

# The seven year itch

The seventh year is known to bring many surprises – in romantic relationships at least. But the seventh year of the annual industry surveys for the world map of the solar thermal industry is packed with surprises, too. There is an above-average number of bankruptcies, exits, acquisitions and portfolio changes reflecting the turbulent times in the global solar thermal market.

It is currently difficult to earn money with solar thermal in Europe. That was the conclusion of the **Velux Group**, a market leader in skylights, when the company announced that it would phase out its production and sale of solar collector systems in September 2013. “Due to difficult market conditions and unsatisfactory growth prospects, sales for Velux solar collectors were far below planned levels,” says Astrid Unger, the spokeswoman for Velux Deutschland GmbH. Collector production in Hungary will continue until the end of the year and then be shuttered. The firm’s employees will be transferred to the window production facility at the same site. Similar factors also likely came into play at Austria’s Greiner Group, which in mid-June 2013 announced the closure of **Greiner Renewable Energy**, a company that includes the former Sun Master collector pro-

duction plant, located in Eberstallzell, Austria since its acquisition in early 2011.

These two were the most prominent exits in 2013, but numerous small firms too have vanished from the map this year. A price war in an atmosphere of weak demand, along with competition from vacuum tubes from China are pushing the smaller flat-plate collector manufacturers in Europe into a corner. In Spain this year, fully three flat plate collector manufacturers – **Energia Eolica y Solar Espanola (ESE)**, **Soliker** and **9REN** – either gave up the solar thermal business or declared bankruptcy. The Austrian flat plate collector manufacturer **Geo-Tec** filed bankruptcy in April 2013 and was dissolved in the summer. Three smaller producers of vacuum tube collectors in Germany, also bid the solar thermal industry farewell: **mp**



Surprising look: a 200 l solar water heater installed on a metal pole supplying the hot water of the family next door. The Brazilian company Soletrol won the tender of delivering 2,300 pole-mounted systems to COPEL, the local utility in the Brazilian state of Paraná.

Photo: Lúcio Mesquita

tec of Eberswalde, **Lenz Solartechnik** of Wertheim and **Philippine** of Lahnstein.

Overall, the number of companies participating in the survey shifted from flat-plate collector manufacturers to the producers of vacuum tubes and air collectors. This year, only 201 companies specialising in flat plate collectors responded, a historic low compared with previous years (see maps, pages 36 to 39). In the 2012 survey 212 flat-plate manufacturers responded, and in the year previous, it was a full 242 companies. The trend on the vacuum tube collector map is a different story. In that segment this year, 85 companies in 22 countries are shown on the map on page 42/43, 14 % more than last year (2012: 73 companies in 20 countries). On the air collector map (see page 44), the number of companies increased by 44 % from 25 to 36 manufacturers. Here, however, the survey methodology plays a role because for the first time the questions pertaining to air collectors were integrated into the world map questionnaire, whereas in previous years, respondents received a separate questionnaire on air collectors. Companies participating in two market segments – for instance, air collectors and flat-plate or vacuum tube collectors – had to fill out two questionnaires, which in some cases caused confusion.

A key complaint of smaller manufacturers was high price pressure, and they no longer see in-house production as economically feasible. For this reason, the two Czech flat plate collector manufacturers Solar Plus and Svoboda have stopped production this year. “It does not feel good to lose one’s status as a manufacturer, but we cannot compete with cheap Chinese imports and the low prices of the big Czech manufacturers,” explains Vladislav Korecky, owner of former flat plate collector producer VK Technik. When the German market research agency solrico began conducting market research in the Czech Republic in 2007, there were 12 manufacturers, of which seven have since left the solar thermal sector or plan to close in the coming months.

Unfortunate stop-and-go incentives policies have accelerated this market consolidation.

But reports of companies discontinuing production have also come in from other countries. The Mexican flat plate collector manufacturer **Heliomex**, for instance, has been purchasing its collectors since 2013 due to “unfair competition by the Chinese vacuum tubes.” Not even two years after it started collector production in 2010 in Shumen, Bulgaria, electric boiler manufacturer **Tesy** shuttered its plant. “The numbers are too small and it is cheaper to purchase flat plate collectors from Turkey,” said Krasimir Gerasimov of the company’s international sales department. **New Energy Systems (NES)** in the same



**sunrain**

**Sunrain DMG65**

tube is heat pipe vacuum tube with a flat absorber profile. It's with diameter of 65 mm and a length of 1800 mm. Compared with tubes and 58 heat pipes, it has higher efficiency, higher output and smaller installation area.













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## Bonding of Solar Thermal Collectors

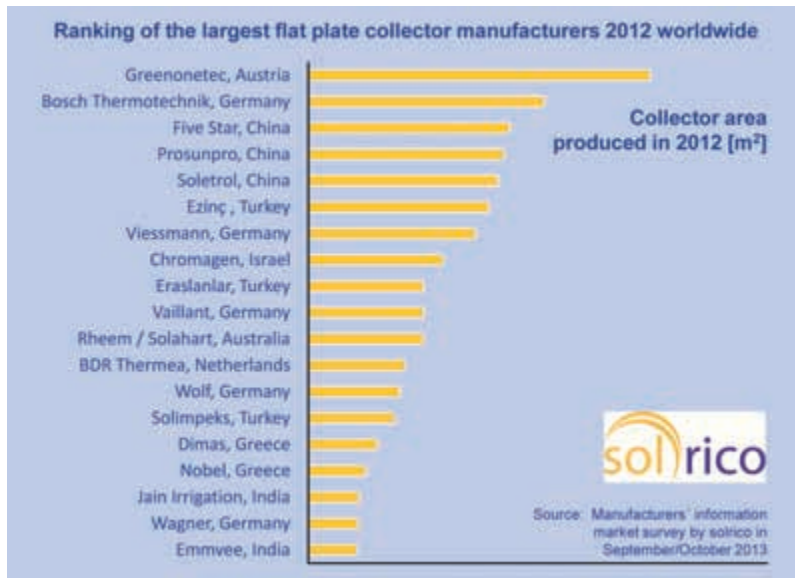
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Ranking of the world's largest flat panel manufacturers based on collector area produced in 2012. The following manufacturers would likely have been included in the ranking but did not participate in this year's survey: the Slovak manufacturer Thermosolar, with its German parent company and the Israeli company Nimrod. BDR Thermea is an exception, because the ranking takes into account the group's total collector sales, part of which is sourced from OEM manufacturers. If the total quantity of vacuum tube collectors produced in Viessmann's Chinese factory were taken into account, the German heating systems company, would have one of the top three slots in the ranking. Greenonetec, Fivestar and Dimas also produce OEM absorbers which are not taken into account in the ranking.

Source: solrico manufacturer survey Sep/Oct 2013

Bulgarian city is increasing its reliance on imports of vacuum tube collectors and is scaling down flat-plate collector production.

## Flat plate collectors in China are catching up

The seven year itch has even left its mark on China. **Sunrain, Himin** and **Linuo Paradigma**, three of the biggest vacuum tube producers in China, which have been included in the survey for years, saw production of vacuum tube collectors decline by an average of 14 % in 2012. All three companies have ascribed the negative trend to reduced demand in the private housing sector, but emphasized that the commercial and industrial use of solar thermal energy is increasing. Flat plate collector manufacturers in China, however, report strong growth. The five flat panel manufacturers **Sunda, Sunrain, Sunshore, HaiLin** and **Five-star**, who regularly participate in the survey, increased production in 2012 by an average of 40 %. This industrial development coincides roughly with the market trends identified by the Chinese Solar Thermal Industry Federation (CSTIF), which published more moderate figures based on a wider pool of companies. For 2012, CSTIF assumes a much lower growth rate of 9 % in newly installed vacuum tube collector area, compared with 27 % growth in flat-plate collector area.

Is there anything surprising about these trends? Not really. The turmoil in what appears to be a case of

the seven year itch is a logical consequence of the developments in recent years and is also reflected in the ranking of the largest flat panel manufacturers (see chart on page 34). The two Chinese flat-plate collector manufacturers, **Fivestar** and **Prosunpro**, took top spots in the rankings but were surpassed by the globalization strategy of Germany's **Bosch Thermotechnik**. The boiler and hot water tank manufacturer invested heavily in the development of global manufacturing and distribution structures over the past year and was able to grab a top spot in the rankings. **Bosch Thermotechnik** now operates solar production facilities at five locations, Aveiro (Portugal), Bangalore (India), Wetztingen (Germany), Shanghai (China) and Alphaville (Brazil), giving the company a slice of the dynamic markets of China, India and Brazil on their home turf. The gap between the second and third place companies in the rankings, as well as the lead of the top-ranked company **GREENoneTEC**, a specialized manufacturer of OEM production collector from Austria, is narrowing steadily. And here's another novelty: two Indian manufacturers have made their way into the rankings for the first time ever. The spots vacated by the above exits in Europe were secured by **Emmvee**, partly owned by the Danish holding company SolarCAP, and **Jain Irrigation**, headquartered in the state of Maharashtra, both of which deal exclusively in the production and distribution of flat plate collectors. Of the 25 Indian companies on this year's world map, fully half offer vacuum tube



Space-saving installation of the collector field above the parking lot at the Crown Plaza Hotel at the Algarve in Portugal

Photo: Chromagen

collectors, either exclusively or in addition to their other products. If the ranking were for vacuum tube collectors alone, the fast-growing Indian system provider **Sudarshan** would have earned a spot. The company has nearly tripled sales of vacuum tube collectors over the past three years, although it started in 1989 as a pioneer in flat plate collector production. Such a rapid portfolio transition is unique in the seven years history of the world map surveys.



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### World map of flat plate collector manufacturers 2013

201 companies in 43 countries

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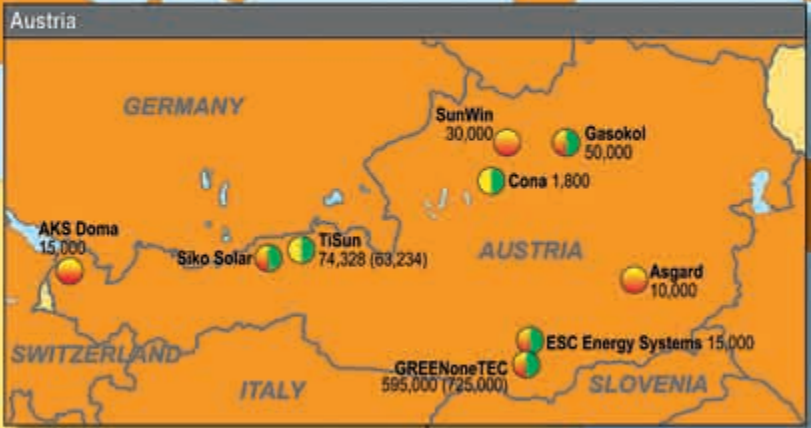
**Caption**

- production site for flat plate collectors
  - production site for flat plate collectors and absorbers
  - production site for flat plate collectors, also as OEM products, and absorbers
  - production site for absorbers only
- \* "Absorber" means absorber plate and pipe system.

22,000 produced square metres of collectors in 2012  
 (22,000) produced square metres of absorbers in 2012  
 \* Manufacturers that started producing flat plate collectors or running a pilot production in 2013.

**Example**

- **Cosmosolar** 80,000  
Cosmosolar assembled flat plate collectors with an area of 80,000 m<sup>2</sup> in 2012. The Greek manufacturer sold parts of it to other branded companies.
- **Tata Power** 35,000 (70,000)  
If a factory's output of collectors differs greatly from that of absorbers, both figures are mentioned. The manufacturer Tata Power Solar Systems from India produced 35,000 m<sup>2</sup> of collector area and 70,000 m<sup>2</sup> of absorber area in 2012.









A 12 m<sup>2</sup> hot water system is hidden in the façade of this modern residential building. The large-scale wood framed collectors come from Doma Solartechnik in Vorarlberg, Austria, which was acquired by the Swiss company Ernst Schweizer in March 2013.

Photo: Doma Solartechnik

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## Acquisitions and start-ups

A growing number of acquisitions in Europe is another sign of accelerated market consolidation. The latest news comes from France. In mid-October, the **Viessmann** heating technology group took over the technology, production, staff, and patents of the French vacuum tube manufacturer **Sophia Antipolis Energie Developpement (SAED)**, which filed for bankruptcy in April. The Austrian collector manufacturer **Ökotech** was able to continue operations following its bankruptcy in the spring of 2013. In June, a private investor, the Prentner family from Styria, took over production as well as the Ökotech brand name. The family-owned company now produces collectors with the new company **Asgard Solarkollektoren**. Since 20 March 2013 Austria's **Doma Solartechnik** in Satteins is the property of the Swiss firm **Ernst Schweizer**. The site, jobs, and management in Satteins will stay put, according to the company's new owner. In February 2013, the Bavarian heating system provider **Orange Energy** acquired the production plant of vacuum tube collector manufacturer **Philippine**. In the UK at the end of 2012 the radiant heating specialist **DiscreteHeat** took over the flat plate collector production facility of the insolvent company **Solar Twin** and now sells its products under the brand name **ThermaTwin**.

The number of new collector manufacturers has declined dramatically this year. In contrast to the nine start-ups each reported in the 2011 and 2012 world map surveys, only three new collector manufacturers

52 2012

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are listed on the maps this year. The US company **SunMaxx**, which entered a partnership with the now insolvent company Geo-Tec in September 2010 with the aim of starting collector production in the US, reports the opening of a new plant in Binghamton, New York. In the first quarter of 2013, Poland's **Galmet**, a manufacturer of hot water tanks, constructed a flat panel production line in the southwest of the country for a total of PLN 14 million (€ 3.3 million). The young company **HelioCaminus** of Sweden has developed a new type of collector over the past two years. The design uses gas-filled, oval tubes, which can be assembled either into modules or integrated into roof collector systems. The new collectors are currently undergoing testing at a testing institution.

Some companies have already taken the first steps to acquire their own collector production facilities, but did not want to be officially listed on the maps this year. Among these companies is boiler manufacturer **Hoval** of Liechtenstein, which according to its website "will bring a self-developed solar collector to market, produced at the plant in Vaduz, Liechtenstein." The Spanish company **Envirocontrol Solar**, a subsidiary of the renewable project developer Cersa Group, is developing a polymer collector slated to come to market next year under the brand name Luzintel. California's **ergSol** wants to focus on solar process heat systems and assemble vacuum tube collectors at the company headquarters.

## New standard promises growth in air collectors

The community of manufacturers on the air collector manufacturer map has seen tidy growth this year as a result of the above-mentioned change in methodology. A total of 82 manufacturers from 31 countries (2012: 75/21) received a questionnaire in September. 36 companies from 18 countries provided product and production data and are thus represented on the world map of the air collector industry in 2013. As in past years, the world map differentiates between the unglazed cladding systems (green) and glazed collectors (red), whose modular design and installation options are analogous to water-based systems. The latter technology dominates and accounts for some three-quarters of the world market. The former is primarily found in North America and China, where it is offered by a number of manufacturers.

Since the air collector questionnaire was available for the first time this year in Chinese, the number of responses has risen from 2 last year to 8. Most of these companies have already long been active in the field of solar air heating and also offer water-based collectors. According to **Himin Solar**, air collectors are currently getting increased attention in the Chinese market. The manufacturer has also observed an increase in efficiency of the systems on offer. The **XNE Group**, represented on the map with 10,000 m<sup>2</sup> of air collector production, has also observed a decrease in heat losses and improved collector stability. **Tsinghua Solar** however, believes the air collector market in

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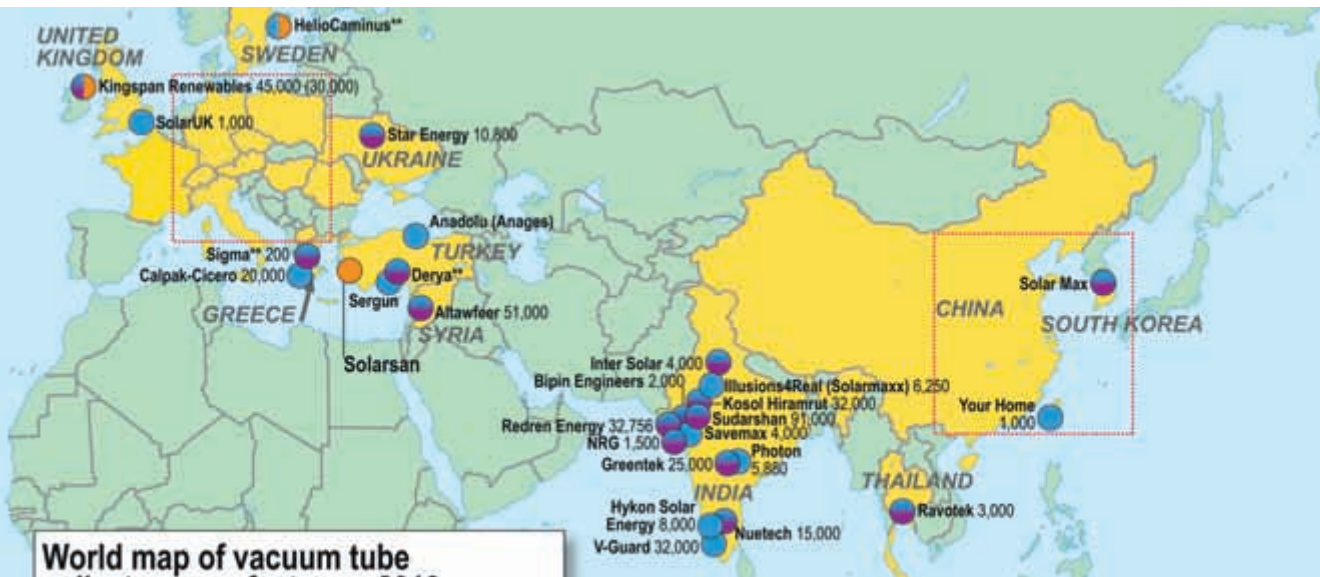
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**World map of vacuum tube collector manufacturers 2013**  
85 companies in 22 countries

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 Date: October 2013  
 Sources: Manufacturers' information, own research

**Caption**

- production site for the assembling of vacuum tube collectors
- production site for vacuum tube collectors and vacuum tubes
- production site for vacuum tube collectors, which are also sold as OEM products, and vacuum tubes
- production site only for vacuum tubes

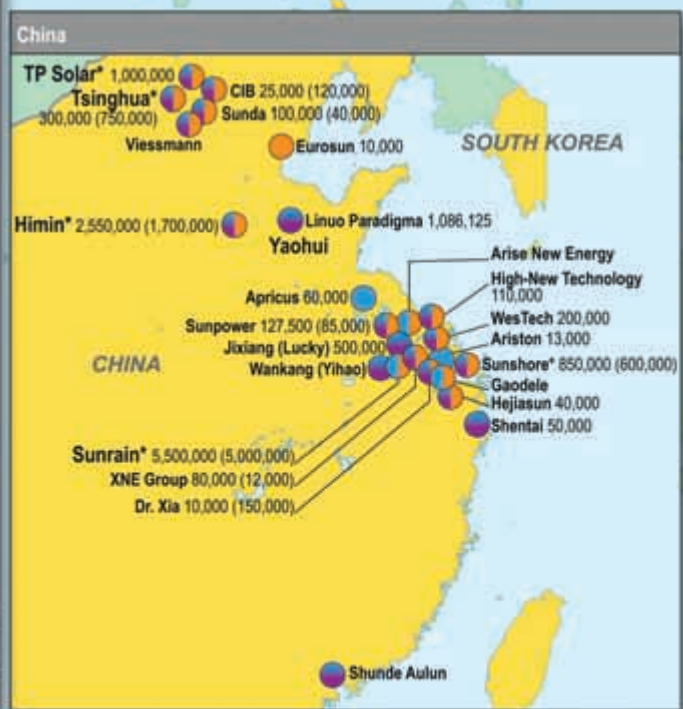
22,000 produced gross area of vacuum tube collectors in 2012 [m<sup>2</sup>]  
 (22,000) produced gross area of vacuum tubes in 2012 [m<sup>2</sup>]

**Himin** Companies which produce glass tubes in their factory are marked in bold.

\* These Chinese companies run several production factories and are listed at their main production site.  
 \*\* Manufacturers that started producing vacuum tube collectors in 2013.

**Example**

- **Makroterm** 3,500  
Makroterm, Poland, assembled vacuum tube collectors with a gross area of 3,500 m<sup>2</sup> in 2012 and sold parts of it to other branded companies.
- **Sunshore** 850,000 (600,000)  
If vacuum tubes and vacuum tube collectors are produced in the same factory, both figures are mentioned. The Chinese manufacturer Sunshore produced vacuum tubes with a gross area of 600,000 m<sup>2</sup> in 2012 and vacuum tube collectors with a gross collector area of 850,000 m<sup>2</sup>.



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## Large Scale

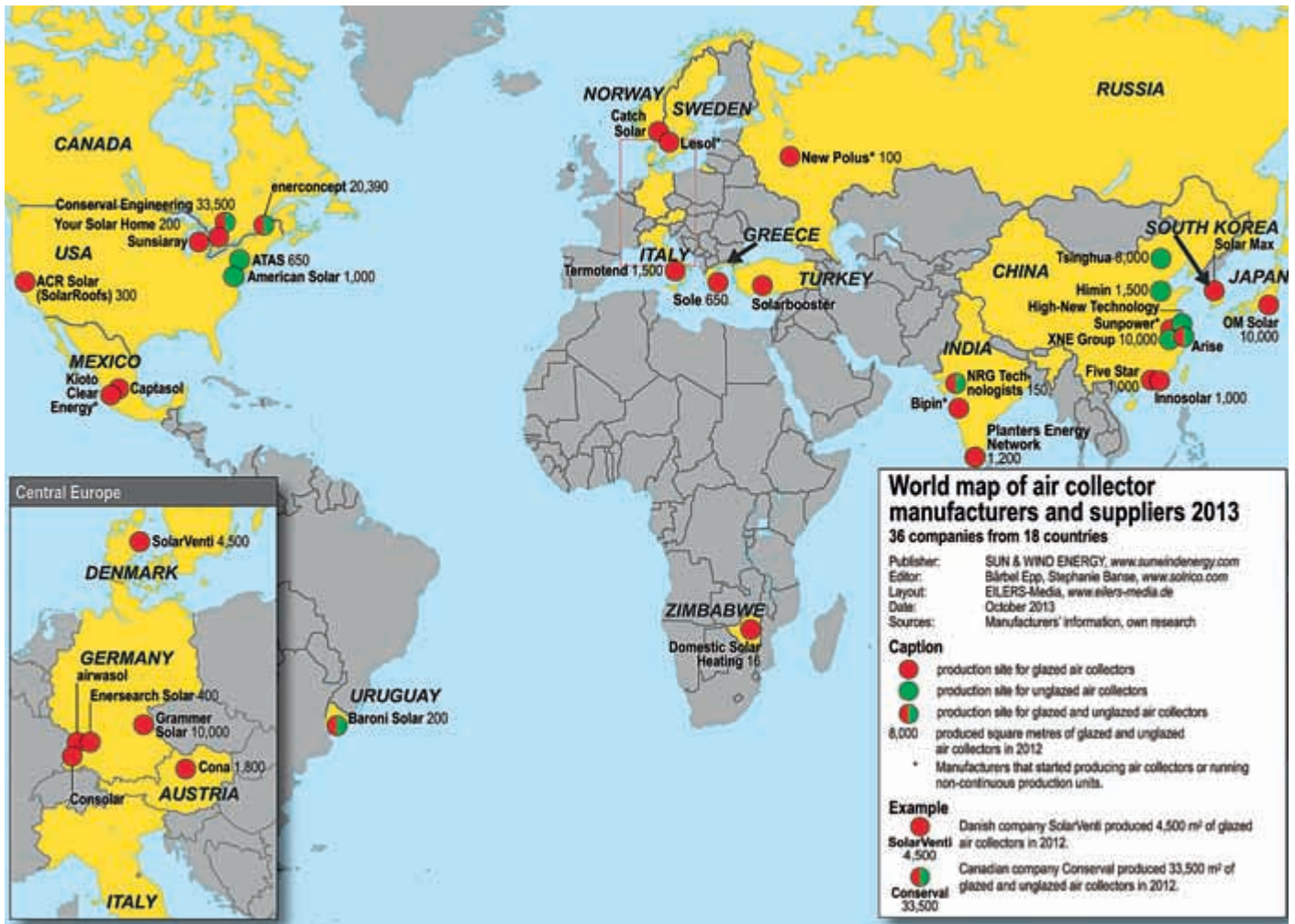
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China is still in an early stage of development. In many cases, the company says, this technology is still in a test or pilot stage and needs time to catch on.


Among the big players in the Canadian and European markets, the production figures have remained constant over the previous year. For 2014, the German manufacturer **Grammer Solar** expects

moderate growth compared with this year. **Enerconcept** of Canada is pinning its hopes on a booming US market and expects the market to recover in province of Quebec with the continuation of the Climate Change Action Plan, which is linked to a programme of incentives for renewable technologies.

Furthermore, both Enerconcept as well as the Canadian leader **Conserval** are betting on growing sales in Europe. An important tool for this expansion is the new, expanded international collector standard ISO 9806, adopted in September 2013 by the international standardisation bodies. This standard takes into account both glazed and unglazed air collectors, in addition to the water-based systems and lays out suitable testing methods for these technologies. These can now be integrated into the Solar Keymark scheme of testing, paving the way for certification, thus promoting the use of solar air collector systems.


In contrast to water-based systems, air collector efficiency depends on volumetric flow, which is why the new test methods provide efficiency measurement at three different volume flow rates. Furthermore the wind speed plays an important role in the efficiency of unglazed systems and, thus had to be incorporated into the test methods.

Inclusion in the standard also provides a final affirmation that air collectors are a recognized source of renewable energy. "Up until now, it has been difficult to sell solar air systems in Europe. The main reason is that there is no test standard," John Hollick,



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CEO of Canadian company Conservall Engineering, said in an online interview with *solarthermalworld.org*. He added: "We are really excited about the potential for Europe." Enerconcept's Lubi collectors have been eligible for support from Germany's Federal Office of Economics and Export Control (BAFA) since spring 2013 based on their proof of performance documentation. Through cooperation with Germany's **GoGas Goch**, which offers the Lubi collectors together with its infrared systems for heating and process heat, the Canadian companies have a good growth outlook in the German market.

### Global industry news in brief:

The Turkish vacuum tube manufacturer **Solarsan** has been producing at its full capacity of 200,000 tubes per month since mid-2012. The company's standard tube type has a 47 mm diameter and is 1,800 mm in length. It is sold to Solarsan stakeholders Demir Solar, Gönen Günüsü, Anages and Inci Solar Energy, which assemble the tubes into complete vacuum tube collectors.

**V-Guard**, an Indian hot water tank manufacturer and importer of vacuum tubes from the state of Kerala, is planning a second production line for solar water heaters in the state of Tamil Nadu. According to press reports, the company which was founded in 2002, has invested INR 180 million (€ 2.1 million) in the plant, which has a capacity of 90,000 complete systems a year, making V-Guard the first company in India with two manufacturing locations.

Absorber manufacturers managed to expand their business in 2012. The three companies **GREENoneTEC** of Austria, as well as **Prime** and **Dimas** of Greece, which regularly participate in the survey, produced an average of 36 % more collectors in 2012 than in the previous year.

After a one-and-a-half year break, the Tunisian solar system provider **Sines** restarted flat panel manufacturing again in June 2013 to avoid an 18 % VAT on imported solar panels that took effect this year. Sines had been purchasing its collectors from Greece.

*Bärbel Epp, Stephanie Banse*

**Cost-effective vacuum tube collector technology for large-fields developed by the French company Sophia Antipolis Energie Développement (SAED) and purchased by the German Viessmann Group in October 2013** Photo: SAED



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