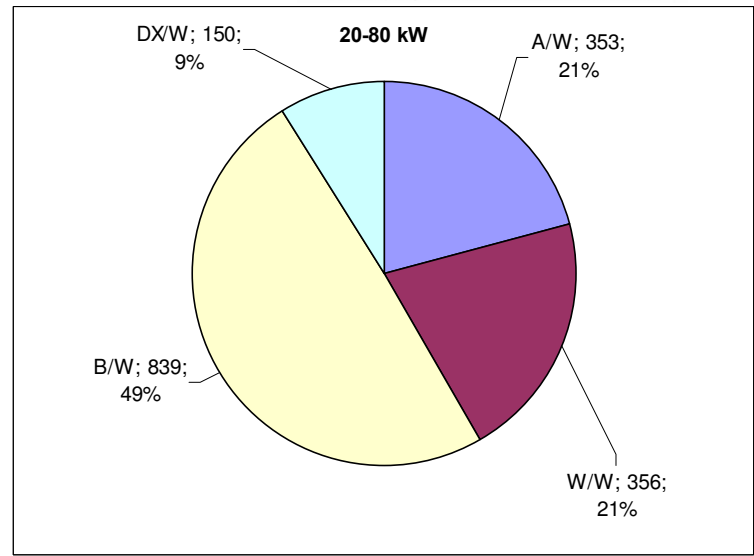


source: BMVIT 2008

characteristics of the Austrian HP - market

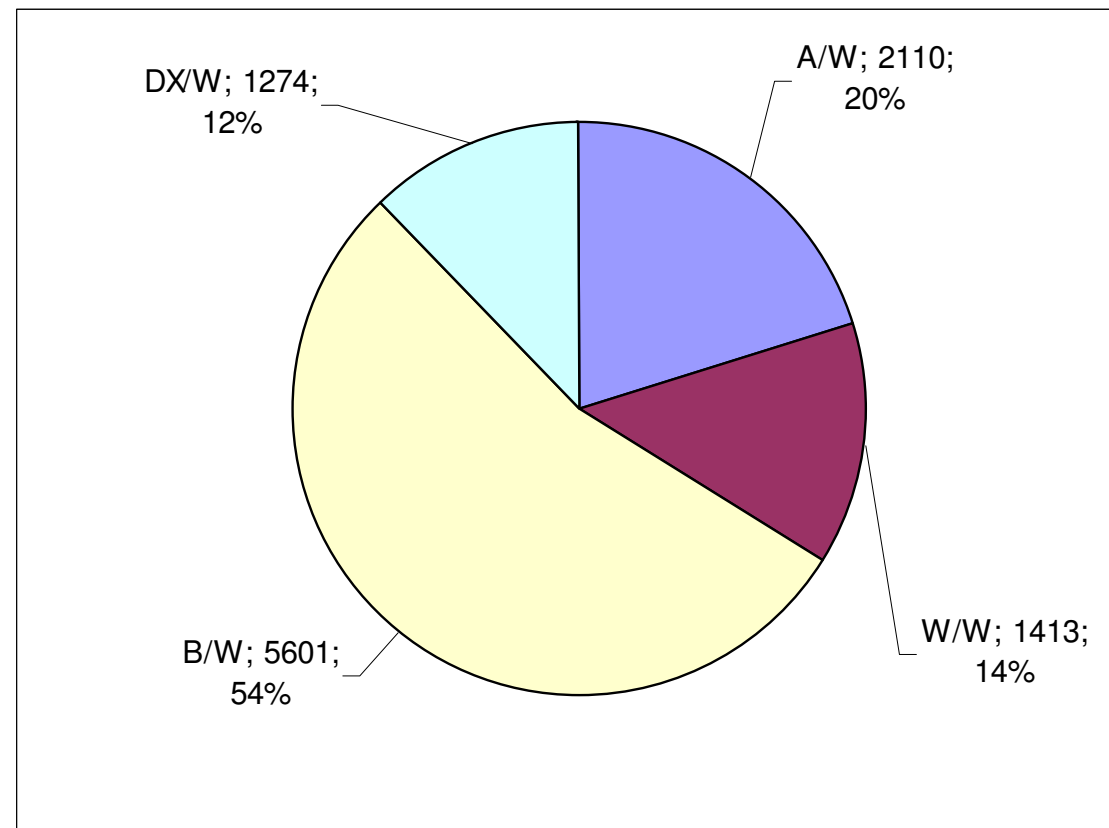


source: BMVIT 2008



characteristics of the Austrian HP - market

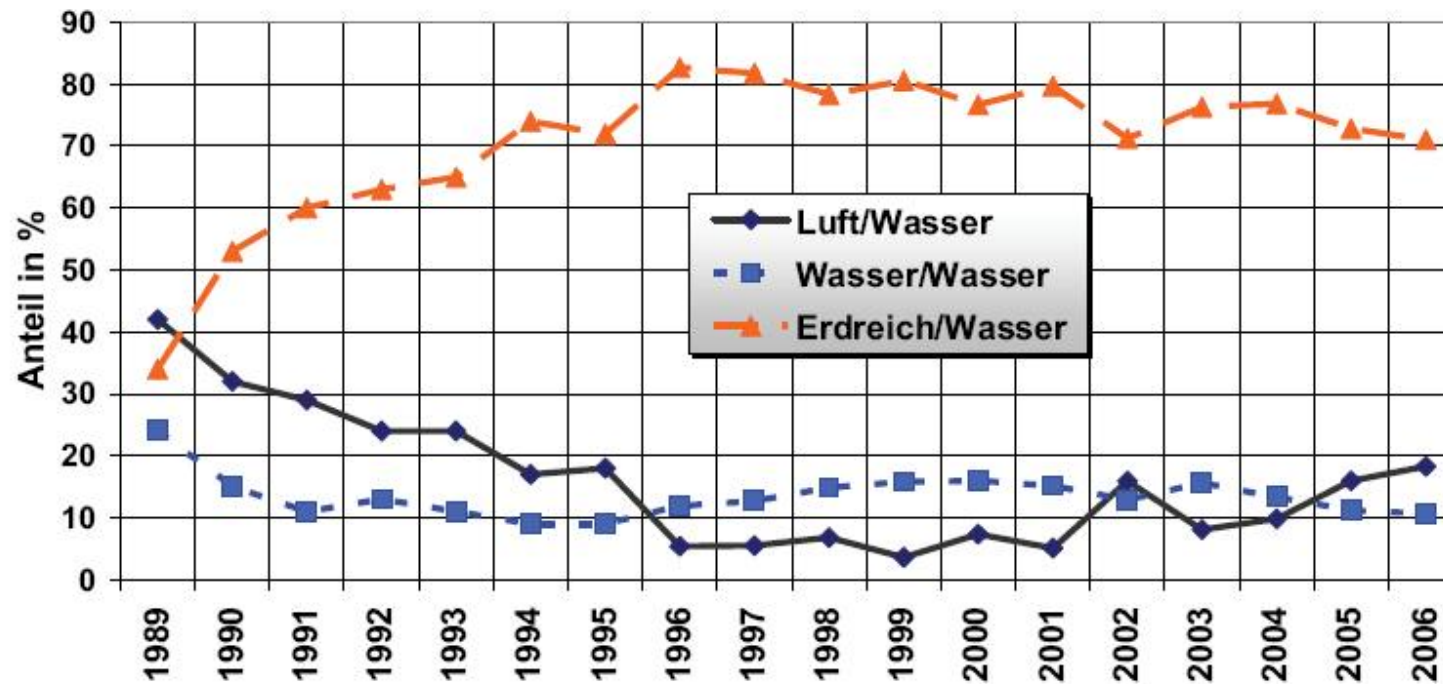
- Market share of the different heat pump systems



source: BMVIT 2008

characteristics of the Austrian HP - market

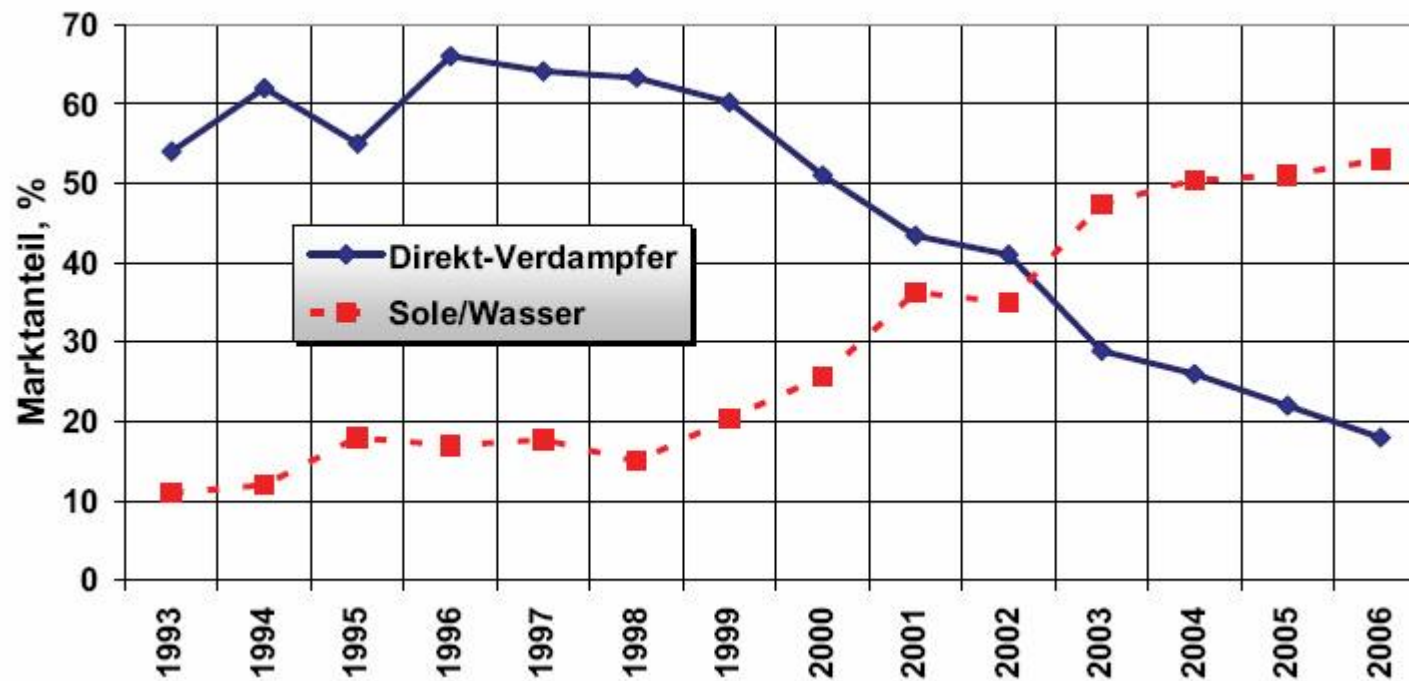
- Heat source



source: Faninger 2006

characteristics of the Austrian HP - market

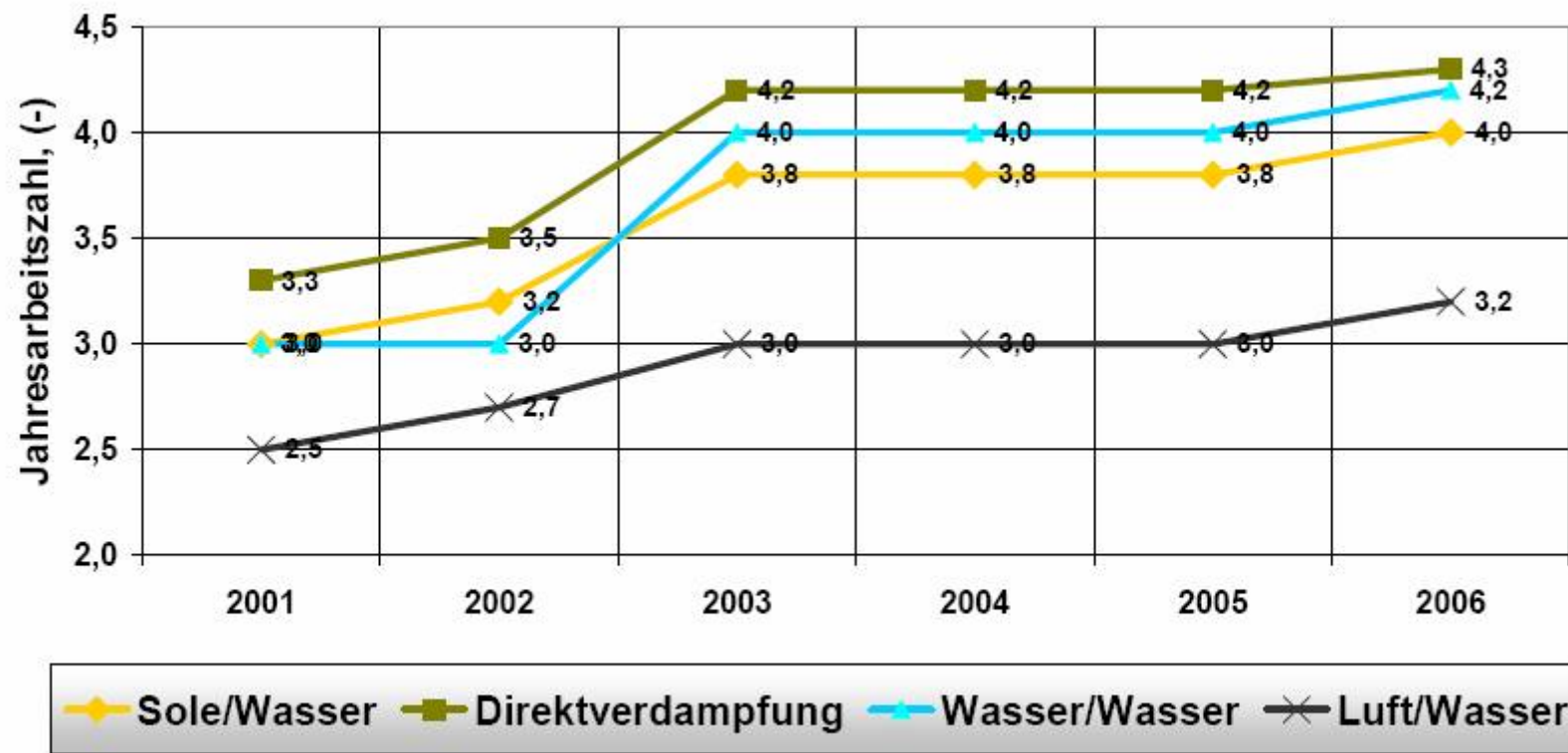
- Heat source



source: Faninger 2006

characteristics of the Austrian HP - market

- SPF



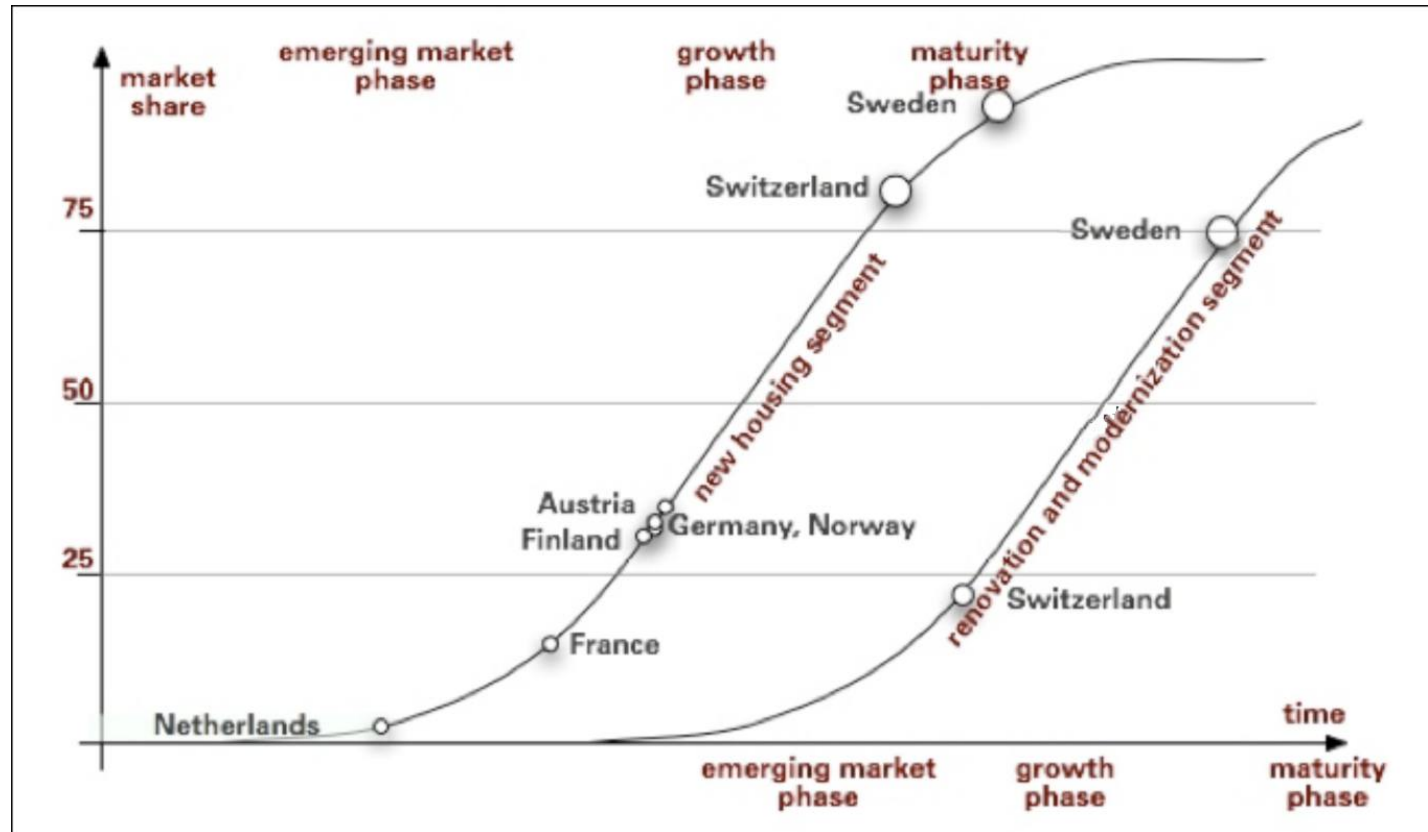
source: Faninger 2006

Subsidies for heat pumps

Subsidies for the installation of heat pumps

- In Austria there are **different subsidies for each of the nine federal states**. They are generally paid whenever heat pumps are installed in new and renovated houses.
- Public funding for the renovation segment is higher than for the segment of new houses and in some states no support is given for heat pumps in new buildings at all.
- **Typically a maximum amount is defined as a fixed amount**, a percentage of the total investment, or based on the heated floor area.
- Requirements are set **with regard to the efficiency of the heat pumps**, usually measured as its coefficient of performance. Most often, requirements vary depending on the heat source used.

characteristics of the Austrian HP - market



source: EHPA 2008

further development

- development of small compact units (3 – 5 kW) for heating, cooling, DHW, and ventilation
- improvement of controlling the systems
 - electronic expansion valve
 - frequency controlled compressors
- using high efficiency circulating pumps
- development of high efficient heat pumps for the retrofitting market (compressor technology, refrigerant, absorption heat pumps,...)
- combination of solar thermal systems with heat pump systems

Thank you for your attention !!!

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