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HEAT PUMP TECHNOLOGIES AND CURRENT DEVELOPMENTS

ISKID Heat Pump Committee

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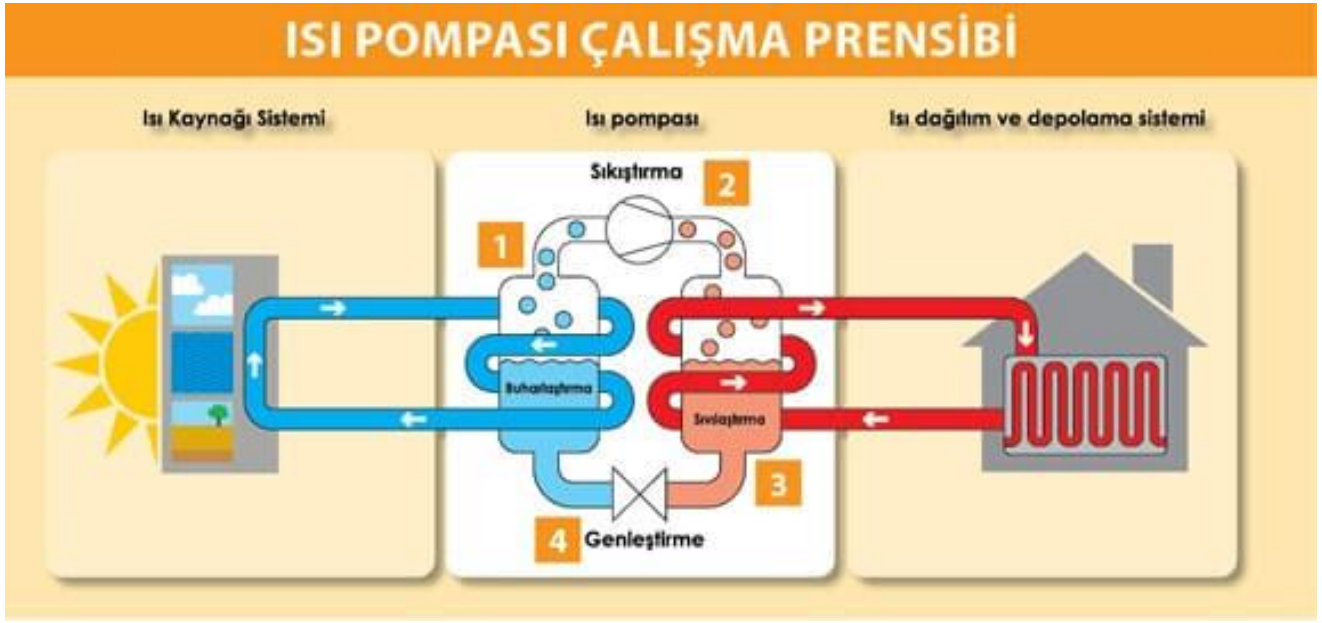
ISKID Heat Pump Committee

Committee activities,

- Monthly Committee Meetings
- Informative Webinars
- Turkey Heat Pumps References Booklet
- Establishment of Relevant Regulations, Communiqués and Standards and Giving Opinion

WHAT IS A HEAT PUMP?



The heat pump can transfer the heat energy or waste heat from air, water, soil resources to the environment to be heated with the cooling cycle, by means of a heat carrier medium, for space, process and domestic hot water heating. It can also be equipped with electrical resistance or fossil fuel heaters as an additional support heater. It can also perform the function of cooling the space by reversing the cooling cycle.

CLASSIFICATION OF HEAT PUMPS

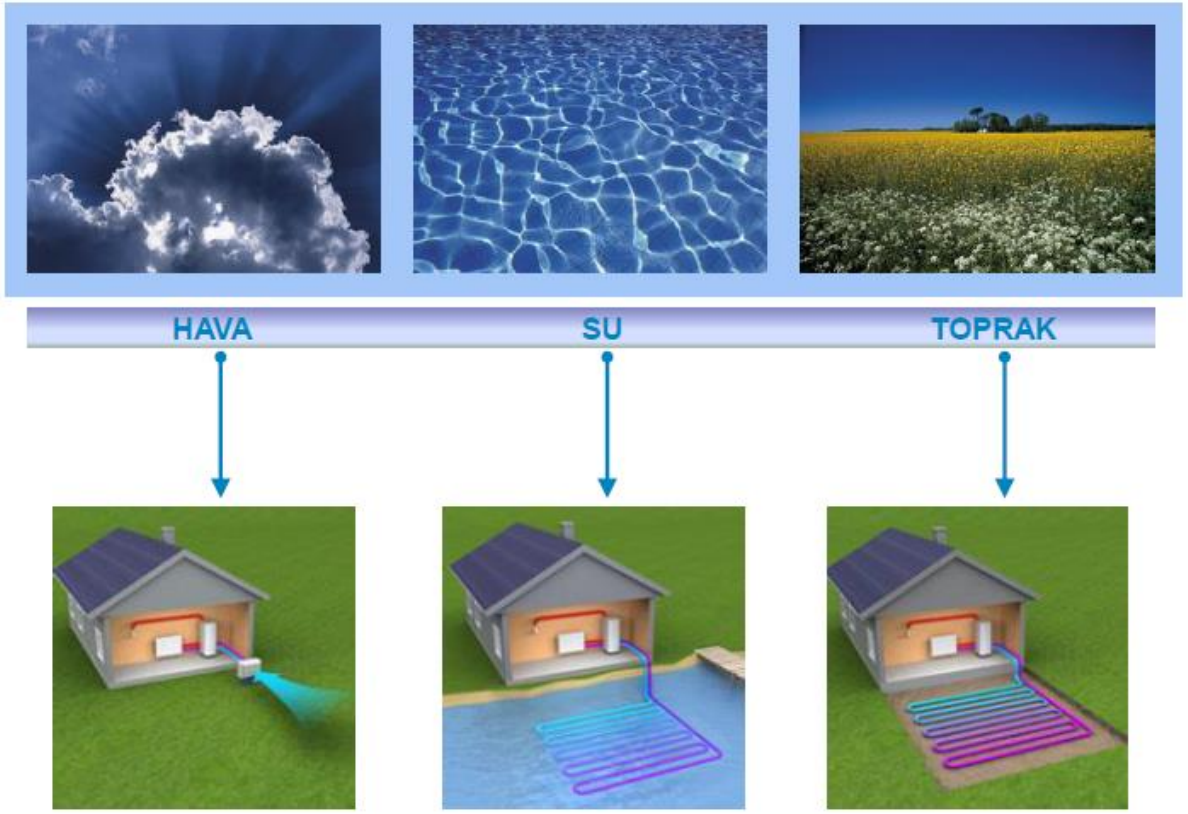
Functions:

-Space Heating –Space Cooling –Domestic Hot Water –Pool Heating

Air Source Heat Pump

Water Source Heat Pump

Ground Source Heat Pump



Air Source Heat Pump:

- *Devices that draw the natural energy from the air and transfer it to the space with underfloor heating, fan coils or radiators.*

Water Source Heat Pump::

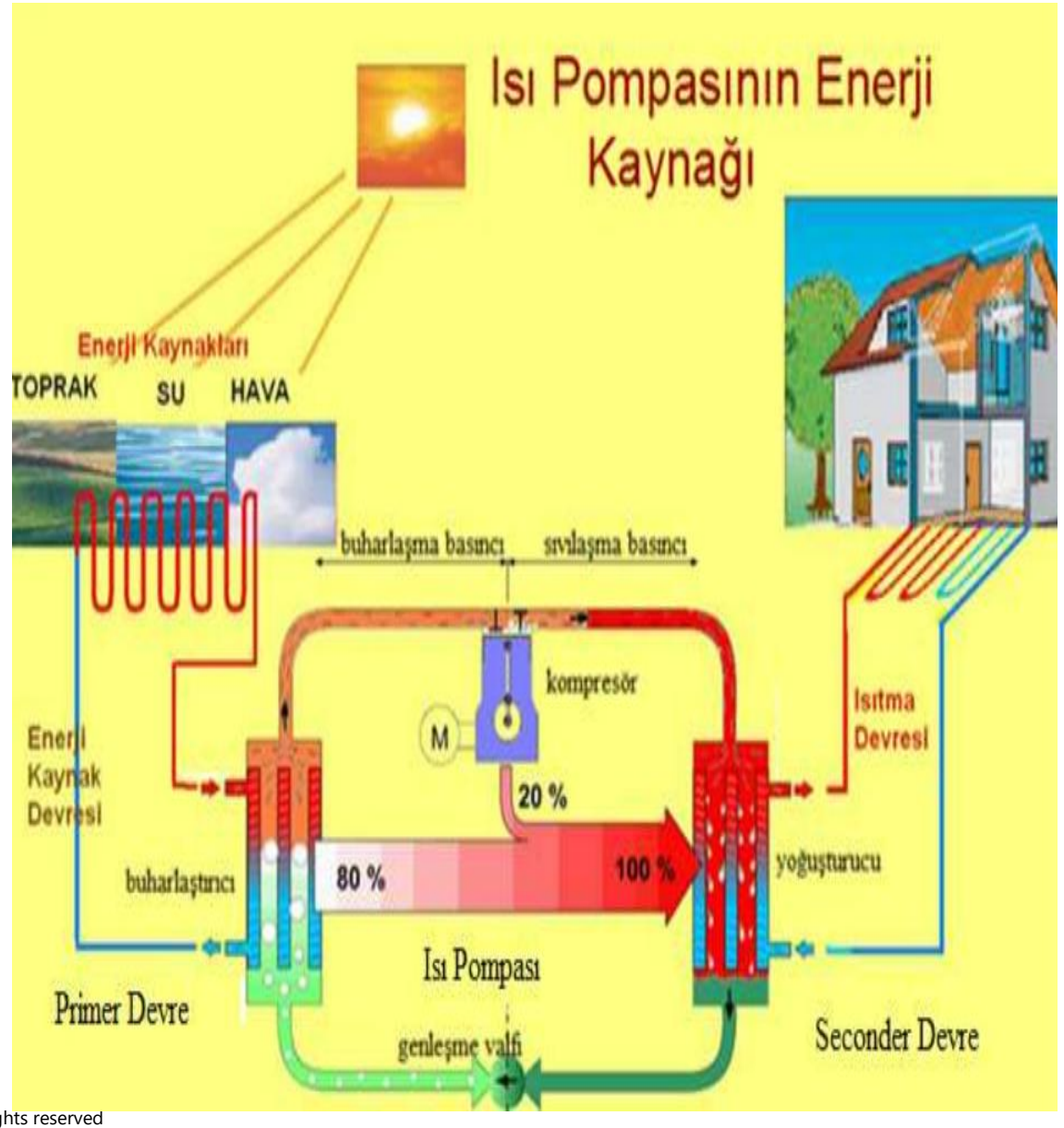
- *Water obtained from wells, lakes, rivers, and city networks is used as a heat source.*

Ground Source Heat Pump:

- *Heat pumps that use the heat drawn from the ground in the evaporator. Heat exchange with the soil is carried out with "ground heat exchangers" buried horizontally or vertically in the soil.*

WHAT ARE THE BENEFITS OF HEAT PUMPS?

- **Energy Efficiency**: With air source heat pumps, 5 units of heating energy can be provided with 1 unit of electrical energy.
- **Economical:** Operating costs are low. In this way, they are profitable investments that pay for themselves in a short time.
- **It is safe:** It does not have risks such as explosion, fire and poisoning.
- **Open to Technological Development.**



- **It is nature friendly:** It does not use fossil fuels. There is only CO2 emission in the power plant where electrical energy is produced.
- **It is aesthetic:** Visual pollution does not occur in buildings.
- **It is comfortable:** It is easy to operate.

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European Heat Pump Market

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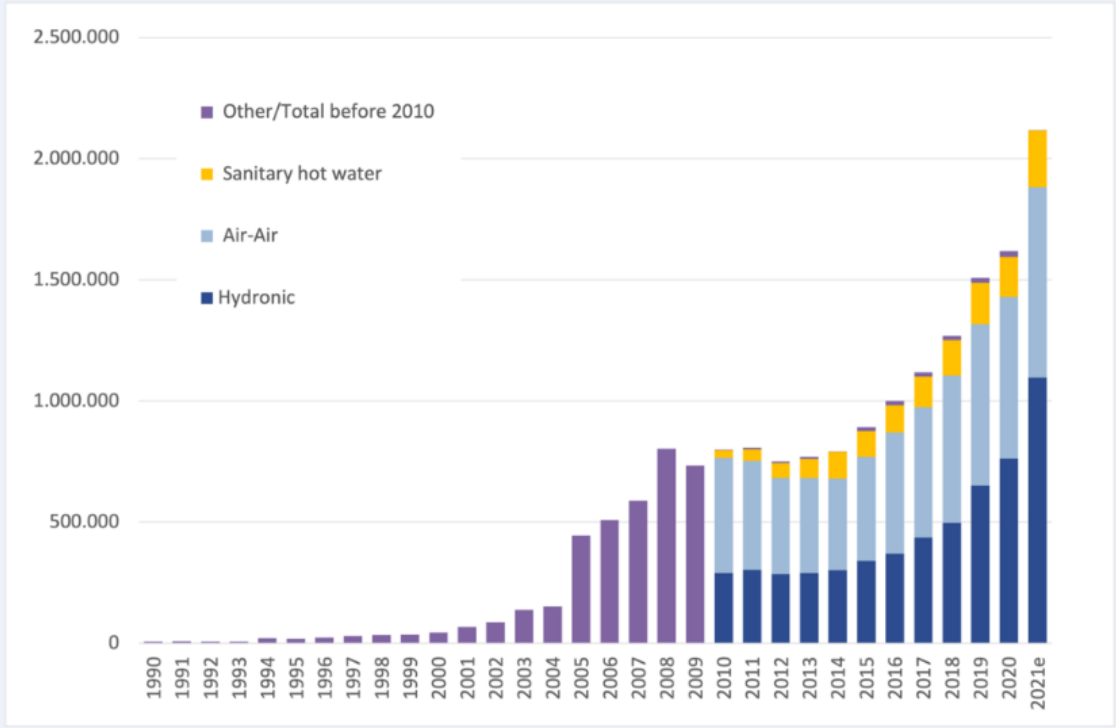
European Heat Pump Market Development



Heat pump sales in Europe in 2021, by technology

- In Europe, heat pump sales grew by 34% during 2021 – an all-time high!
- In Europe, in total, 2.18 million heat pump units were sold in these countries – nearly 560,000 more than in 2020. This brings the total number of installed heat pumps in the EU to 16.98 million, covering around 14% of the heating market.
- According to the EHPA, the share of heat pumps in the heating equipment market in Europe is expected to double over the next three years to over 50%. According to the latest statistics, Poland was one of the fastest growing markets in Europe last year.
- The heat pumps now installed in the EU avoid over 44 million tonnes of CO2
- The five biggest European heat pump markets in terms of units sold (heat pumps and hot water units) in 2021 were France (537,000 units sold, +36%), Italy (382,000 units, +64%), Germany (177,000 units, +26%), Spain (148,000 units, +16%), and Sweden (135,000 units, +19%).

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World Heat Pump Market

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World Heat Pump Market Development

- The global Air-to-Water (ATW) market in 2021 increased by 19.3% year on year, reaching 4.10 million units. JARN estimates that among individual markets, Europe, Japan, and the United States increased by 46.1%, 11.6%, and 8.8% respectively, while China increased by 12.6%.
- In 2021, the Chinese ATW heat pump market showed an upswing, with buoyant growth, and increased by 12.6% year on year to around 2.19 million units 2021. In the first half of 2021, thanks to the full and rapid resumption of work and production following the first wave of the pandemic, demand for ATW heat pumps in China increased substantially compared with the low demand encountered during the same period of 2020.
- Eco Cute units play a central role in Japan. In 2021, the Japanese Eco Cute market was strong. According to the Japan Refrigeration and Air Conditioning Industry Association (JRAIA), the annual record was 585,989 units, which was a marked increase of 11.6% compared with 2020.

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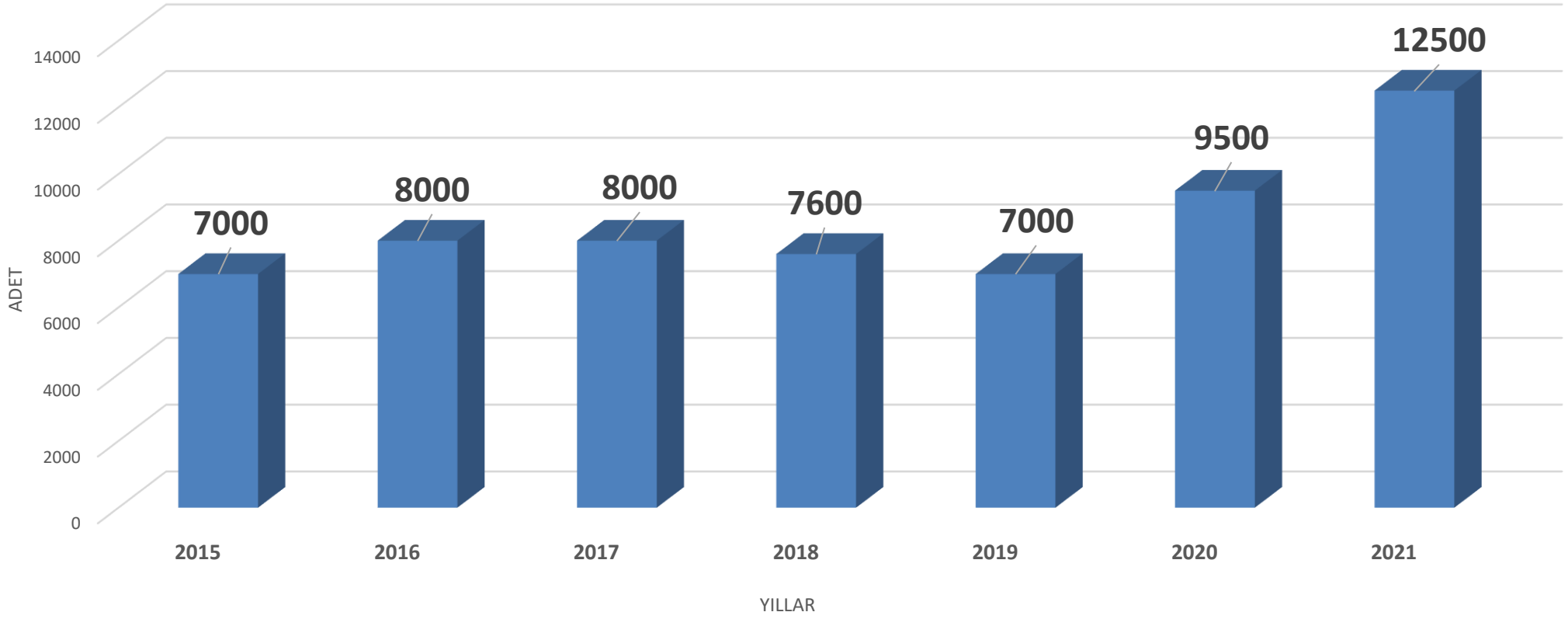
Turkish Heat Pump Market

HEAT PUMP IN TURKISH MARKET

Air-to-water heat pumps



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Current Policies and Regulations in Turkey

- Paris Agreement >>> 2053 net zero target
- The Kigali Amendment >>> Phase Down of HFCs
- F-Gas Regulation revision
- Revision of the EPBD>>> Nearly zero-emission building (NZEB) definition
- Eco Design and Energy Labeling Regulations
- Green Building Regulations and Standarts

RECOMMENDATIONS FOR EXPANDING THE USE OF HEAT PUMPS IN TURKEY

- Increasing and encouraging the use of EU funds on Energy Efficiency for Heat Pumps
- Tax relief support
- Direct incentive (Initial investment cost to end user)
- Low interest loan (For consumer).
- Carrying out various activities to increase awareness in society. (Public advertisement, inclusion in the education curriculum in vocational high schools, etc.)
- Production Incentives

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THANK YOU