

CURRENT DEVELOPMENT OF THE SOLAR THERMAL MARKET IN THE EUROPEAN UNION

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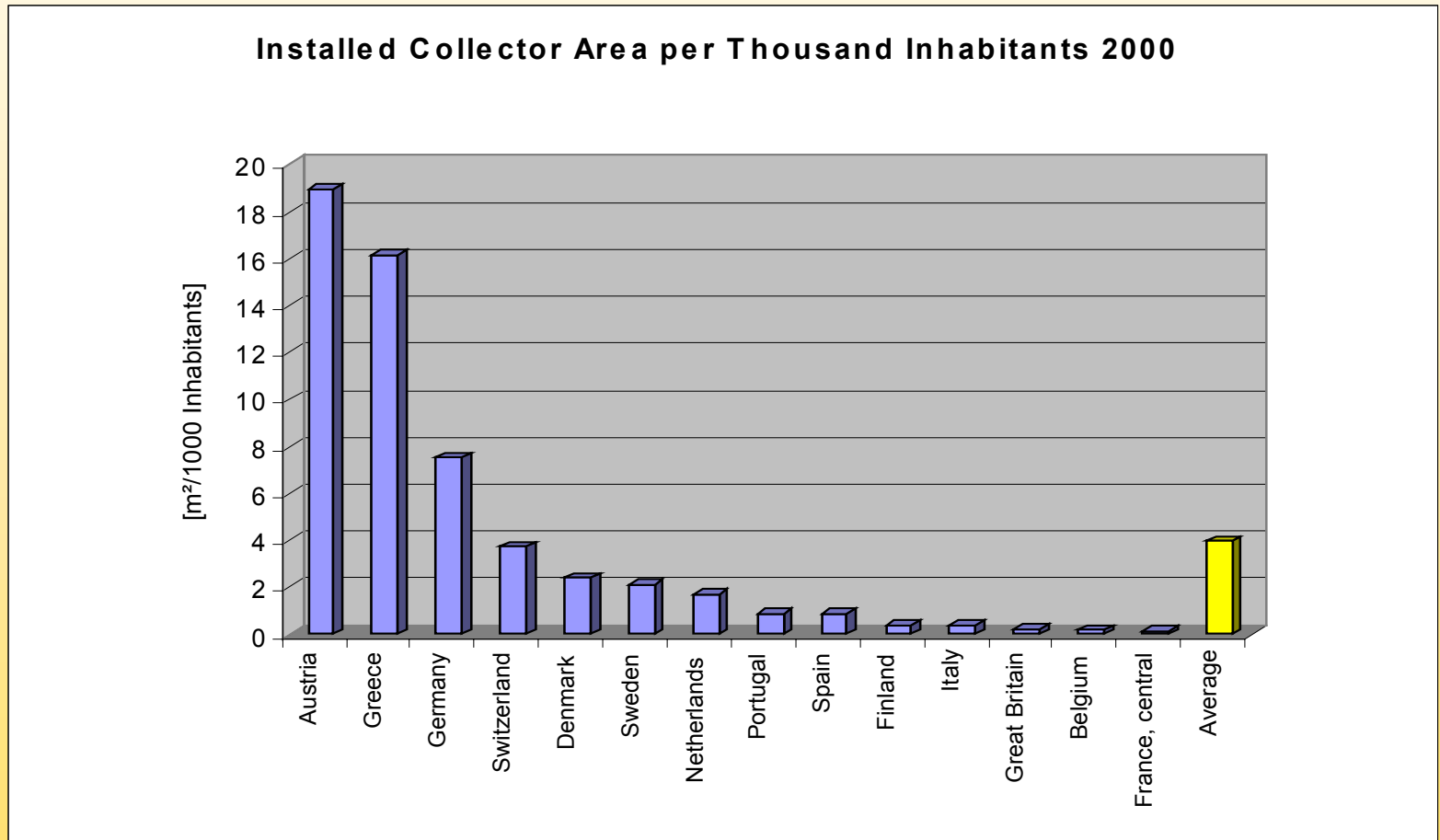
Market of Solar Thermal Systems in Europe

- Increase of the market of flat plate collectors in EU countries between 1994 and 1999 was **18%**
- Installed collector area in 1994 in Europe: 480.000 m²
- Installed collector area in 2000 in Europe: 1.000.000 m²
- Doubled collector area within 6 years
- Total collector area by the end of 2000 in Europe: 11.7 Mio. m²

Market of Solar Thermal Systems in Europe

- **62% (7.2 Mio. m²) of the collector area in Germany, Greece and Austria**
- **Installed collector area per thousand inhabitants in 1999:**
 - **Austria 18,9 m²**
 - **Greece 16,2 m²**
 - **Germany 7,5 m² per inhabitant**
- **Italy, Great Britain, Belgium and France: less than 0,5 m² per thousand inhabitants**

Market of Solar Thermal Systems in Europe



Installed collector area per thousand inhabitants 2000 (IEA- SHC)

The most growing markets between 1994 and 1999 in Europe:

- **Spain: 74%**
- **The Netherlands: 38%**
- **Germany: 34%.**

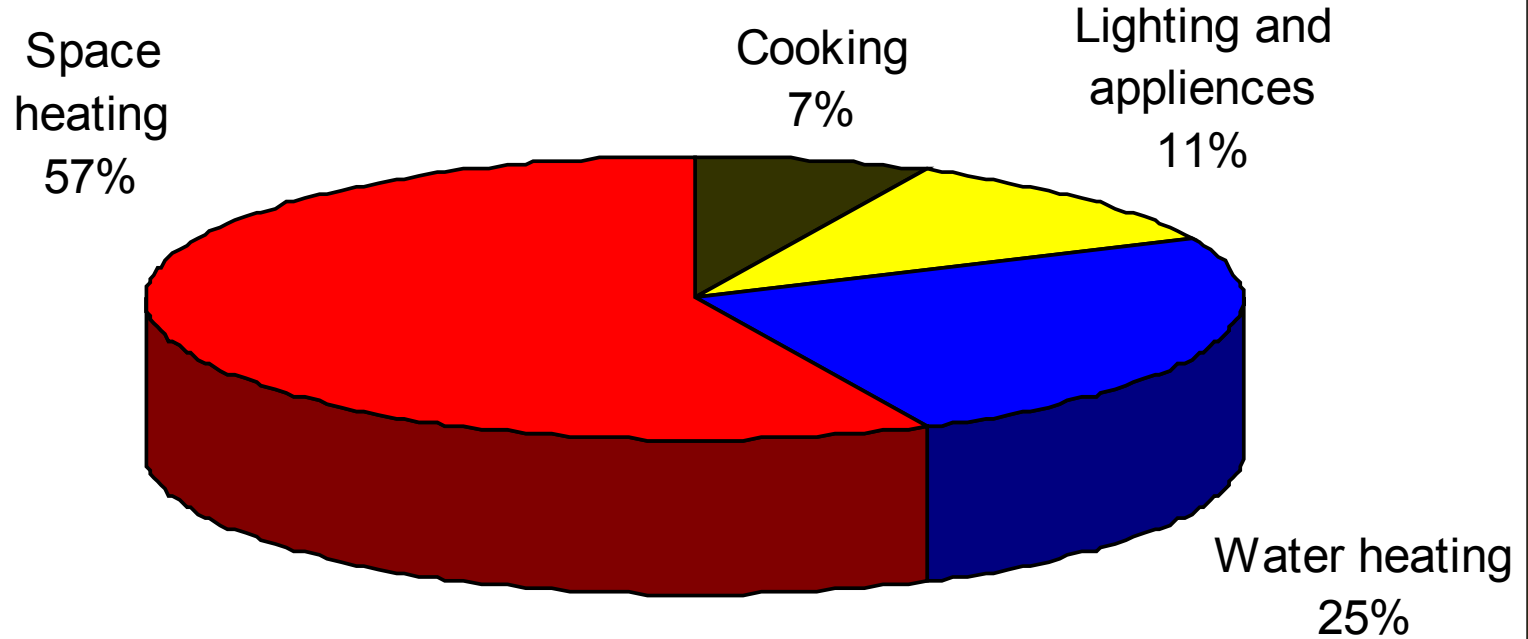
Strategic goal with respect to future development in the field of solar thermal systems until 2010:

- Installation of 100 million m² collector area in the member states of the EU
- To achieve this goal a yearly rate of increase of 38% is required until 2010!
- This means, the present growth has to be doubled!

Contribution of thermal collectors to supply of energy in Europe

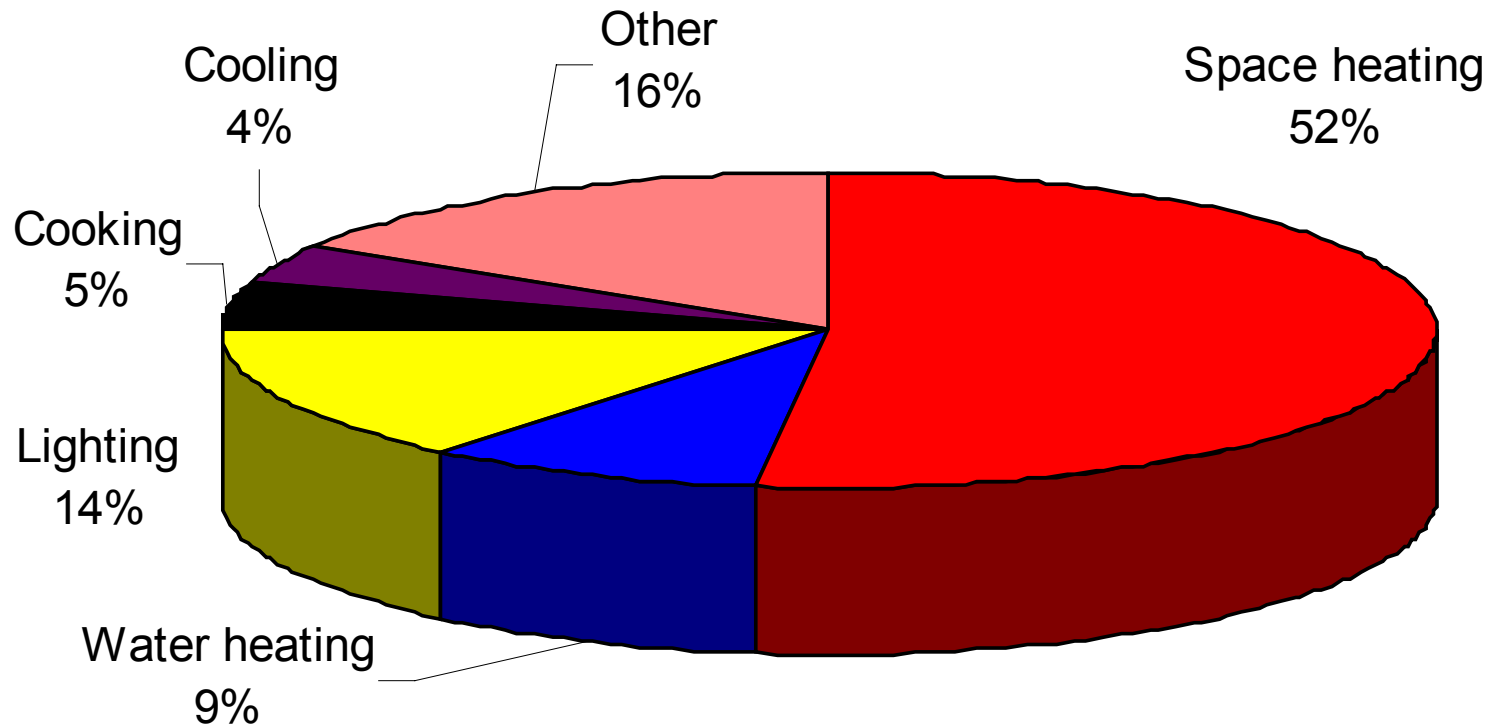
- **Consumption of energy in the building sector in 1998 in the member states of the EU:**
16.077 PJ
- **40% of the overall energy consumption in the EU**
- **Hot water demand and space heating**
 - **75% (12.171 PJ)**
 - **residential buildings: 9.228 PJ**

Breakdown of energy consumption - Residential Buildings



Breakdown of energy consumption in residential buildings in the EU in 1998

Breakdown of energy consumption - Commercial Buildings -



Breakdown of energy consumption in commercial and public buildings in the EU in 1998

Current and medium-term energy supply with thermal collectors in Europe

EUROPE	[PJ]	solar share [%]
Heat requirements for hot water and space heating EU (1998)	9.228	
Solar heat 2000 - EU	17	0,18
Solar heat 2010 - EU	144	1,56

Current and medium-term energy supply with thermal collectors in Austria

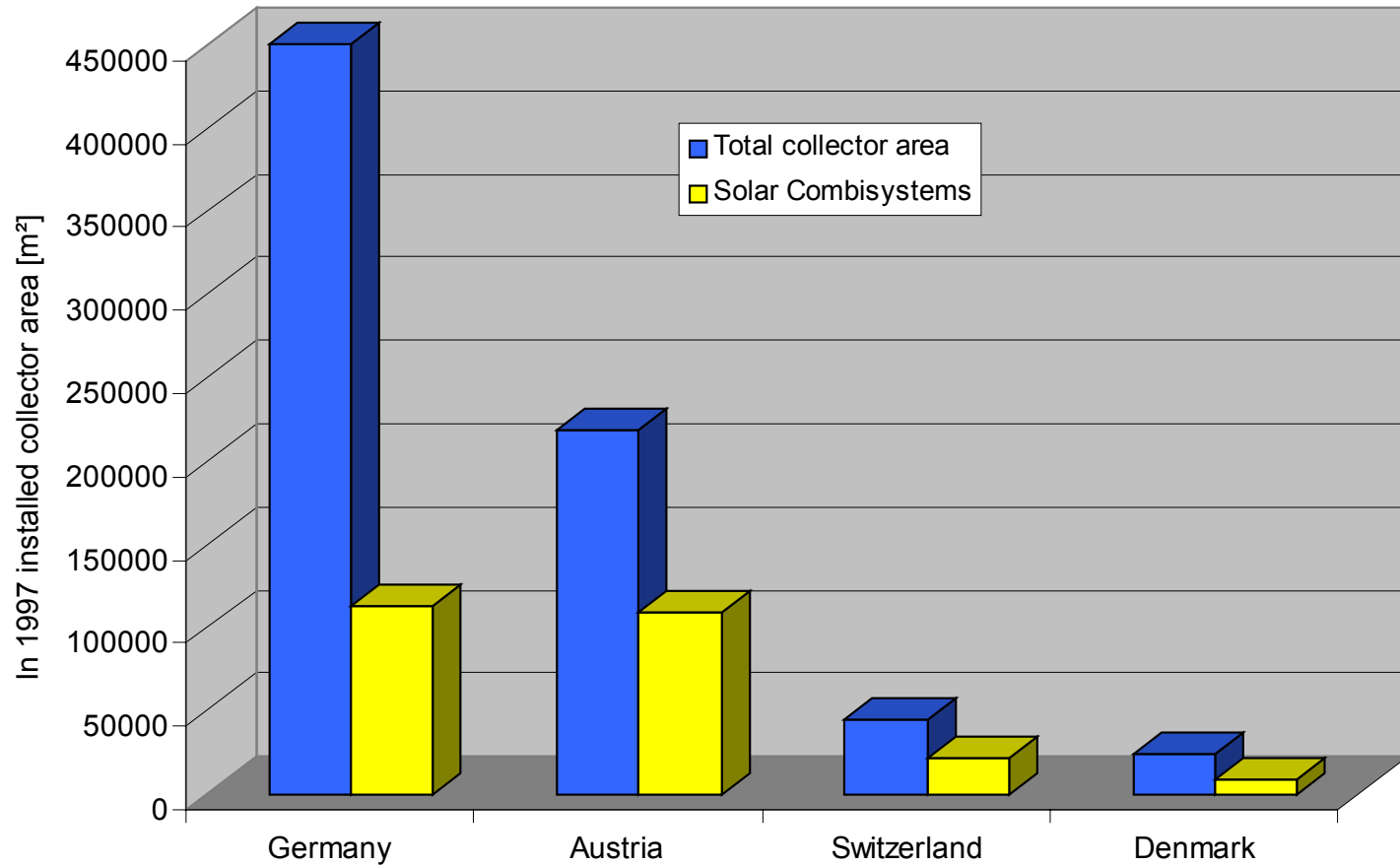
	[PJ]	solar share [%]
Austria		
Heat requirements hot water and space heating - Austria (1998)	303	
Solar heat 2000 – Austria	3,22	1,06
Solar heat 2010 – Austria	12,87	4,25

- **DHW Systems**
- **Solar Combisystems**
(DHW & Space Heating)
- **Solar Assisted District Heating**
- **Solar cooling**
- **Solar Process Heat $< 200\text{ °C}$**

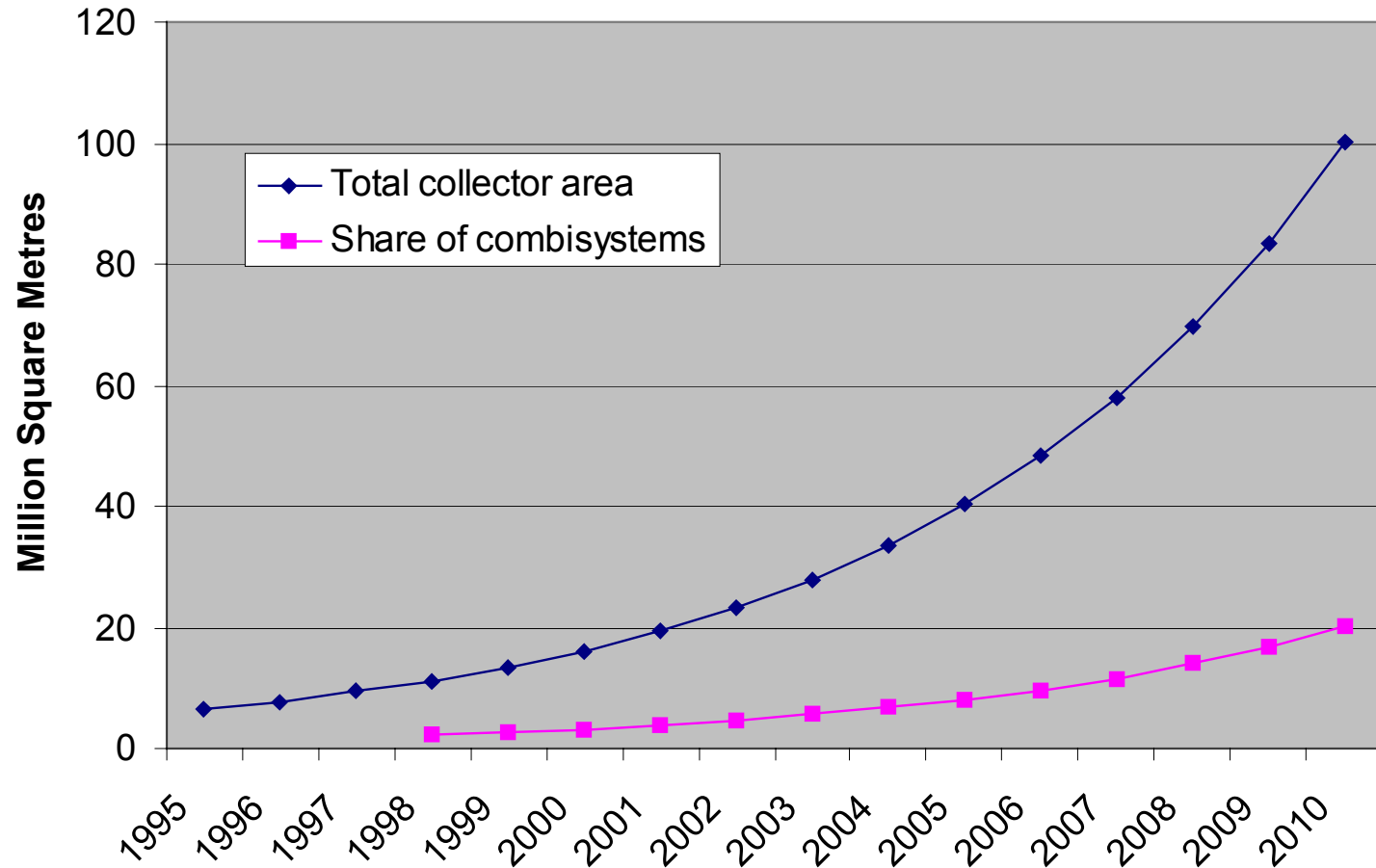
Domestic hot water systems



Share of Solar Combisystems in Selected Countries - 1997



Increase in the installed collector area in the EU



Solar Combisystems:

- **20% of the installed Collector Area 2010**
- **120.000 Solar Combisystems per year in Europe**
- **Total Collector Area 1,9 Million m²**

Solar Combi Systems



Solar Combi Systems



Solar Combi Systems



Share of Industry on final energy demand - EU ~ 28 %

Share of heat

~ 50% (14 % of total EU energy demand)

Share of low temperature heat (<250°C)

~ 50 % of the heat demand

5-7 % of total EU energy demand

➤ **DHW Systems**

- Kit systems
- Standardised systems
- Integrated systems (heating system & building)

➤ **Solar Combisystems** (DHW & Space Heating)

- Compact systems (Integration of burner, e-control...)
- Reduction of space requirement and cost
- Storages (Sorption, PCM...)

- **Solar Assisted District Heating**
 - **Storage** (aquifer, bore holes, rock, new materials...)
 - **Integration** in (existing) district heating nets
 - controller, guarantee of results
 - net optimisation: return temperatures, aux. heat source ...
- **Solar Process Heat < 200 °C**
 - **Potential studies** for Europe
 - POSHIP (Potential of Solar Heat for Industry), 5 FP (SP, P, G)
 - PROCESOL, ALTENER, Greece
 - PROMISE: A
 - **Development of components**
 - **System integration**

Long term potential in Austria

	Total ^{*)} [PJ]	TNP-S [PJ]	TNP-S [%]
Hot Water (household, industry und public buildings)	45	25	56
Space Heating	258	32	12,5
Process Heat < 100 °C	21	8	38

*) Based on the final energy use, 1998

Technical demand potential - solar low temperature energy (TNP-S) on the basis of the present state of the art; i.e. without consideration of future developments in the standard of buildings or solar systems /6/