Solrico – global solar market research network published more than 1,500 news since 2008 on...
The total final energy demand increased 1.4% annually from 2013 to 2018.

The share of renewables in total final energy demand barely increased (9.6% in 2013 to 11% in 2018).

In the heating, cooling and transport sector the barriers are nearly the same as 10 years ago.

By the end of 2019, only 49 countries had renewable heating and cooling targets, compared to 166 countries with renewable power targets.

240+ articles and 1,000+ mentions in social media in just one week after the launch and 50,000 downloads over the year.

Download report, summary, all figures and key charts: [www.ren21.net/gsr](http://www.ren21.net/gsr)
Ranking of the largest flat plate collector manufacturers worldwide

SolarEast (Sunrain), China
Greenonetec / Haier, Austria / China
Jinheng Solar (BTE), China
Linuo Paradigma, China
Five Star, China
Sangle, China
Dimas, Greece
Bosch Thermotechnik, Germany
Arcon Sunmark, Denmark
Thermosolar, Slovakia
Eraslanlar, Turkey
Sunte Solar, China
Viessmann, Germany
Delpaso Solar, Spain
Solimpeks, Turkey
Hewalex, Poland
Modulo Solar, Mexico
Nobel, Bulgaria
Cosmosolar, Greece
Emmvee, India

Collector area produced in 2019 [m²]

IEA SHC Solar Academy

Plus 9% production volume overall due to increasing demand for flat plates in high rise buildings in China

Minus 8% for Central European manufacturers

Arcon Sunmark (Denmark) climbed and Hewalex (Poland) dropped in the listing

Source: Manufacturers' information market survey by solrico in February/March 2020
Large-scale solar thermal systems on the rise

Solar District Heating Systems, Global Annual Additions and Total Area in Operation, 2009-2019

- Number of systems added outside Europe
- Number of systems added within Europe

World Total: 417 Systems
Collector area in m²:
- Cumulative collector area in operation outside Europe
- Cumulative collector area in operation in Europe

Note: Includes large-scale solar thermal installations for residential, commercial and public buildings. Data are for solar water collectors and concentrating collectors.

Source: IEA SHC.
Strong growth in central hot water systems

Linuo Paradigma from China reported 27 projects with more than 5,000 m² collector area (blocks of flats, offices, hospitals and schools)

Turkey: 50 systems in prisons in three years

Photos: Linuo Paradigma and Eraslanlar
Increasing market pressure in Europe

Outside China, new additions were stable with growth in some markets balancing decline in others

Minus 1.8 % for Europe in total after +8 % in 2018 (first estimates of Solar Heat Europe)

Major European markets declined again significantly

Absolute figures of additions in the 20 key markets available in table R18 on page 239 in GSR

Note: Additions represent gross capacity added. New additions in China were based on produced collector area, and included export volumes in the national statistics for 2019 and earlier years.
Increasing market pressure in Central Europe

Stop of production and insolvencies of small and medium-size manufacturers in Europe

- Two long-time European solar brands, KBB Kollektorbau (Germany) und Kingspan Renewables (Ireland) closed collector factories.

- The insolvencies of manufacturers Aventa Solar (Norway), Fresnex (Austria) and Solarus (Netherlands) were caused by their inability to secure the necessary funding to increase business volumes.
Shock waves in the solar thermal sector

- Decision of closing Arcon Sunmarks (Denmark) project development and collector production in April 2020

  “The financial development with heavy losses is intolerable,” Thomas Karst, CEO of Arcon-Sunmark.

- Insolvency of Glasspoint (USA) in May 2020 due to a halt in additional funding by the investors

<table>
<thead>
<tr>
<th>Project</th>
<th>Customer</th>
<th>Location</th>
<th>Size (MW)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miraah</td>
<td>Petroleum Development Oman</td>
<td>South Oman</td>
<td>1,000</td>
<td>360 MW online since March 2020</td>
</tr>
<tr>
<td>Belridge</td>
<td>Aera Energy</td>
<td>California</td>
<td>850</td>
<td>Solar Heat Delivery Contract signed</td>
</tr>
</tbody>
</table>
The first two SHIP systems were realised as ESCO models: Condat Paper Mill in France and a Chemical factory in Belgium.

ESCO SHIP Malteries Franco-Suisses in France (10 MW) under construction. Kyotherm announces 11 further solar heat supply contracts with clients (mostly SHIP) outside France together with solar project developers.

First heat supply contracts under negotiations by Sunti (France) and Millennium Energy Industries (Jordan).

Linuo Paradigma`s newly founded subsidiary for ESCO project development (China) realised two first renewable heat projects with heat pumps.

SWA Solar Wärme (Austria) completed one ESCO project in 2019.
Well established supply chain

76 turnkey SHIP suppliers are currently depicted on the world map

61% of the listed companies produce collectors in-house or on-site
Highly fluctuating SHIP market

2017
107 SHIP systems with 153 MWth
- 120 MW Miraah in Oman
- No agricultural applications
- 22 systems in India

2018
99 SHIP systems with 39 MWth
- 0 MW Miraah
- 51 SHIP plants in Mexico

2019
86 SHIP systems with 251 MWth
- 180 MW Miraah
- 26 plants in Mexico and 7 in India
- 10 agricultural systems

Source: Solar Payback surveys
<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>Módulo Solar</td>
<td>Mexico</td>
</tr>
<tr>
<td>72</td>
<td>Sunrain</td>
<td>China</td>
</tr>
<tr>
<td>66</td>
<td>Inventive Power</td>
<td>Mexico</td>
</tr>
<tr>
<td>47</td>
<td>Linuo Paradigma</td>
<td>China</td>
</tr>
<tr>
<td>32</td>
<td>Megawatt Solutions</td>
<td>India</td>
</tr>
<tr>
<td>29</td>
<td>Ritter XL Solar</td>
<td>Germany</td>
</tr>
<tr>
<td>28</td>
<td>SEA Sistemas de Ecotecnias Ambientales,</td>
<td>Mexico</td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Vicot Solar Technology</td>
<td>China</td>
</tr>
<tr>
<td>22</td>
<td>Millennium Energy Industries</td>
<td>Jordan</td>
</tr>
<tr>
<td>21</td>
<td>Inter Solar Systems</td>
<td>India</td>
</tr>
<tr>
<td>20</td>
<td>Soliterm</td>
<td>Germany</td>
</tr>
<tr>
<td>16</td>
<td>Sunda</td>
<td>China</td>
</tr>
<tr>
<td>15</td>
<td>Himin</td>
<td>China</td>
</tr>
<tr>
<td>15</td>
<td>Solid Energy Systems</td>
<td>Austria</td>
</tr>
<tr>
<td>14</td>
<td>Casolar</td>
<td>Mexico</td>
</tr>
</tbody>
</table>

**Industry hubs:** China, Mexico, India and Germany

**Established suppliers of concentrating collectors**

*Source: Solar Payback surveys*
### Small concentrating collector volumes (besides Glasspoint)

<table>
<thead>
<tr>
<th>Application</th>
<th>Newly installed collector area 2018 [m² aperture]</th>
<th>Newly installed collector area 2019 [m² aperture]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parabolic trough</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHIP applications</td>
<td>11,367</td>
<td>7,539</td>
</tr>
<tr>
<td>NON-SHIP applications</td>
<td>21,220</td>
<td>4,051</td>
</tr>
<tr>
<td>Glasspoint (Miraah)</td>
<td>0</td>
<td>257,143</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32,587</td>
<td>268,733</td>
</tr>
<tr>
<td><strong>Dish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHIP applications</td>
<td>1,075</td>
<td>1,962</td>
</tr>
<tr>
<td>Commercial cooking</td>
<td>1,576</td>
<td>160</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,651</td>
<td>2,122</td>
</tr>
<tr>
<td><strong>Linear Fresnel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHIP applications</td>
<td>360</td>
<td>636</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>360</td>
<td>636</td>
</tr>
<tr>
<td><strong>Total across all three technologies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35,598</td>
<td>271,491</td>
</tr>
</tbody>
</table>

Source: Solar Payback surveys
Let pictures tell your story

More than 100 photos with free copyright about SHIP plants around the world

Thanks for your attention!

Bärbel Epp, epp@solrico.com


www.solar-payback.com