



# Solar Heat Worldwide Edition 2018



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# Solar Heat Worldwide

Global Market Development and Trends in 2017

Detailed Market Figures 2016

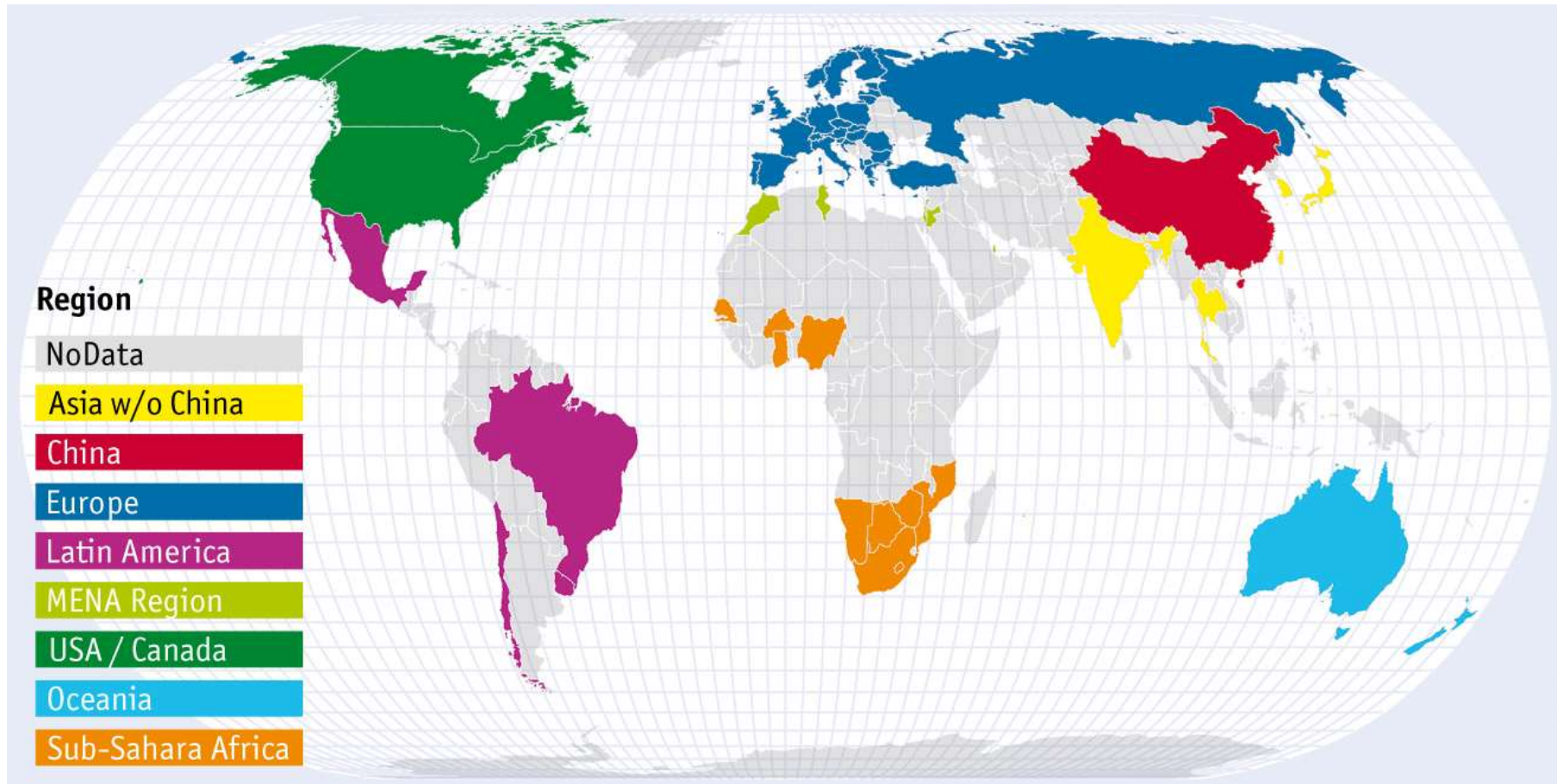


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# 66 countries covered

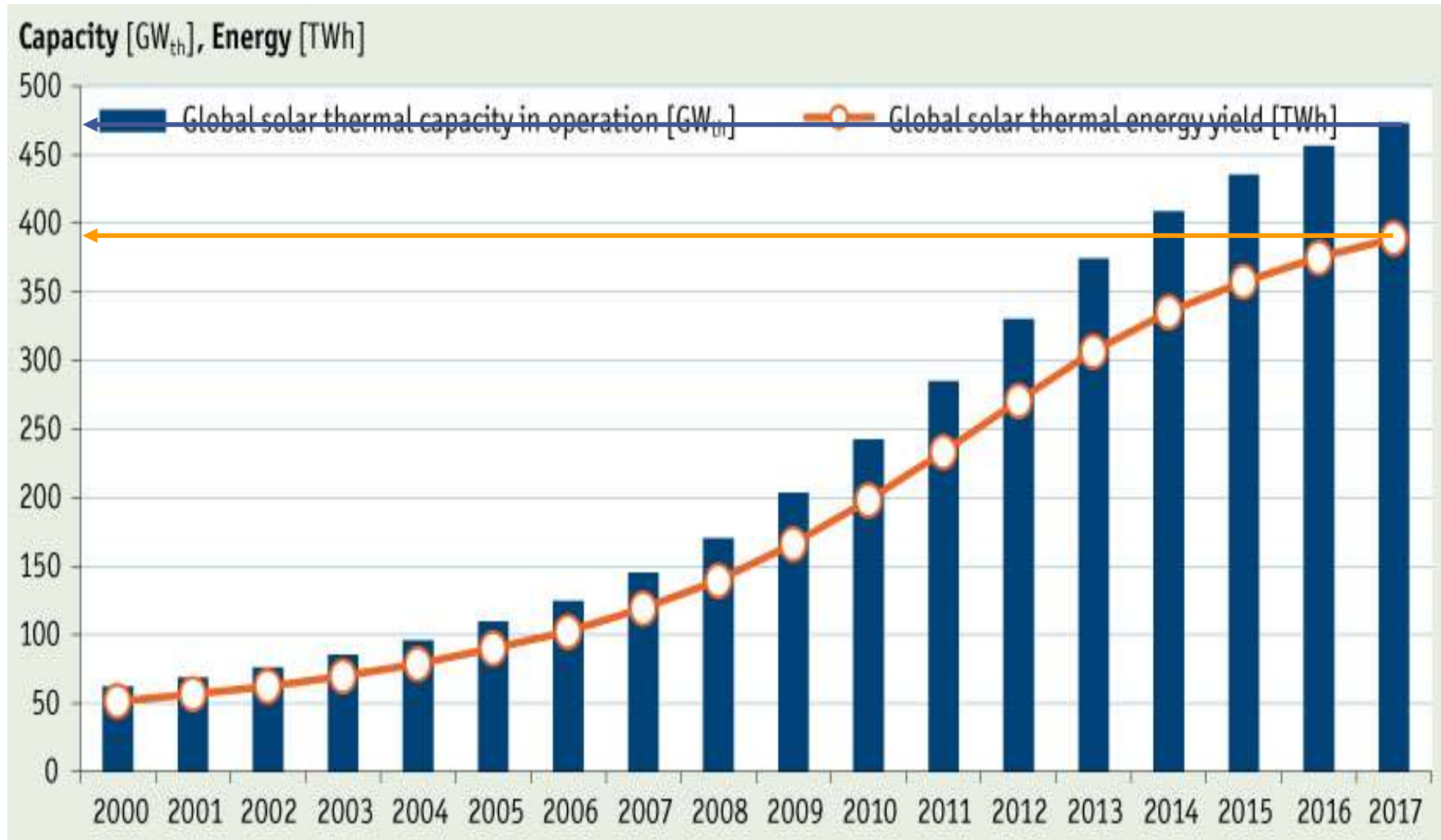


# Global solar thermal market developments and status 2017

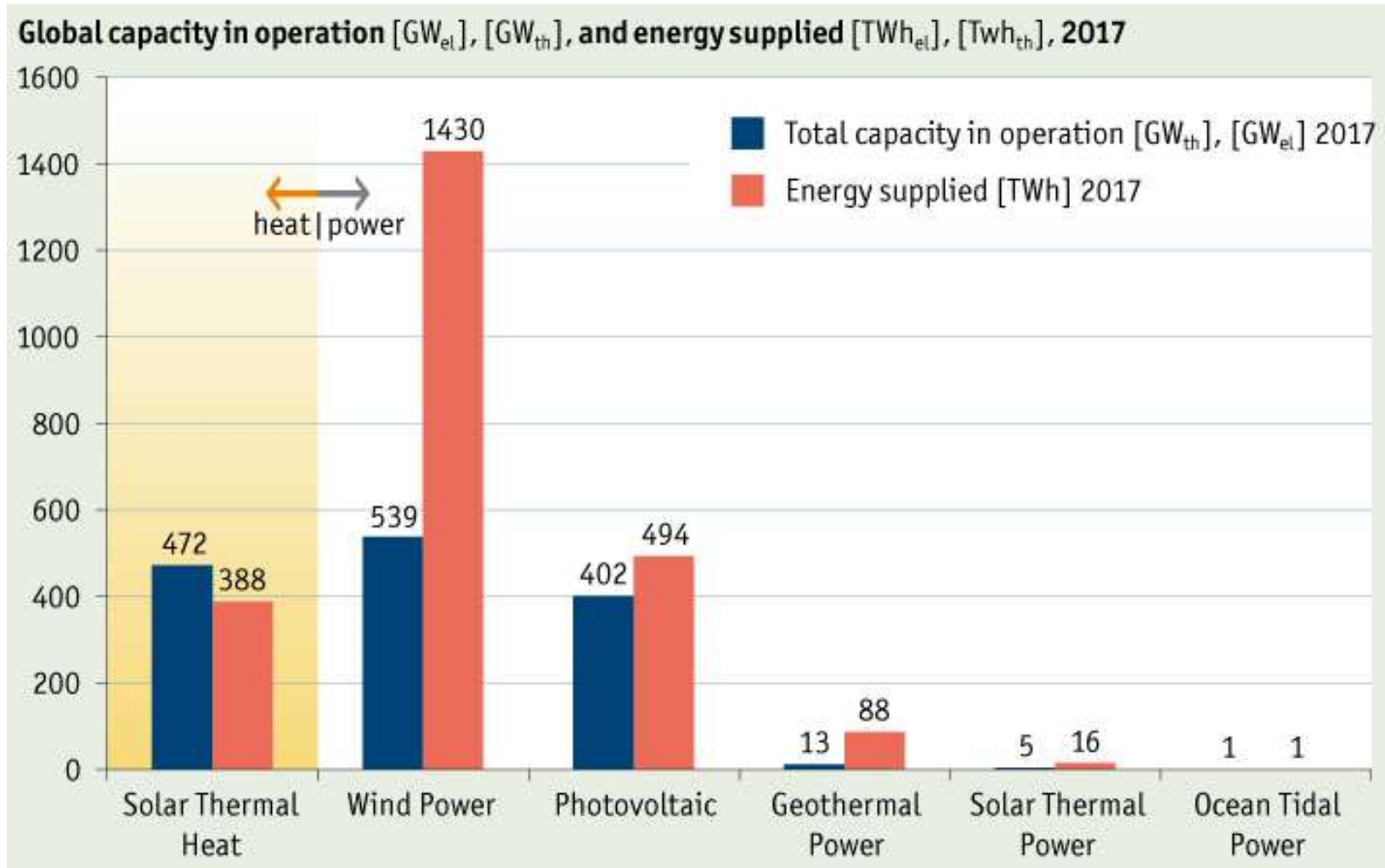


Photo: Arcon-Sunmark AS

# Global solar thermal capacity in operation and annual energy yields 2000 - 2017



# Installed capacities and energy supply



Sources: AEE INTEC, Global Wind Energy Council (GWEC), SolarPower Europe, REN21 – Global Status Report 2018

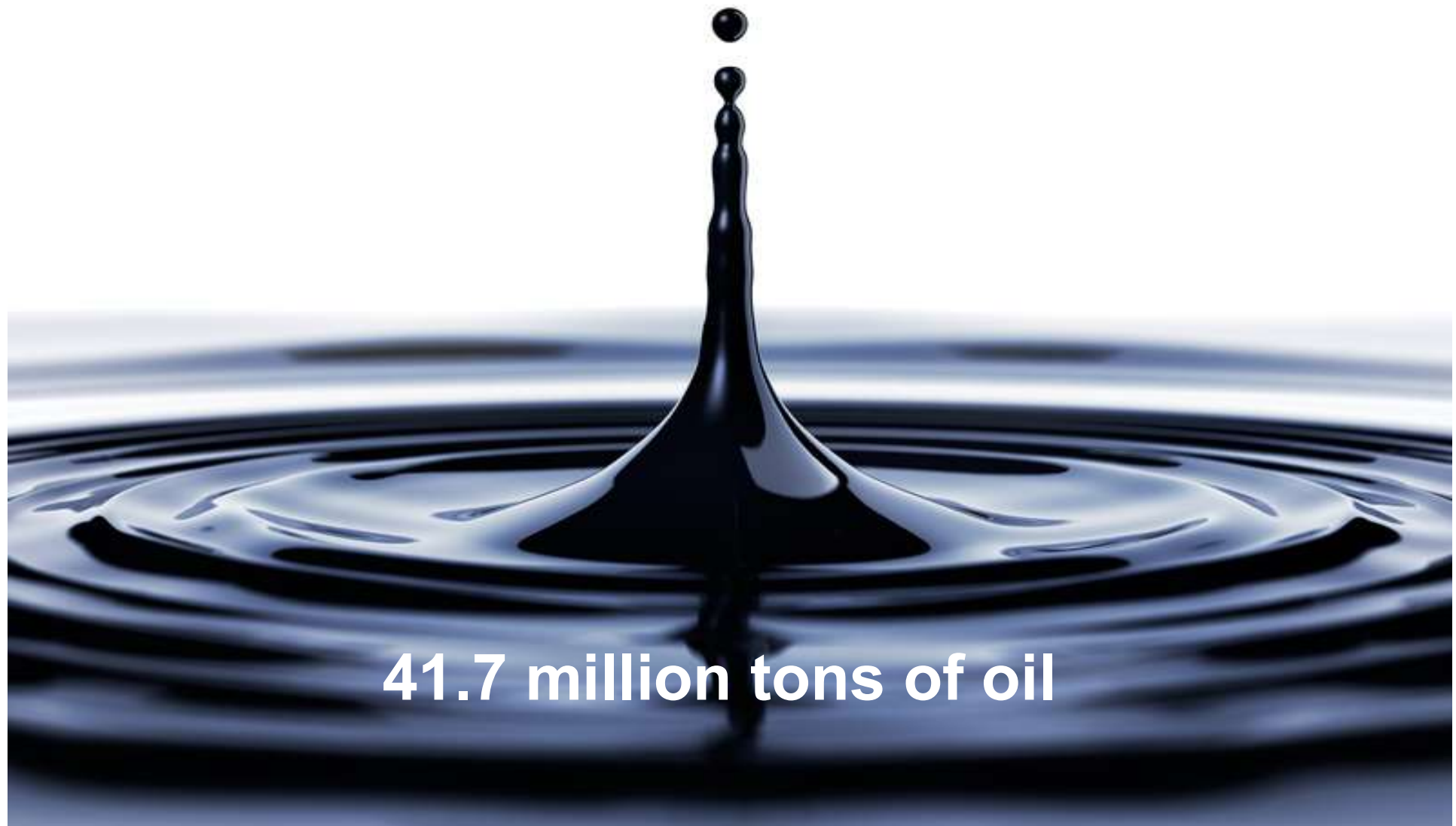
# Contribution to energy supply and CO<sub>2</sub> reduction

**Solar thermal energy yields amounted 388 TWh in 2017**

**134.7 million tons of CO<sub>2</sub> avoided**



# Oil equivalent in 2017



41.7 million tons of oil



# Jobs and Turnover

708,000 jobs worldwide

Turnover at € 16 billion  
(US\$ 19.2 billion)



# Market development and trends in 2017

Compared to the year 2016, new installations declined by 4.2 % in 2017

The most dramatic development was in China where for the fourth year in a row the market declined.

After a –17 % decline in 2014 and 2015 and a 9 % decline in 2016, this trend continued 2017 with a 6 % decline.

Besides this general trend in China it is remarkable that 2017 saw an increase of in newly installed flat plate capacity in China, whereas vacuum tube capacity declined.

Positive market growth were recorded in India (26 %), Mexico (7 %), and in Turkey (4 %)

Megawatt-scale solar supported district heating systems and solar heating and cooling applications in the commercial and industrial sector have gained increasing interest all over the world

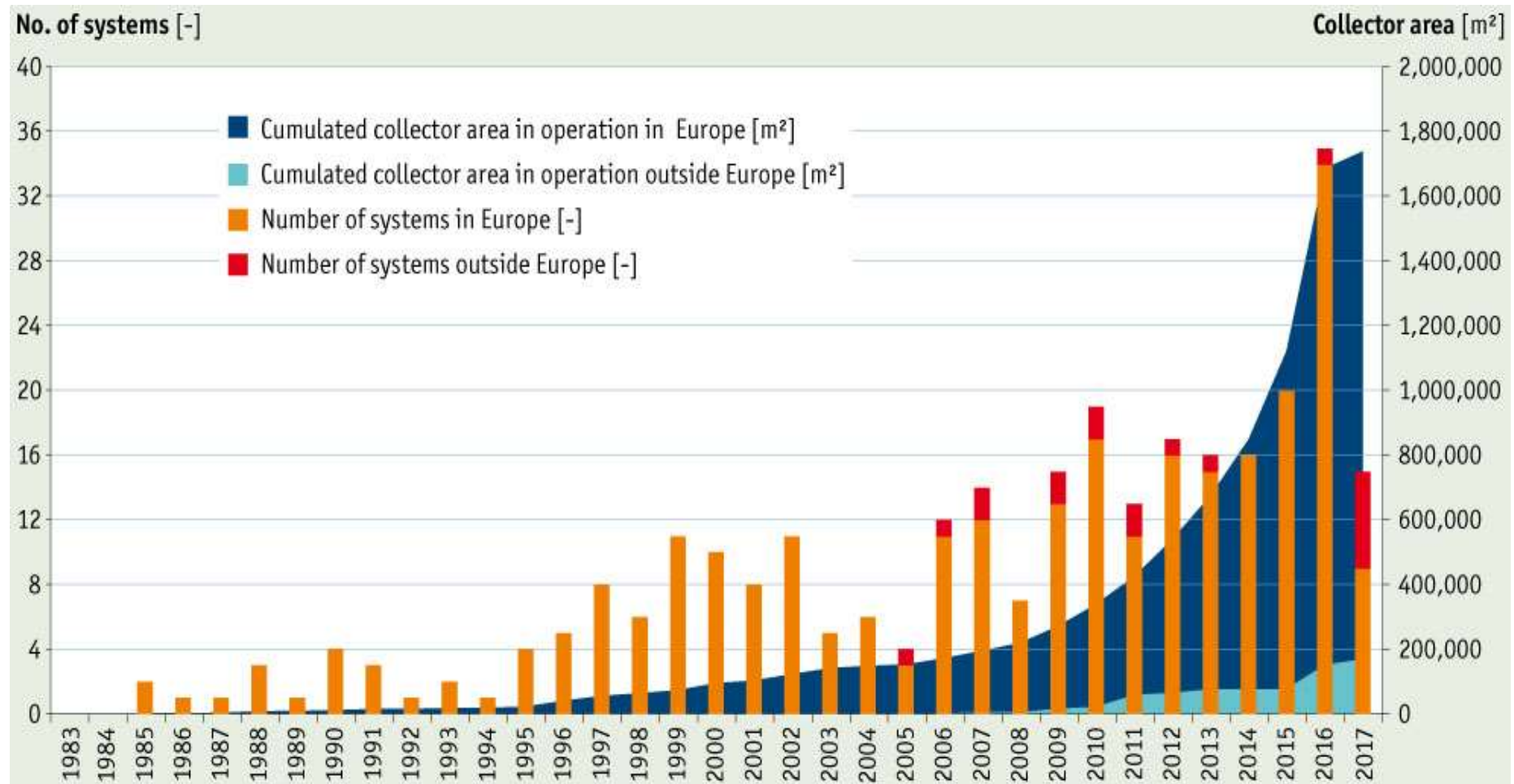
# Solar thermal heating systems in the building sector

**Small-scale solar water heating systems** for detached single-family houses and apartment buildings represent approximately **90 % of the worldwide annual installations**, therefore a declining interest in these systems has a significant impact.

These applications are under market pressure from heat pumps and photovoltaic systems.

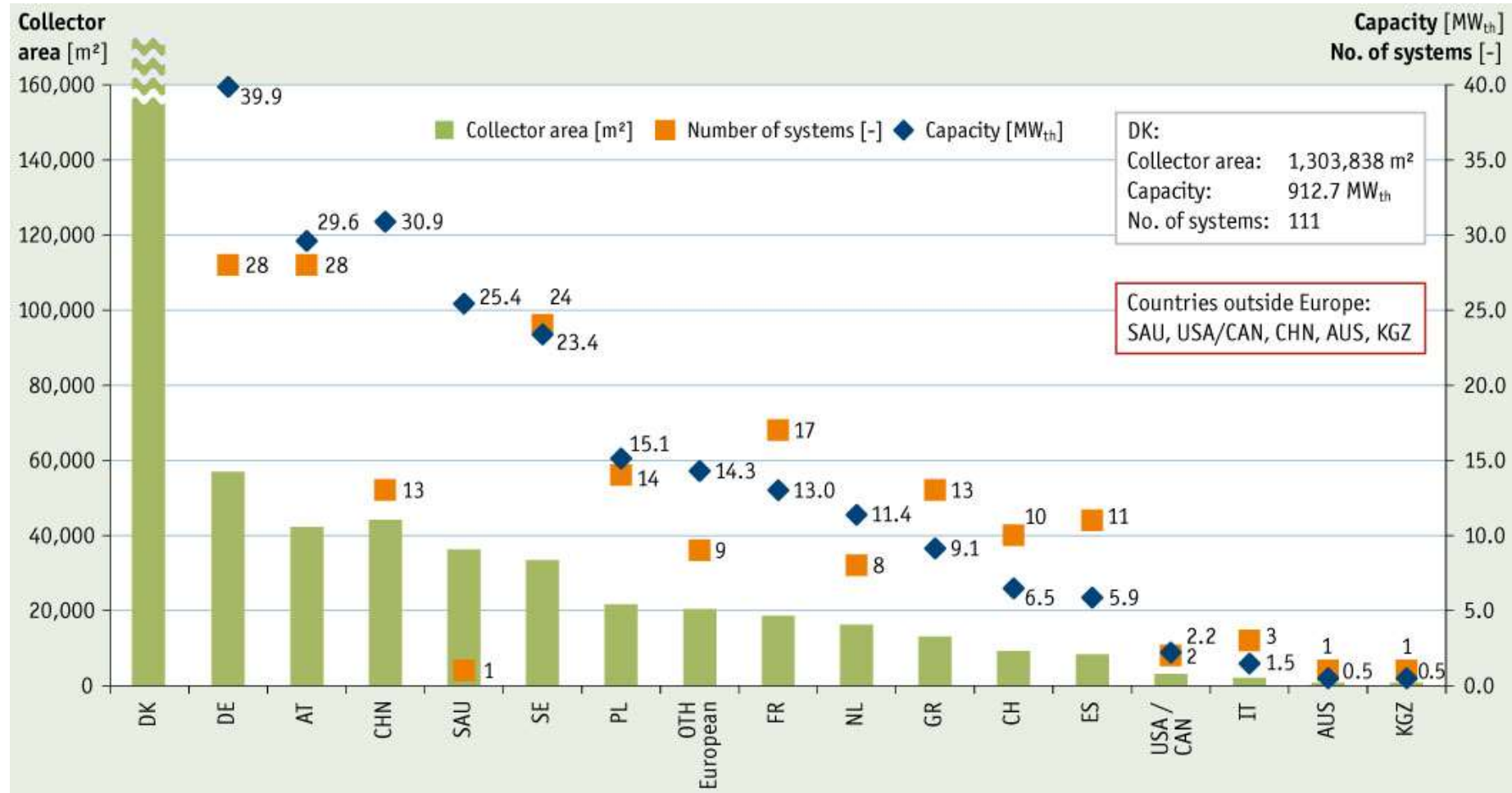


# Large-scale systems for the supply of residential, commercial and public buildings



Data sources: Jan-Olof Dalenbäck – Chalmers University of Technology, SE and Sabine Putz – IEA SHC Task 55, Bärbel Epp solarthermalworld.org

# Large-scale systems for solar district heating and residential buildings



Data sources: Jan-Olof Dalenbäck – Chalmers University of Technology, SE and Sabine Putz – IEA SHC Task 55, Bärbel Epp solarthermalworld.org

# Solar district heating system in Vojens, DK with load-balancing pit storage



# Multi-family buildings in Crailsheim, D 5.1 MW<sub>th</sub> installed capacity



Photo: ITW / TZS University of Stuttgart, Germany

# Concentrating solar collectors for district heating

Installed capacity: 16.6 MW<sub>th</sub>

Brønderslev, DK



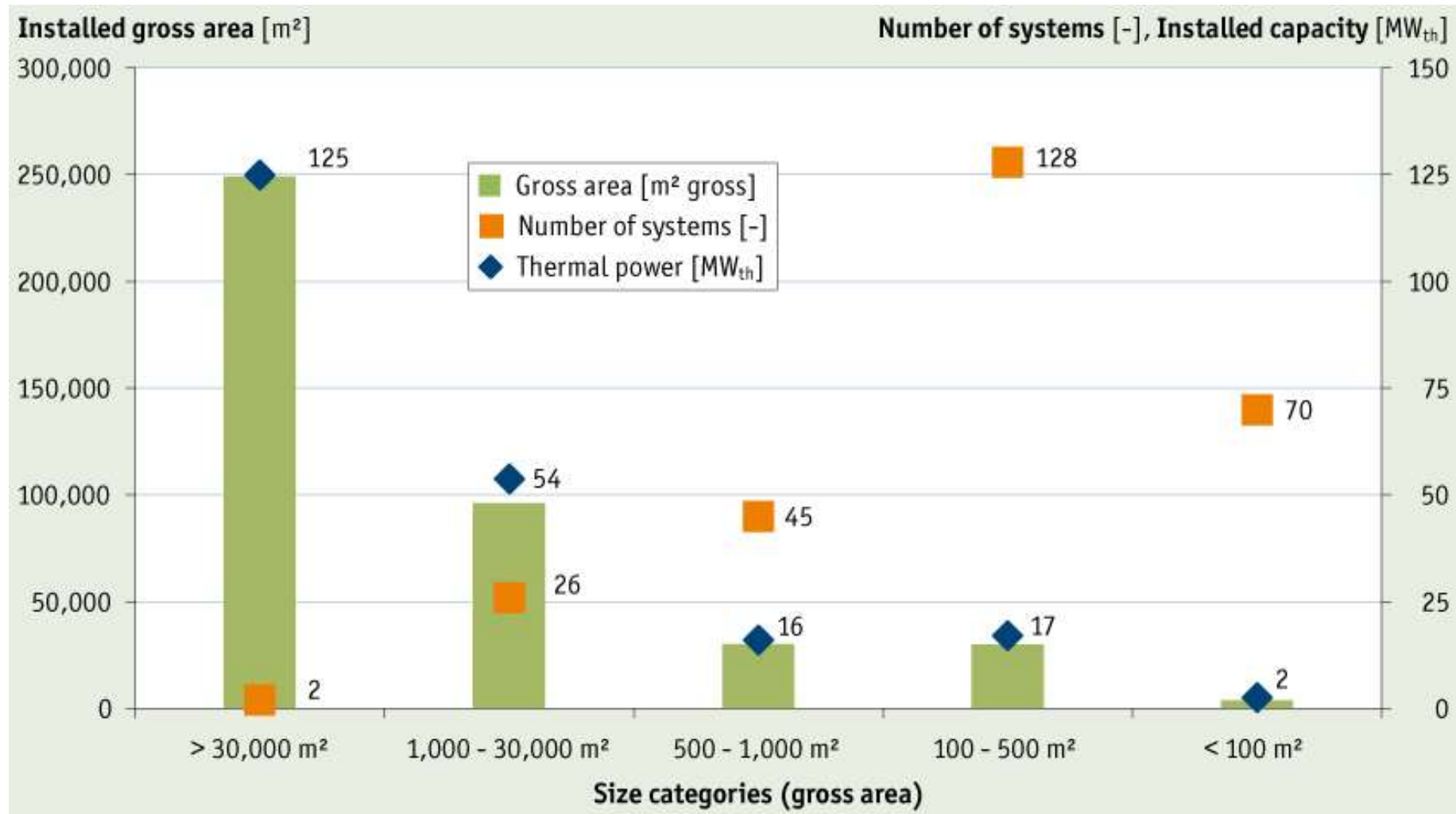
Photo: Aalborg CSP



# Solar heat for industrial processes - SHIP

Photo: Brauunion

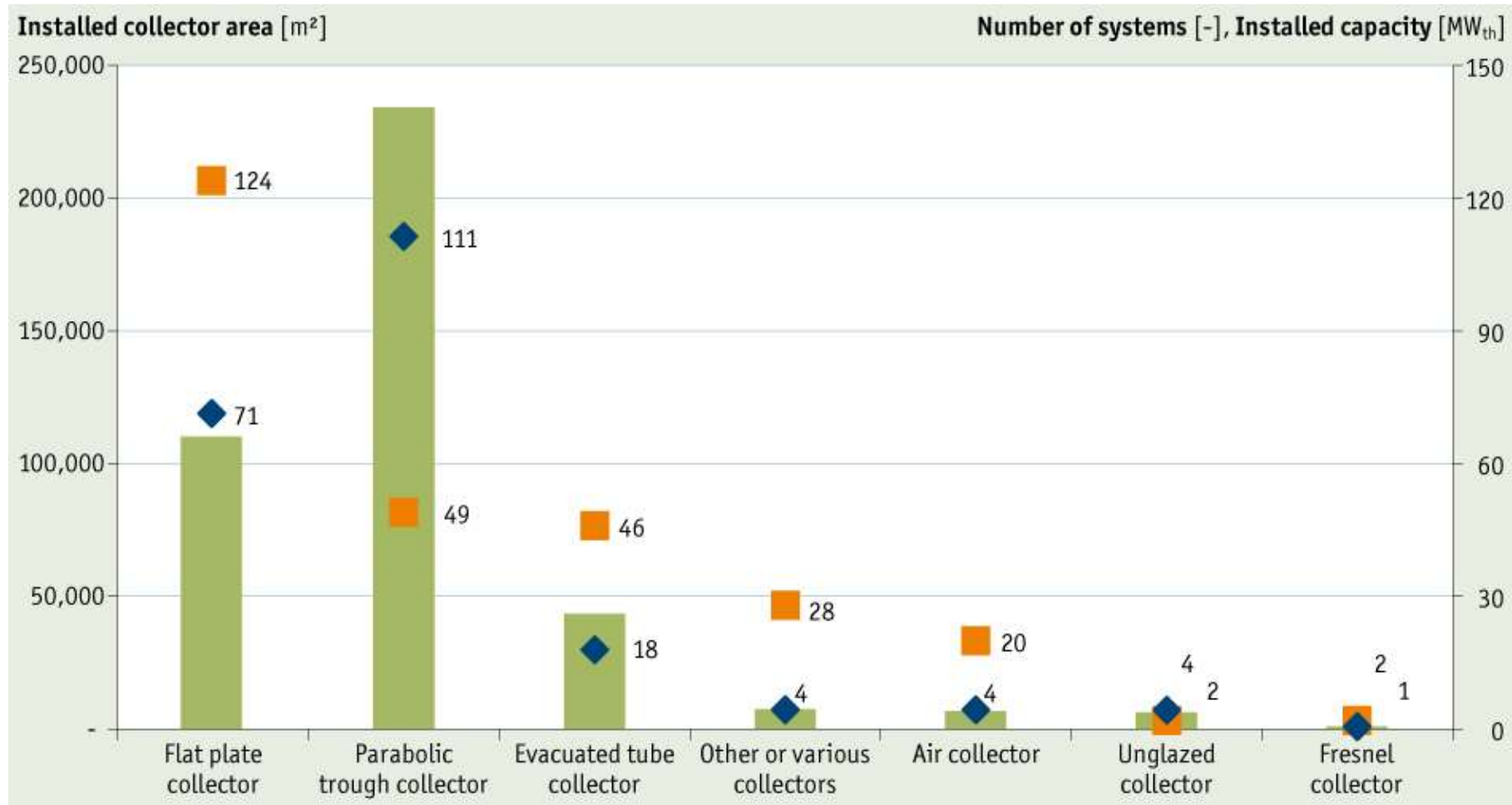
# Global solar process heat plants in operation by capacity and collector area by March 2018



Source: IEA SHC Task49 / IV SHIP data base



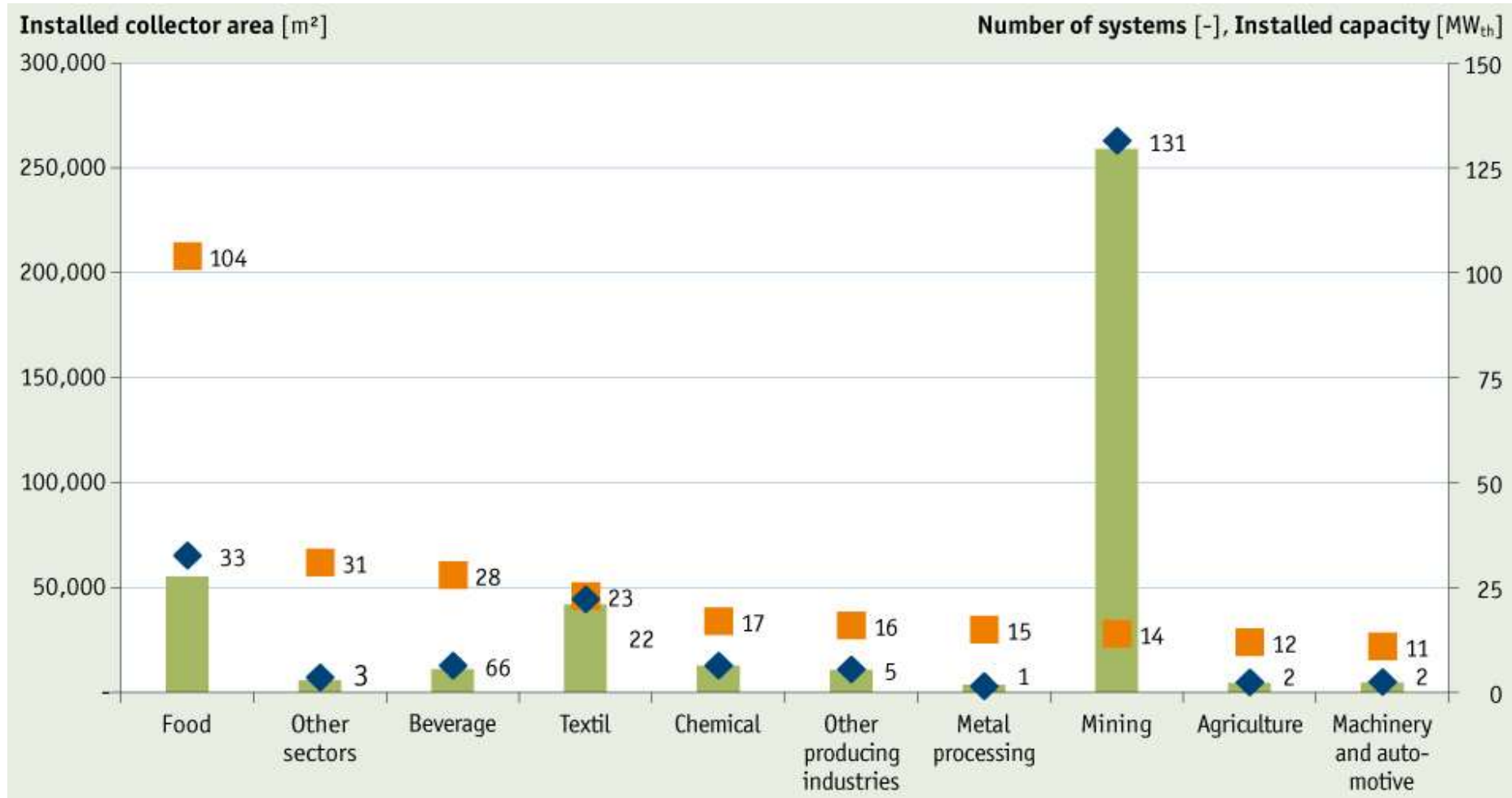
# Global solar process heat applications in operation by type of collector



Source: IEA SHC Task49 / IV SHIP data base



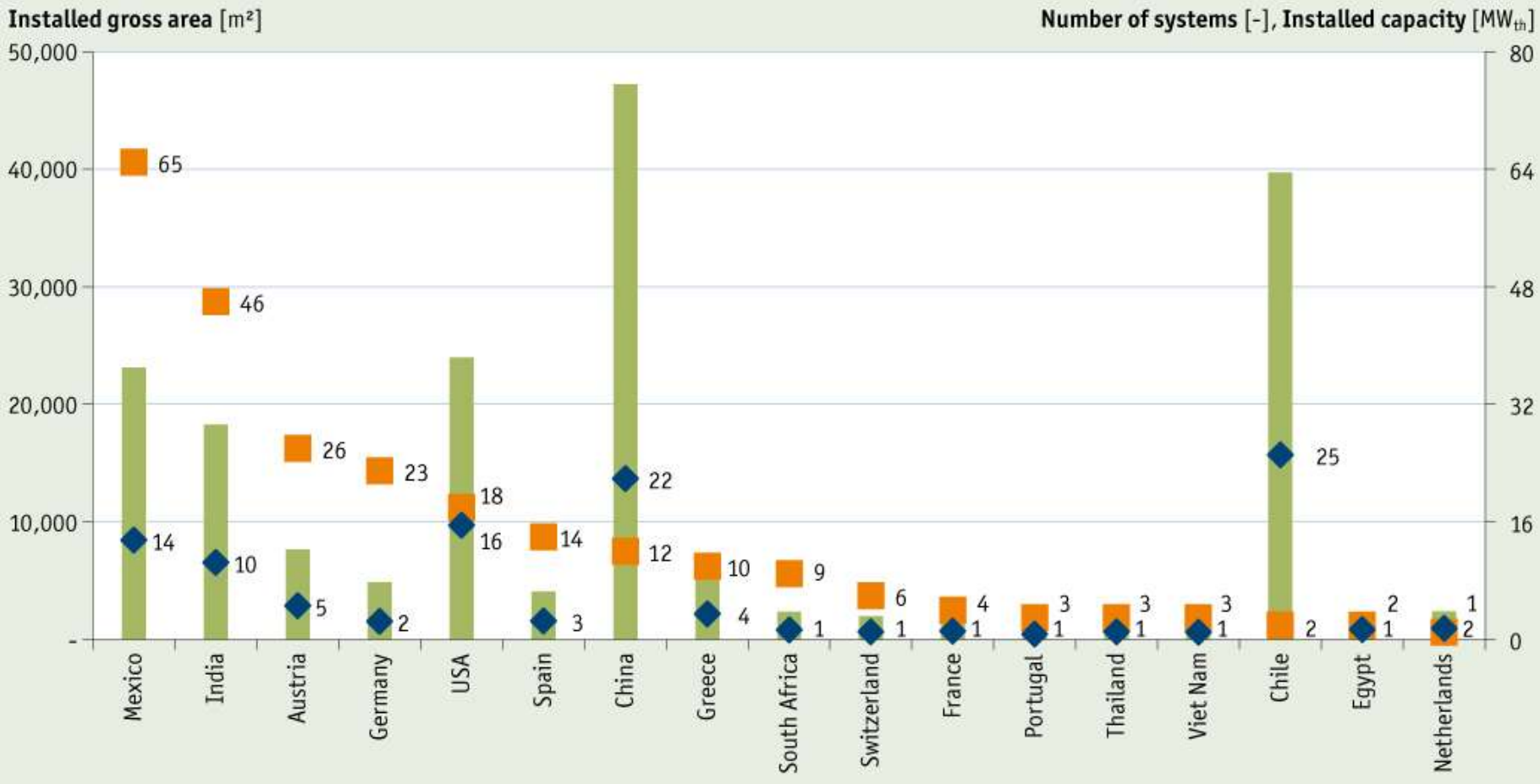
# Global solar process heat installations in operation by industry sector



Source: IEA SHC Task49 / IV SHIP data base



# Global solar process heat installations in operation by country



Source: IEA SHC Task49 / IV SHIP data base



# Solar plant for enhanced oil recovery in Oman

Installed capacity: 100 MW<sub>th</sub>



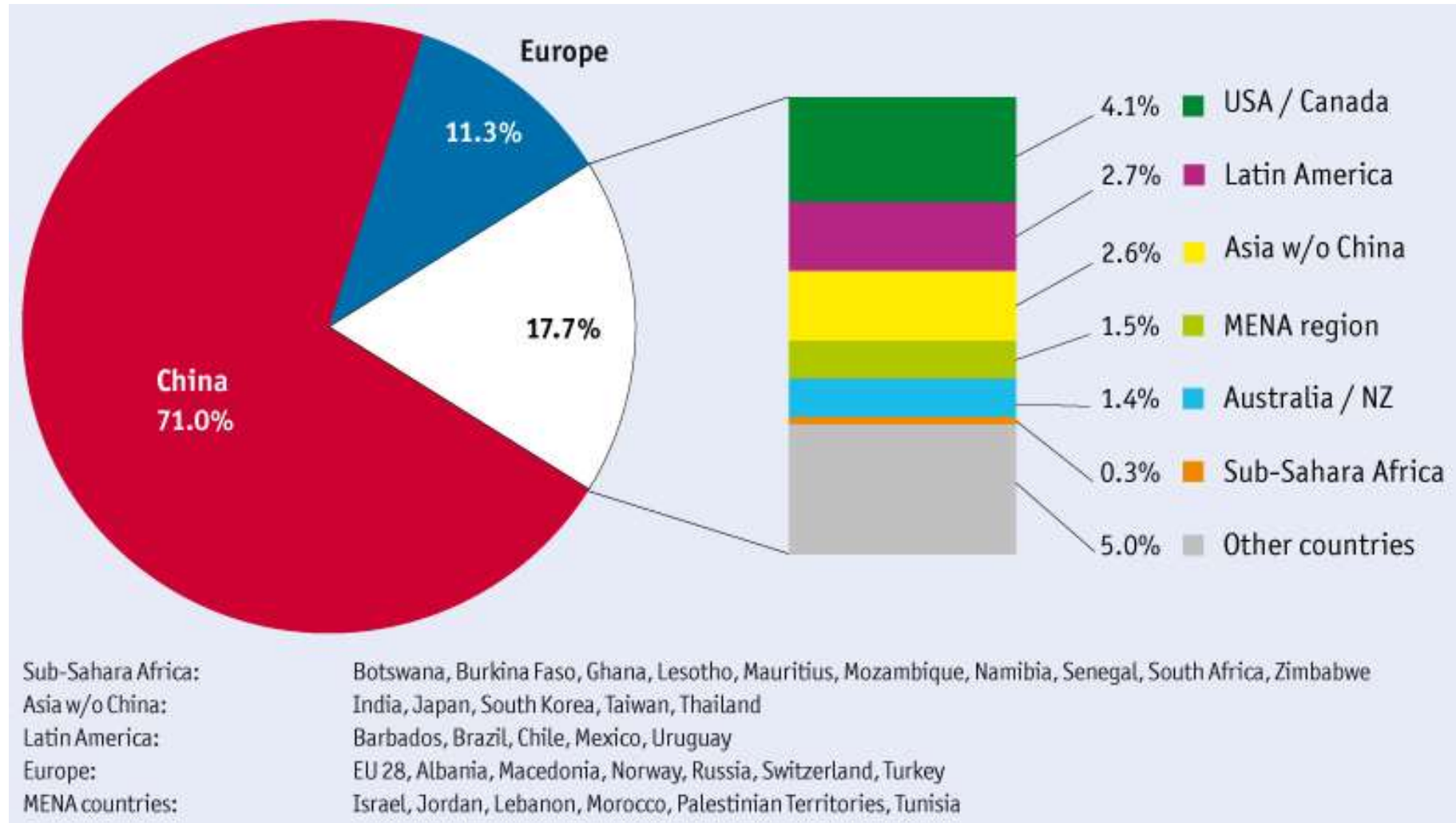
Photo: Barbara Soldera, GlassPoint Solar, Inc.

The plant delivers 660 tons of steam per day to the Amal oil field



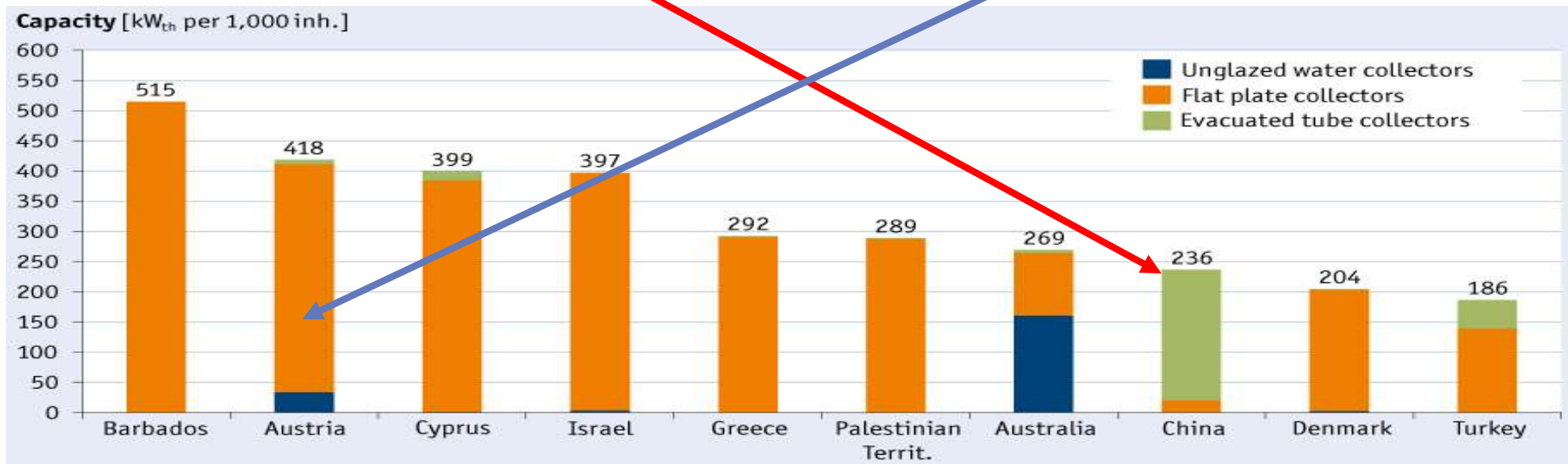
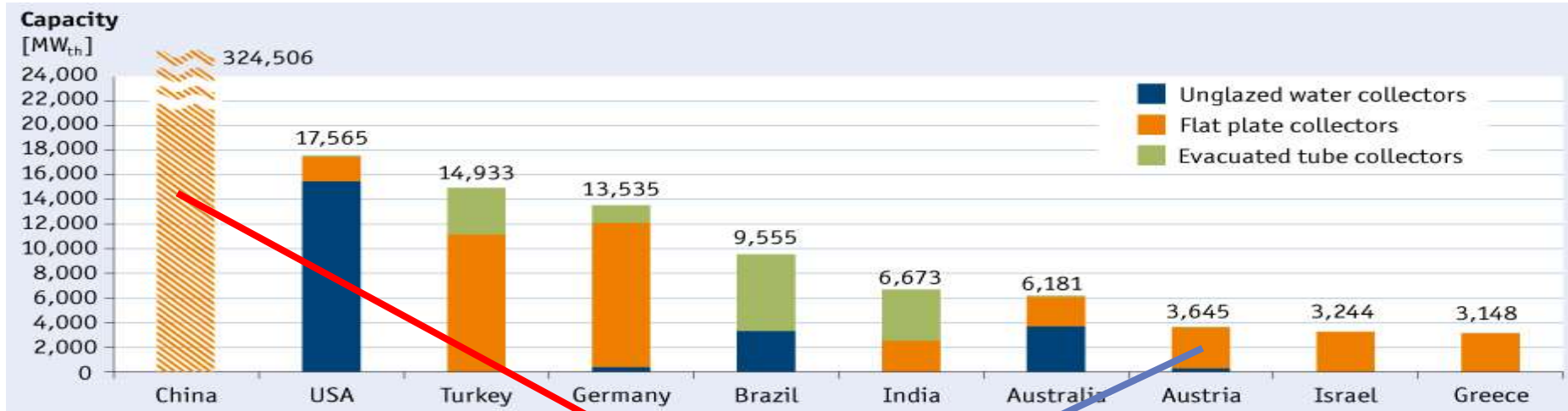
Photo: Barbara Soldera, GlassPoint Solar, Inc.

# Total installed capacity in operation 2016





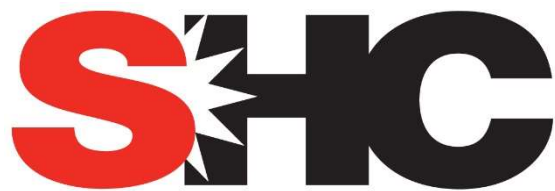
# Top 10 countries of cumulated water collector installations (absolute and per 1000 capita) 2016





<http://www.iea-shc.org/publications-new>

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