

Solar Thermal = Savings of Over 118 Million Tons of CO₂ Annually

The IEA SHC Programme's *Solar Heat Worldwide* is the most comprehensive publication on the global solar heating and cooling market. This year's report includes data from 60 countries, or 95% of the solar thermal market and can be downloaded for free.

In 2013, 94% of the energy provided by solar thermal systems worldwide was used for heating domestic hot water, mainly by small-scale systems in single family houses (84%) and larger applications attached to multi-family houses, hotels, schools, etc. (10%). Swimming pool heating held a 4% share and the remaining 2% was met by solar combi-systems.

Over the past 15 years, the number of systems in operation worldwide has significantly increased. In 2000 there were 89 million square meters of collectors installed or 62 GWth. And, in 2014 there were 580 million square meters or 406 GWth. The annual solar thermal energy yields totaled 52 TWh in 2000 and 341 TWh in 2014.

Compared with other forms of renewable energy, solar heating's contribution to the global energy demand will remain, besides the traditional renewable energies like biomass and hydropower, second only to wind power (Figure 3). When considering installed capacity, solar thermal is the leader.

Ken Guthrie, IEA SHC Chairman notes that "Heating accounts for 47% of the world's energy demand. This is higher than the demand for electricity (17%) and transport (27%) combined. What this means for solar heating and cooling is that there is huge potential for this renewable supply of energy that is just waiting to be exploited."

Highlights From This Year's Report

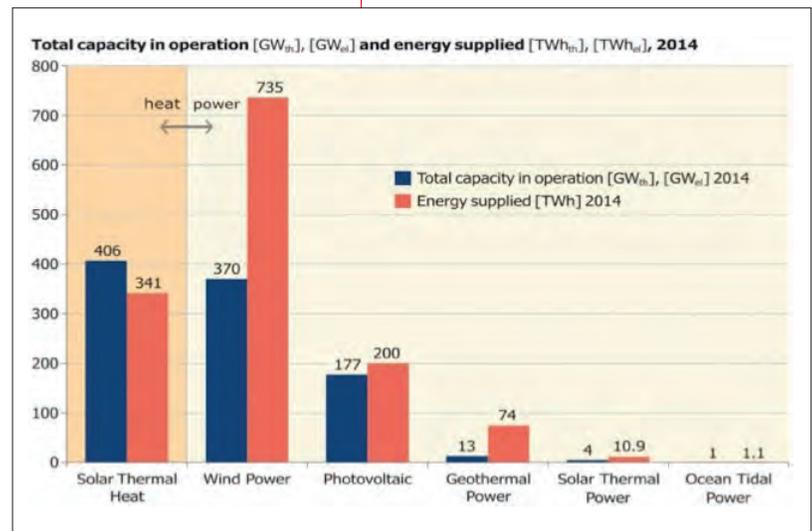
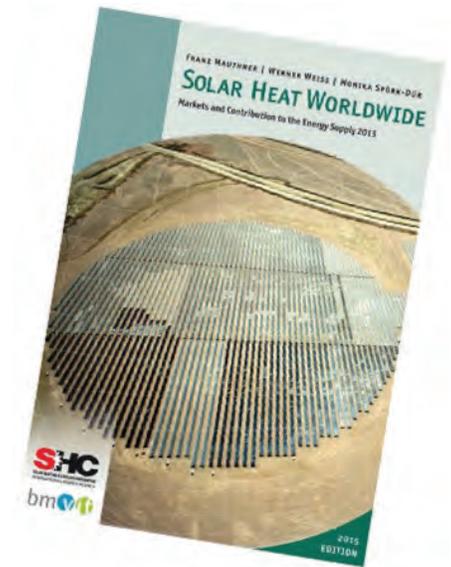
Total Capacity

The vast majority of systems in operation in 2013 were installed in China (262.3 GWth) and Europe (44.1 GWth), which together accounted for 82% of the total capacity installed.

China, as the world leader in total capacity, is focusing very much on evacuated tube collectors, whereas the United States is holding second position due to its high installation of unglazed water collectors. Only in Australia, and to some extent in Brazil, unglazed water collectors also play an important role. The rest of the "Top 10 countries" are clearly focusing on flat plate collector technology.

Market Growth

In 2013, a total capacity of 55.0 GWth, corresponding to 78.6 million square meters of solar collectors, was installed worldwide, which represents a 1.8% increase compared to 2012.



▲ **Figure 2. Global capacity in operation [GW_{el}], [GW_{th}] 2014 and annual energy yields [TWh_{el}], [TWh_{th}]**

(Sources: AEE INTEC, Global Wind Energy Council (GWEC), European PV Industry Association (EPIA), REN21 - Global Status Reports 2014 and 2015)

continued on page 3

Top 10

Top 10 Installed Capacity in 2013* (in GWth)	Top 10 Installed Capacity per 1,000 inhabitants in 2013* (in kWth)
China 262.3	Austria 430
United States 16.7	Cyprus 425
Germany 12.3	Israel 377
Turkey 10.9	Barbados 319
Brazil 6.7	Greece 271
Australia 5.6	Palestinian Territories 257
India 4.4	Australia 252
Austria 3.5	China 194
Greece 2.9	Germany 151
Israel 2.9	Turkey 136

*cumulated water collector installations

Top 10

Top 10 Markets in 2013* (in MWth)	Top 10 Markets per 1,000 inhabitants in 2013* (in kWth)
China 44,492	Israel 38
Turkey 1,344	China 33
Brazil 965	Australia 26
India 770	Palestinian Territories 19
Germany 714	Turkey 17
United States 705	Austria 15
Australia 585	Greece 15
Israel 296	Denmark 13
Italy 208	Switzerland 12
Poland 192	Cyprus 11

*glazed and unglazed water collectors

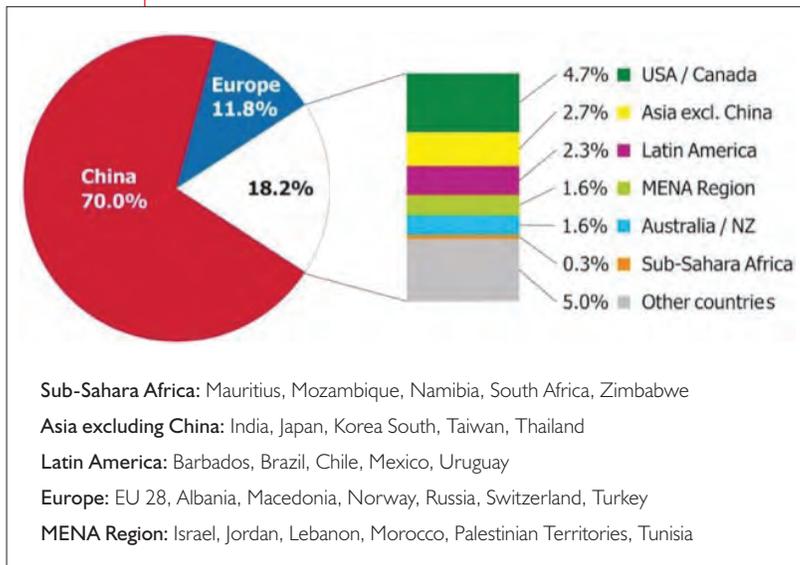
The leaders were China (44.5 GWth) and Europe (3.6 GWth), which together accounted for 87% of the overall new collector installations.

Of the top 10 markets in 2013, growth was reported from China (+2.5%), Turkey (18.2%), Brazil (+19.8%) and Israel (+35.8%). The other major solar thermal markets saw a decline, India (-22.9%), the United States (-0.2%), Germany (-11.3%), Australia (-8.8%), Italy (-10.0%) and Poland (-9.2%).

Applications

On the technology side, evacuated tube collectors are the clear market leader accounting for 79.4% of the newly installed capacity, which is driven by the dominance of the Chinese market. Followed by 17.4% glazed flat-plate collectors, 3.1% unglazed water collectors and 0.1% glazed and unglazed air collectors.

Download and read the full report at www.iea-shc.org.



▲ **Figure 3. Share of the total installed capacity in operation (glazed and unglazed water and air collectors) by economic region at the end of 2013**