From Conventional Energy Supply to On-Site Renewables

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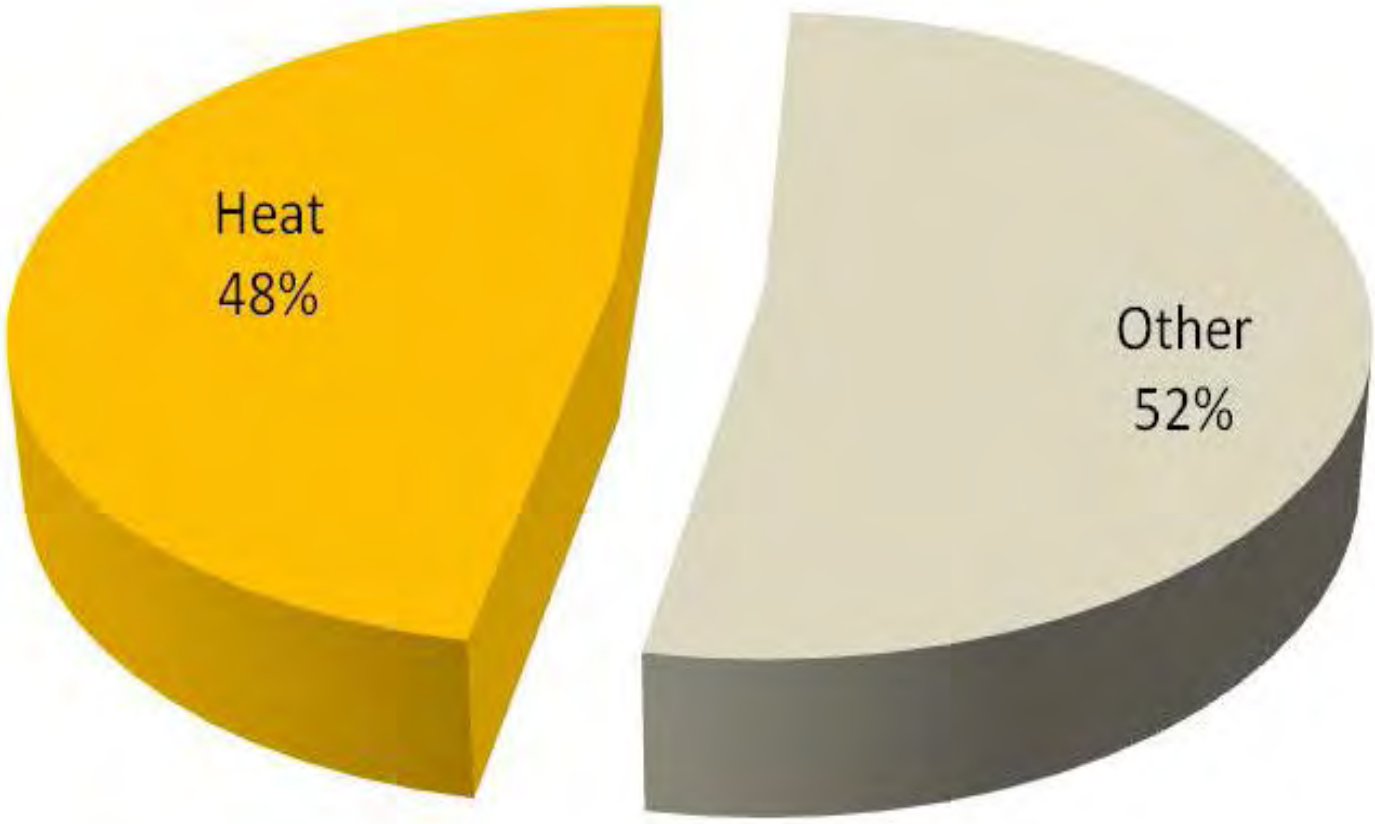
Cooperation with IEA-EUWP via the Building Coordination Group

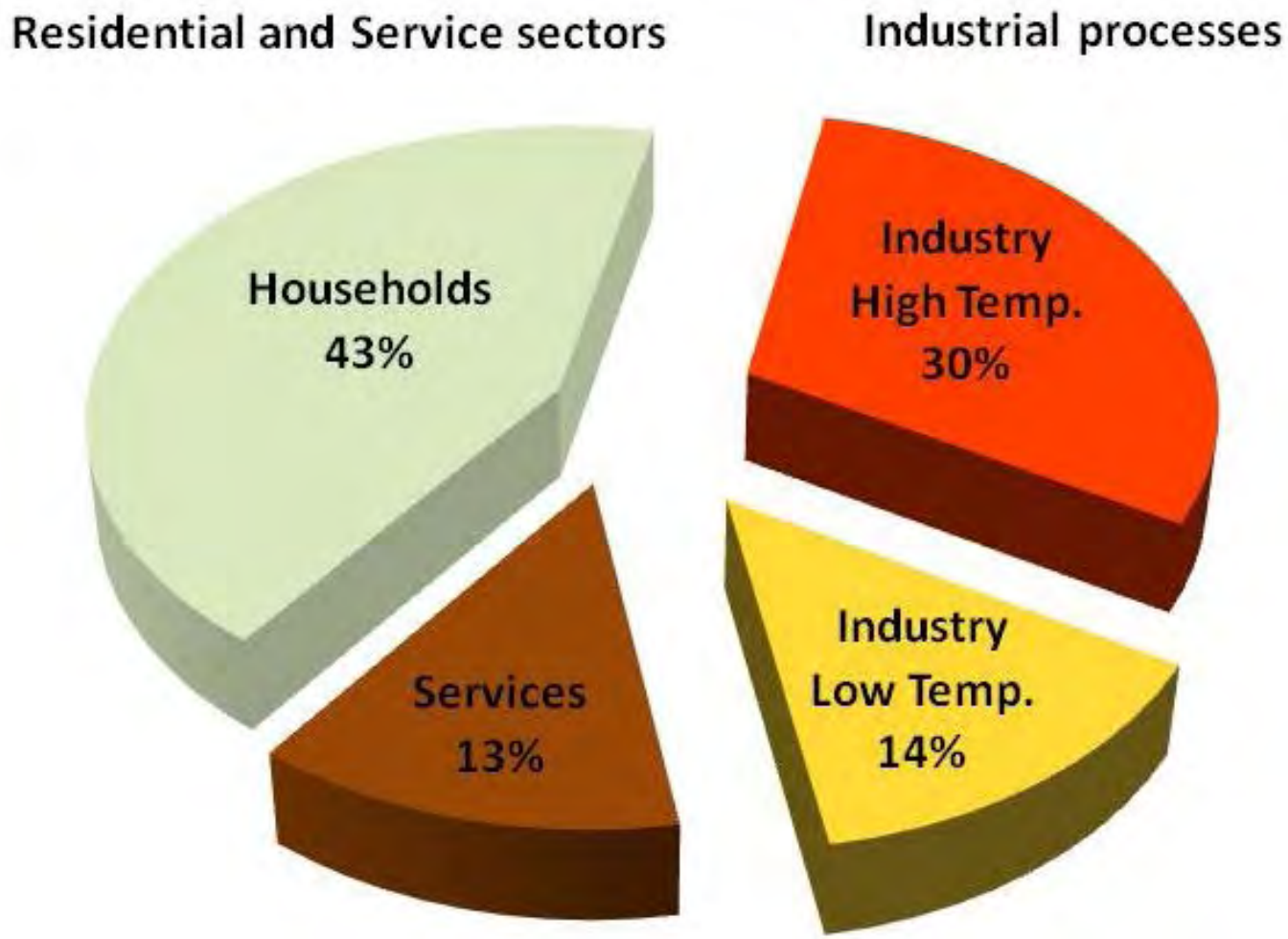
SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

Final Energy *Consumption in the EU*



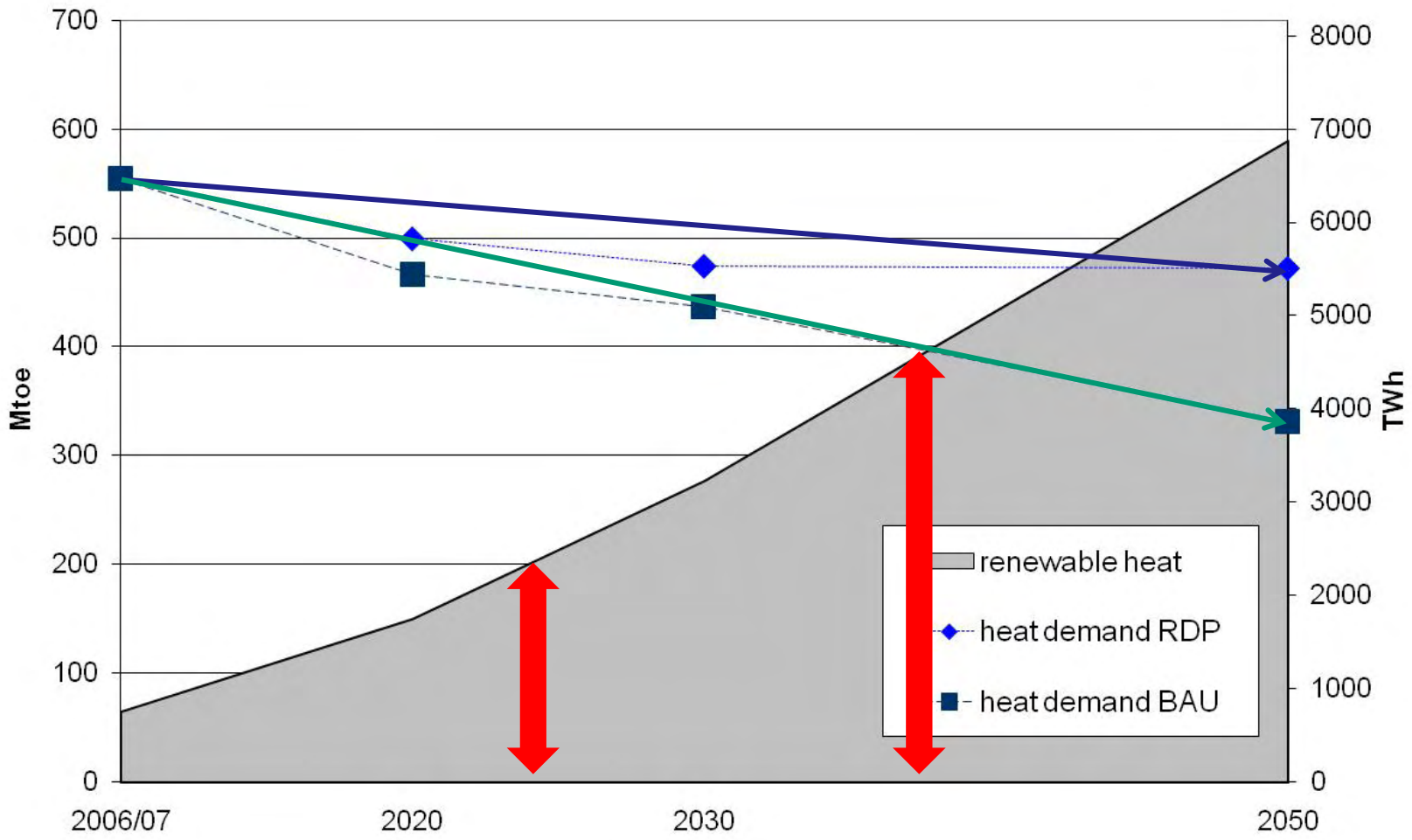
Source: ETP RHC 2010

Distribution of Heat by Use Types in the EU



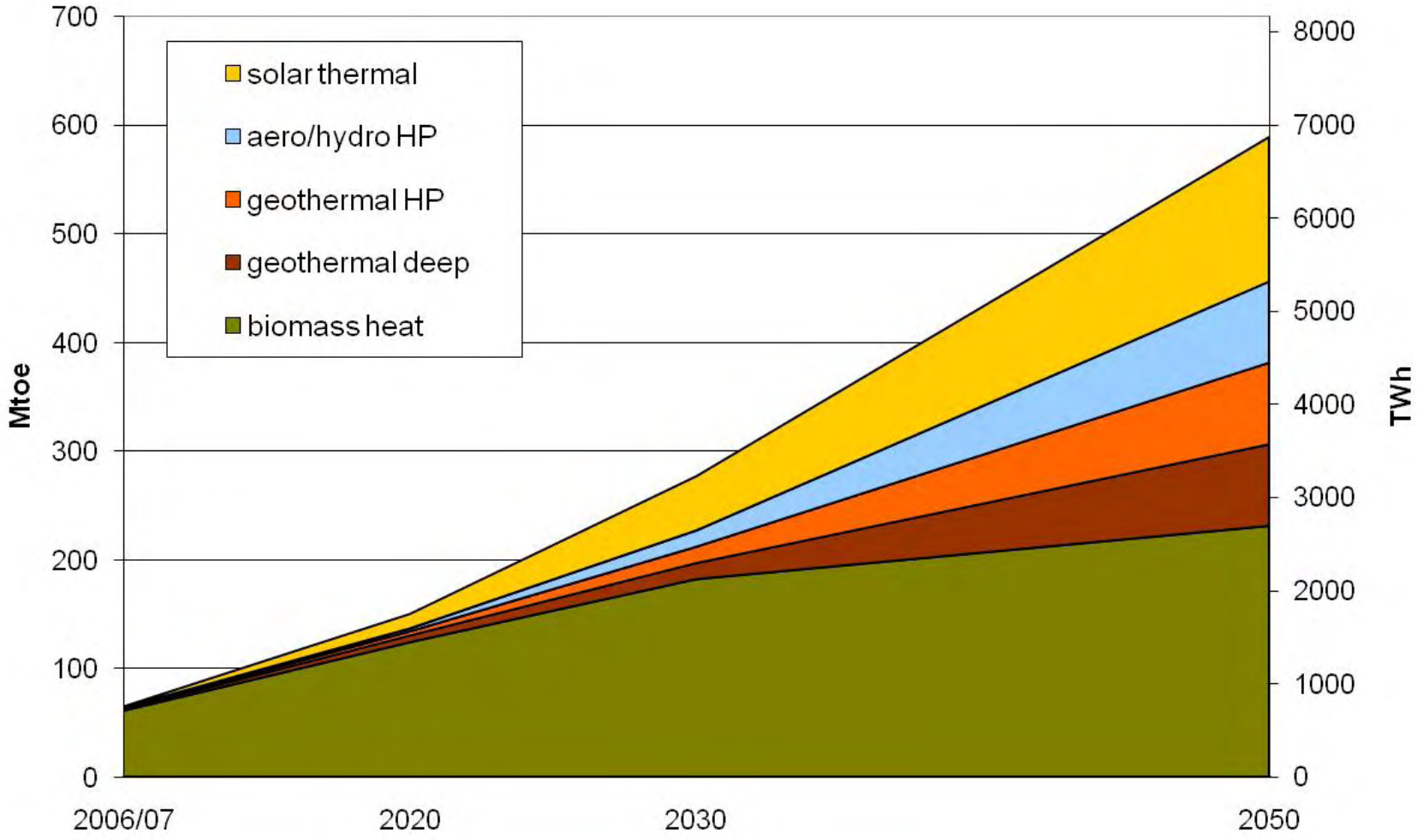
Source: ETP RHC 2010

Heat Supply from Renewable Energy Sources in EU



Source: ETP RHC 2010

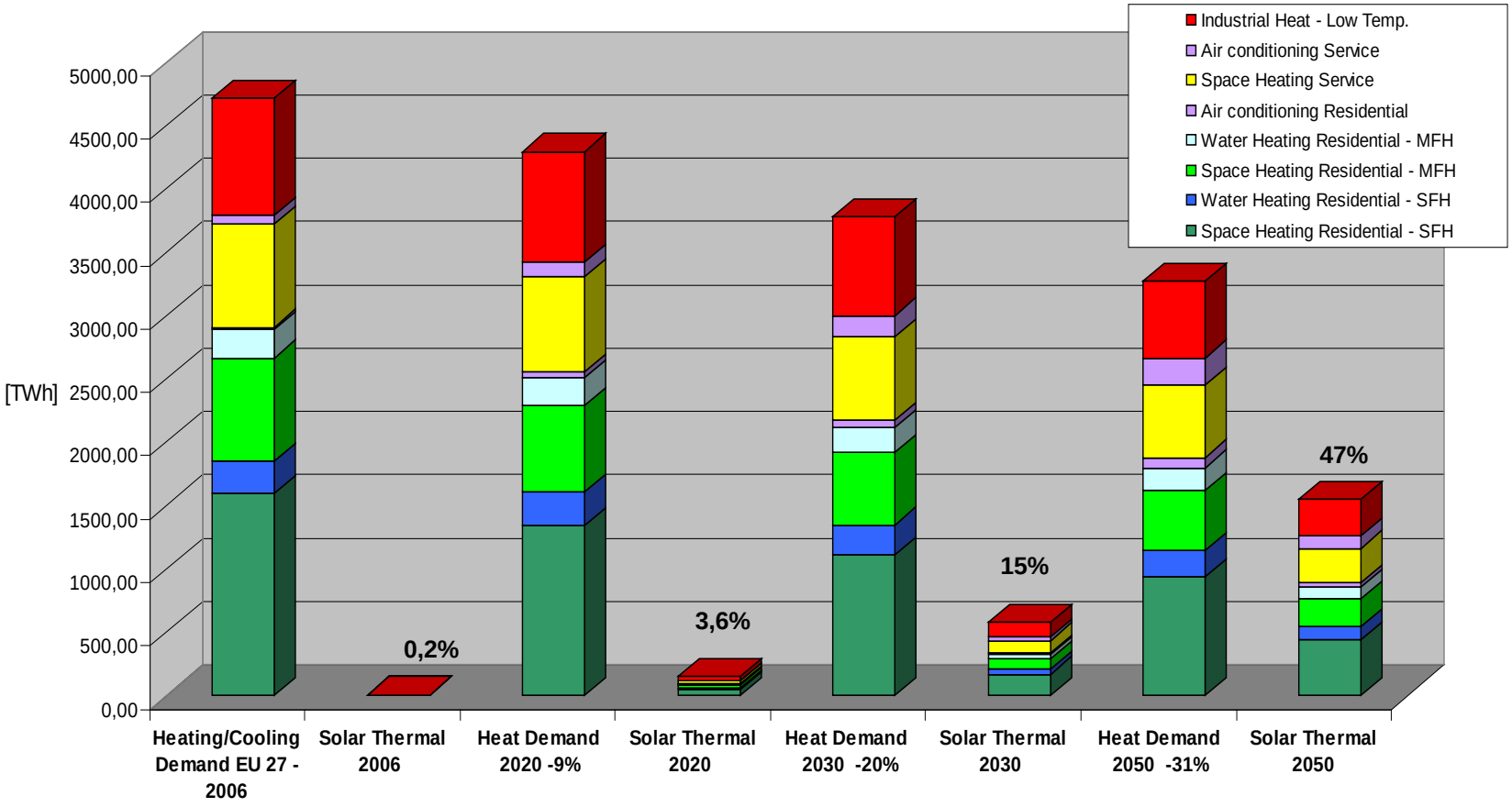
Heat Potential by Renewable Energy Source in EU



Source: ETP RHC 2010

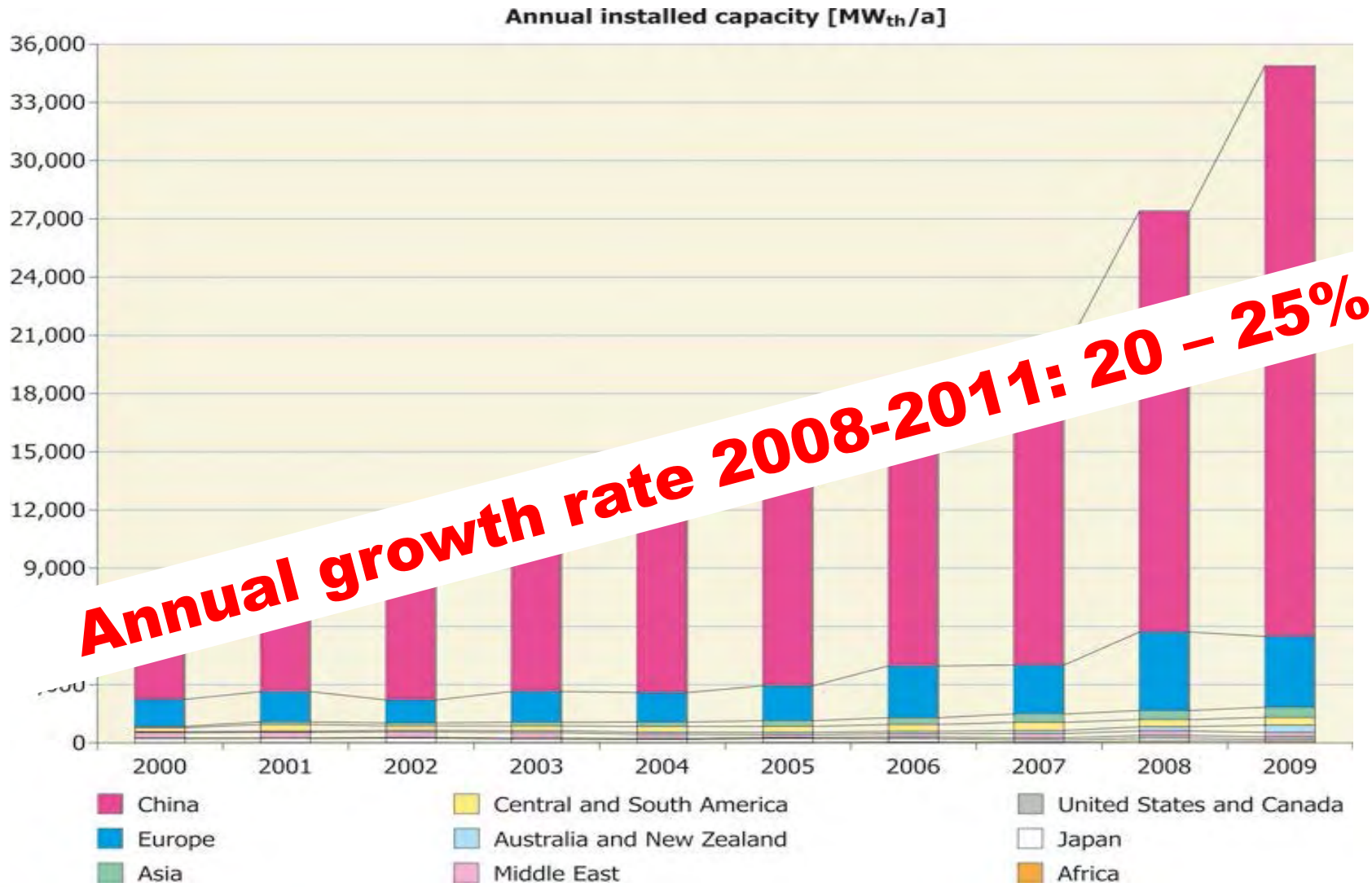
Solar Thermal Potential EU27

Contribution of Solar Thermal to the EU 27
Heating and Cooling Demand by Sector



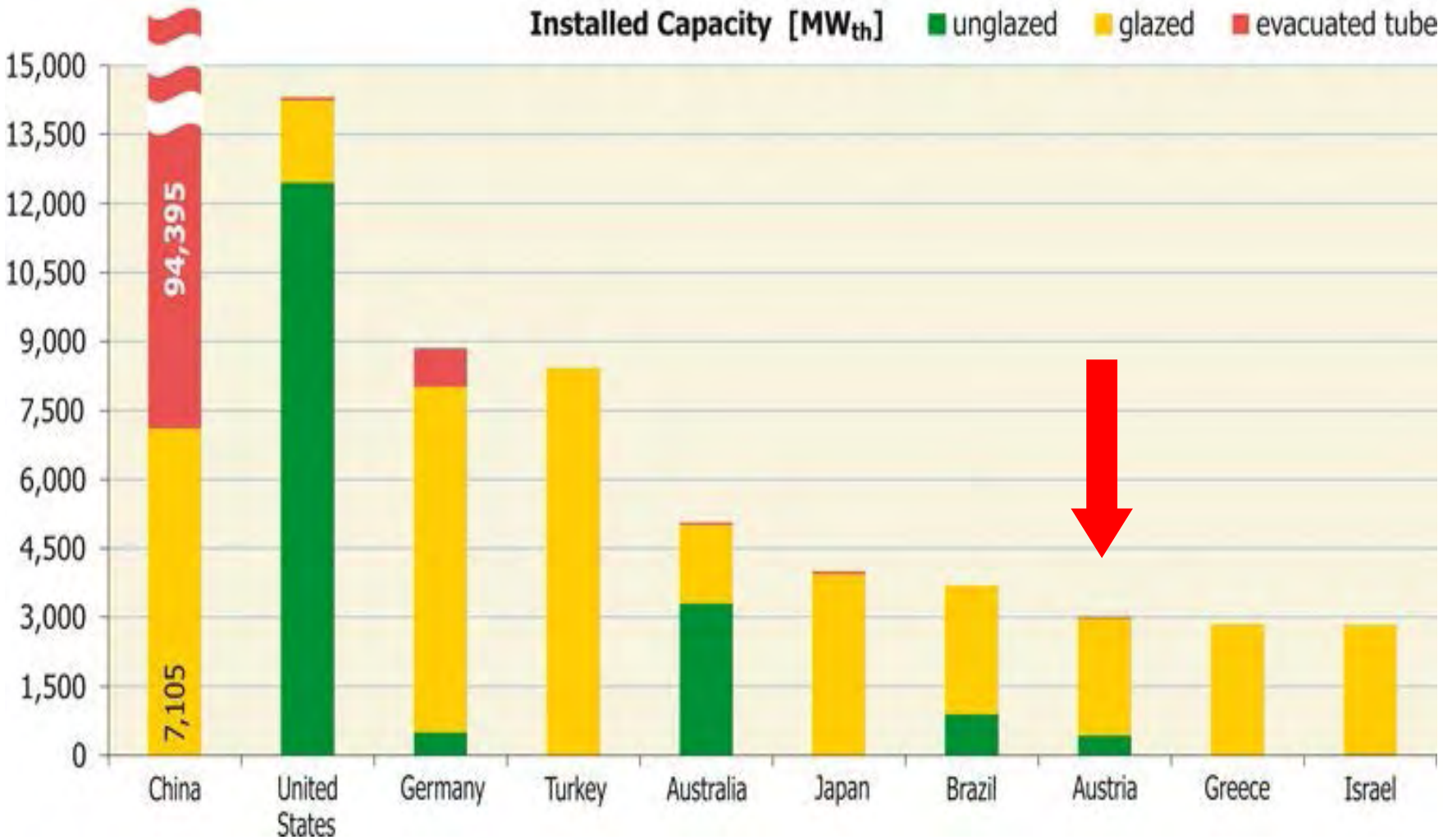
Market Development 2000 – 2009

Flat-plate and Evacuated Tube Collectors



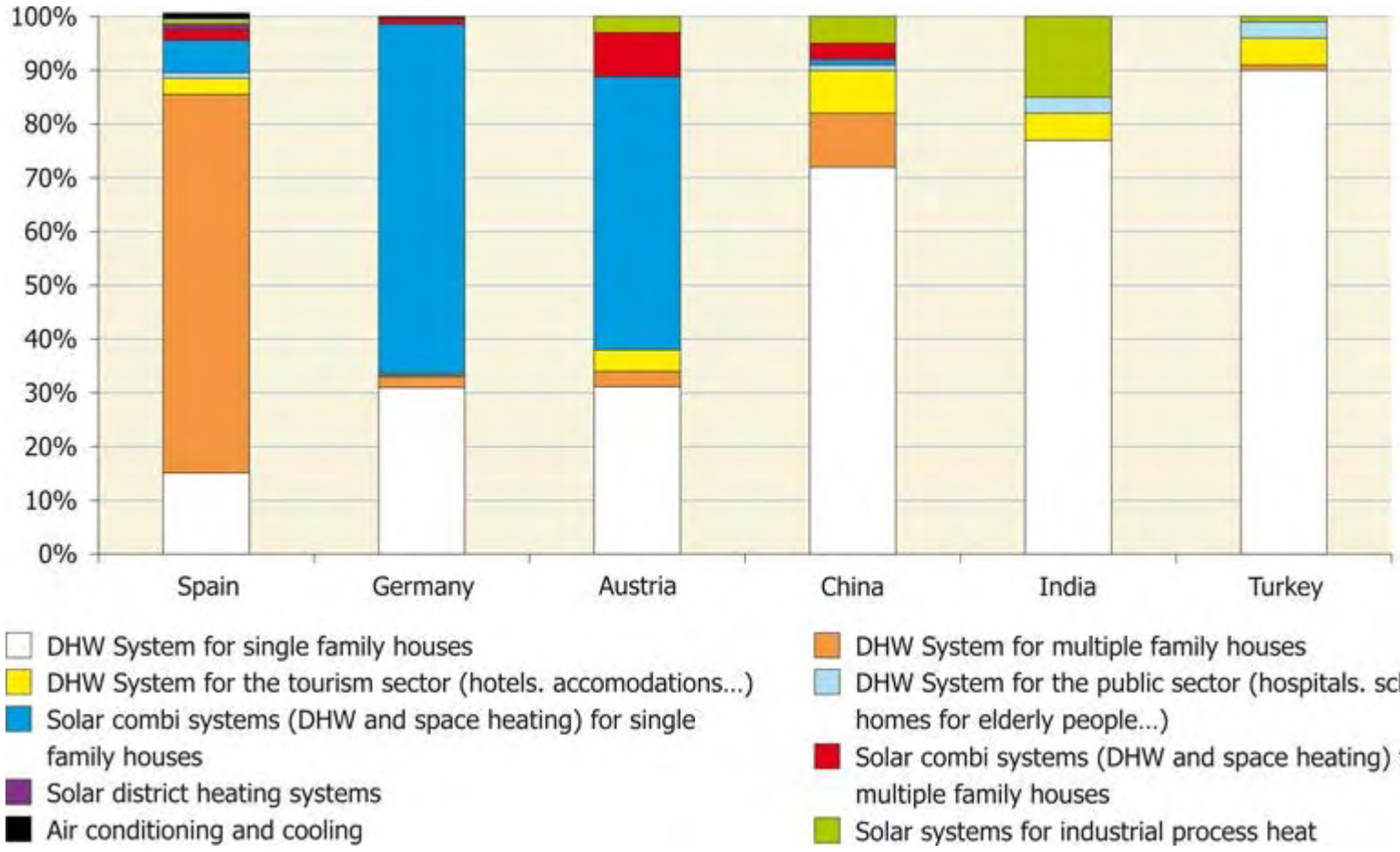
Annual growth rate 2008-2011: 20 – 25%

Solar Heat Worldwide



Distribution by Application

World's Top 6 Countries / Related to newly installed capacity



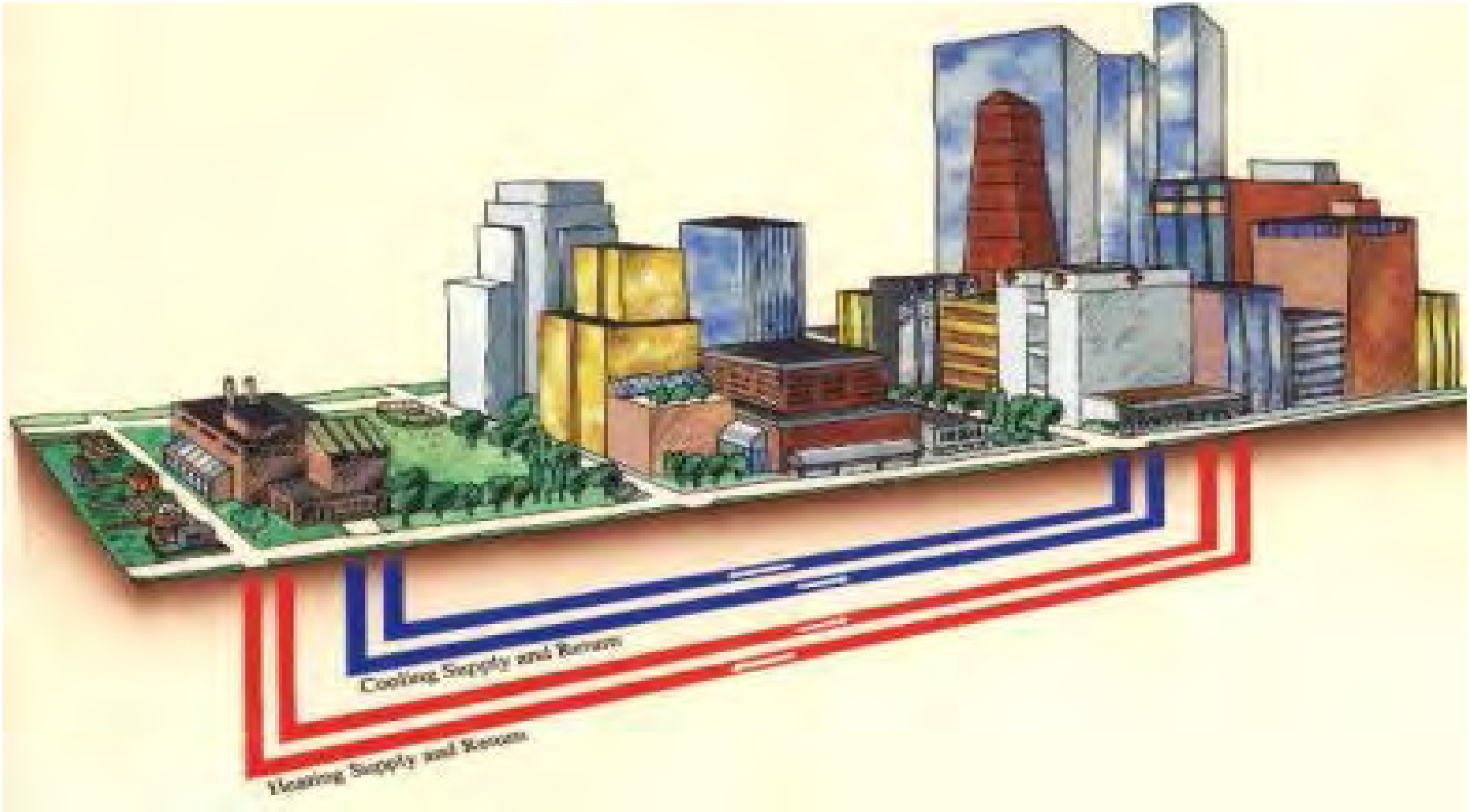
On-site Solar Thermal Systems

Solar Energy in Urban Areas

Master plan for The City Harbor in Sønderborg, Denmark

Thermosyphon Systems

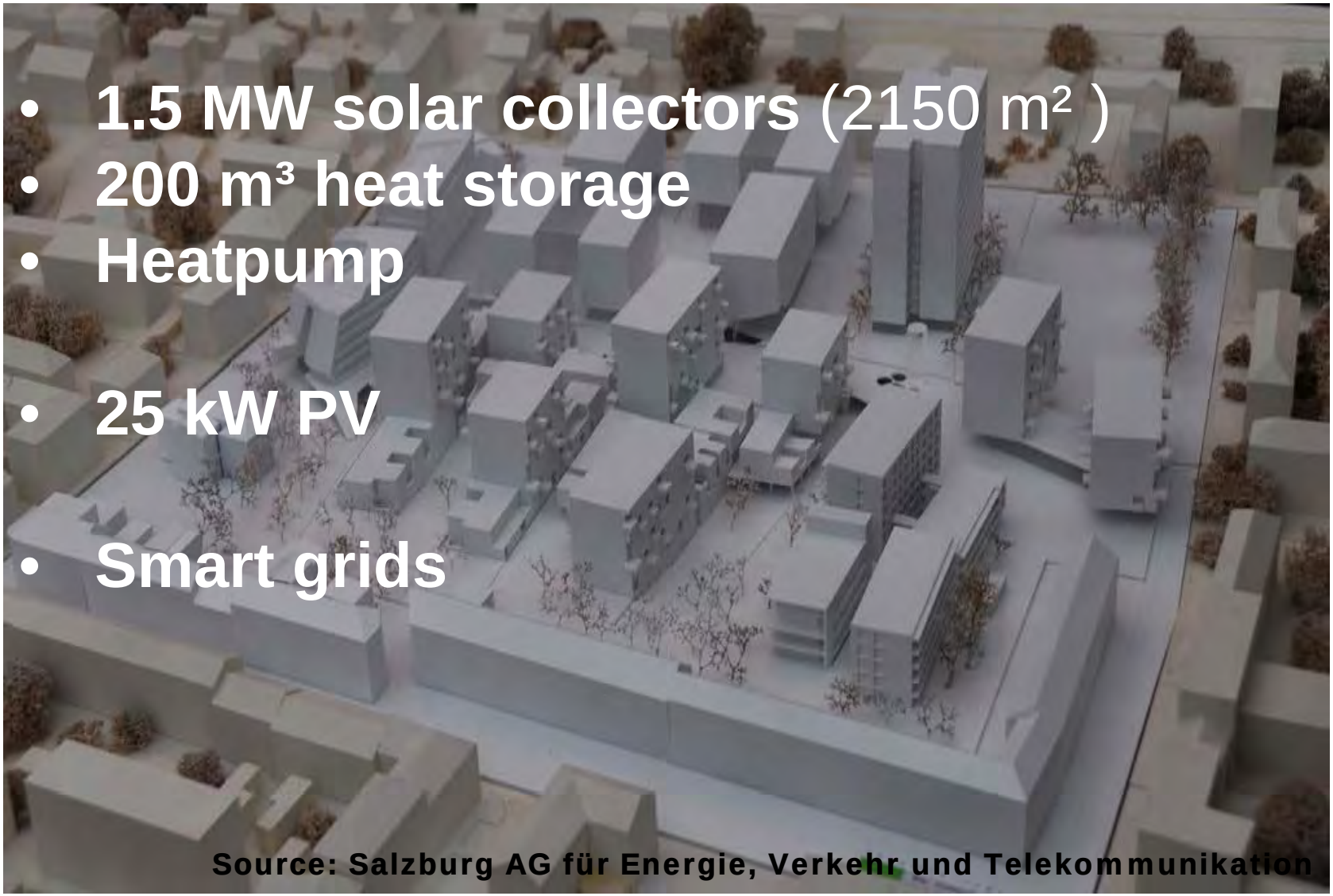
District Heating and Cooling



Austrian Pilot System with medium-term storage, Gneis-Moos, A

Project	Heat Storage	Project -Size			
		Collector area (m^2)	Storage Volume (m^3)	fsol (%)	Nb. of Flats
Gneis Moos	weekly	410 m^2	100 m^3	34%	61

GSWB, Salzburg Lehen



GSWB, Salzburg Lehen

Source: Salzburg AG für Energie, Verkehr und Telekommunikation

Denmark - Hilleroed Solar District Heating

Source: http://www.altomsolvarme.dk/solvarmecenter/fotostore.htm

Denmark- Principle of the smart district heating plant of Dronninglund

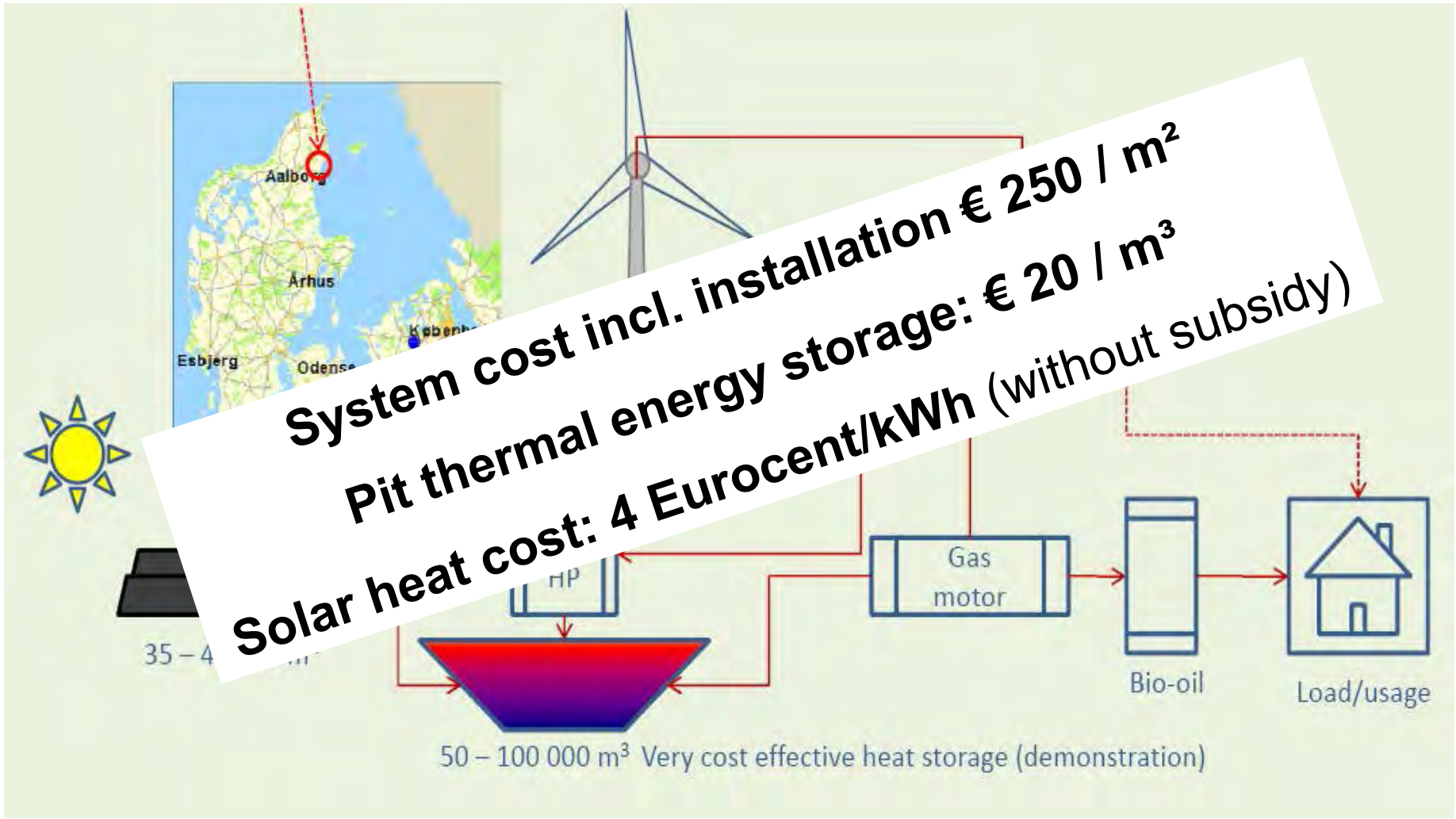
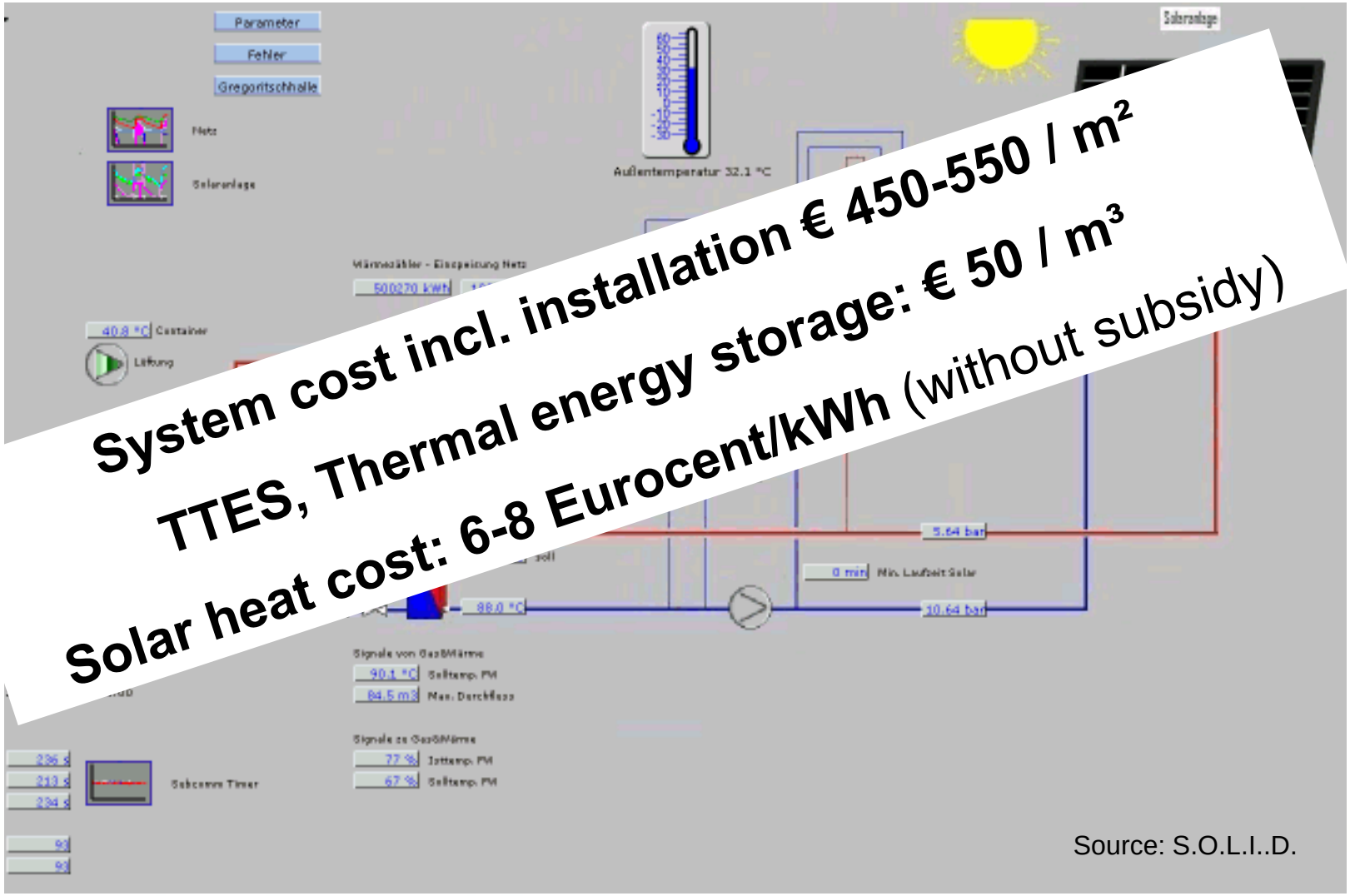


Figure source: Jan-Erik Nielsen, PlanEnergi, Cost source: SDH, Report „success factors in district heating, Dec 2010

District Heating, 3MW$_{th}$, AEVG, Graz

Integration into District Heating



System cost incl. installation € 450-550 / m²

TTES, Thermal energy storage: € 50 / m³

Solar heat cost: 6-8 Eurocent/kWh (without subsidy)

Source: S.O.L.I..D.

Biggest District Heating System Worldwide
Saudi Arabia, 36.000 m² / 25 MW_{th}

Biggest System Worldwide, Saudi Arabia

36.000 m² / 25 MW_{th}

Biggest System Worldwide, Saudi Arabia

36.000 m² / 25 MW_{th}

Solar Air Conditioning and Refrigeration - Task 38

Solar Air Conditioning and Refrigeration

Main achievements:

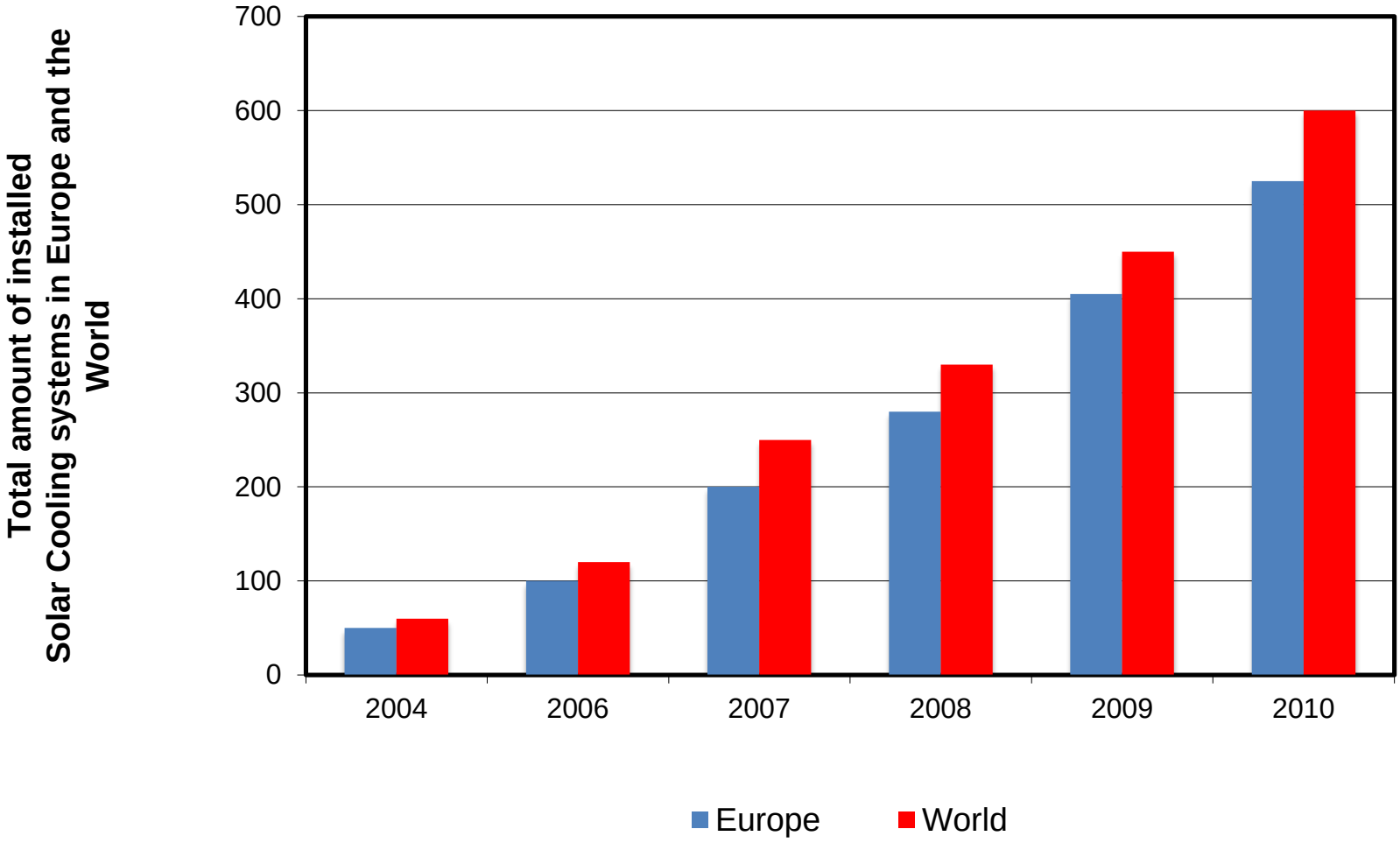
- Development of small capacity thermally driven chillers (<35 kW_{cold})
- Optimization of the heat rejection subsystem

Sortech AG

EAW

Pink GmbH

Solar Cooling Systems in Operation in Europe and Worldwide



Sources: Green Chiller (Climasol, Fraunhofer ISE, Rococo, Tecsol, Tecsol/Fraunhofer ISE)

Solar Renovation - Pilot Project Dieselweg – Graz (Austria)

mounting the pre-fabricated modules






source view: gap solution

Solar Renovation - Pilot Project Dieselweg – Graz (Austria)

source: gap solution

Solar Renovation - Pilot Project Dieselweg – Graz (Austria)

Facade Integration in a Historical Building

Design Study

Facade Integration of Solar Collectors

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IEA FORSCHUNGS KOOPERATION