Assembling a vacuum tube collector

- 8.6%

The decrease of the solar thermal market in the European Union in 2015

SOLAR THERMAL BAROMETER

A study carried out by EurObserv'ER.

In 2015, the European Union saw its solar thermal market contract for the seventh year in a row. EurObserv'ER puts sales of solar thermal capacity installed for the heating market (hot water and space heating) at 1 861 MWth, equivalent to a 2.7 million m2 of collectors... a further 8.6% decrease on the previous year's poor performance. Combined solar thermal capacity installed to date in the EU stands at 34.3 GWth, or 49 million m2 of collectors.

2.7 millions m²

installed surfaces of solar thermal collectors in the European Union in 2015

34 332 MWth

total installed solar thermal capacities in the European Union in 2015

Solar thermal collectors in Cyprus

HELIONAL SOLAR THERMAL

First estimates of the 2015 European Union solar thermal market underscore the trend tracked since 2009. The market has contracted persistently since its installation peak in 2008 and in 2015 dipped below the 2006 installation level **(graph 1)**.

EurObserv'ER puts the newly-installed collector area at 2 658 755 m² (or 1 861 MWth of thermal capacity), which is 8.6% less than in 2014 **(tables 1 & 2)**. Flat plate collectors account for most of the installed area (89.0%), followed by vacuum collectors (8.4%) and unglazed collectors (2.6%). Since 2009, the European Union solar thermal market has declined by a mean annual rate of 7.6%. Total installed area in the EU stood at about 49 million m² (34 332 MWth) – a 4.5% year-on-year increase **(table 3).** This estimate includes the three main solar thermal technologies (flat plate, vacuum and unglazed collectors) and factors in the decommissioning assumptions given by the experts contacted for the purposes of the survey. When no figures are available, EurObserv'ER applies a decommissioning factor of 20 years for flat plate glazed collectors and 12 years for unglazed collectors.

The main European Union markets made few positive signals during 2015. The Polish market bucked the trend by actually registering some growth. It took advantage of its less binding incentive system managed by the National Fund for Environmental Protection and Water Management (NFOSiGW) (see further on). Denmark, whose market is particular in that 95% of the installed collector area supplies heating networks, was also upbeat. Preliminary figures released by Jan Erik Nielsen of the Plan Energi consultancy suggest that at least 175 000 m² of connectors were connected

to Denmark's heating networks in 2015, while its individual home market stood at only 10 000 m². Jan-Olof Dalenbäck, a solar heating network specialist of Sweden's University of Technology, says that in 2015, 23 solar heating networks were installed or had additional capacity installed in Europe – 20 in Denmark, one in Italy (Varese Risorse, 990 m²), one in Sweden (Lerum, 850 m²), and one in Austria (Vienna, 1 500 m²). The average size of the new Danish heating networks is much bigger – 10 277 m².

The Greek market, which benefits from tourism investments, is also bearing up well. The market is much less vulnerable to variations because it is dominated by the replacement segment, with relatively high per capita collector areas, and is ranked third in Europe behind Cyprus and Austria **(table 4)**.

Apart from these few exceptions, the other key EU solar thermal markets are in the doldrums and contracted by almost 10% in Germany, 11% in Austria and 14% in Italy. The French market (including its overseas territories) is a critical case, as its new capacity collapsed by about 23.3%. The UK market – already on its last legs – slumped by a further 33.5%. Its government could deal the final blow, as in March 2016 it announced a consultation exercise on its plan to exclude solar thermal from the RHI (Renewable Heat Incentive) list of eligible technologies for the residential and collective sectors. Spain's situation gives less cause for concern, although its construction market-driven ST market registered a slight drop (5.5% in 2015) (see further on).

These poor performance levels can be ascribed to several factors, some of which are cyclical, such as rock-bottom gas and heating oil prices and sluggish construction activity. The key factor is competition from other technologies, which has increased considerably since new technical solutions emerged in what could be called the high-performance heating category, namely condensing gas- or oil-fired boilers, thermodynamic hot-water heaters and air-to-air heat pumps. Solar thermal is also in a face-off with PV solar systems, whose prices have dropped sharply. Moreover PV is entering the self-consumption segment.

While solar thermal solutions are undeniably the most environmentally-friendly in terms of GHG emissions, they are plagued by high investment costs and relatively long ROI periods. Southern Europe, where the winter climate is milder (less prone to frost) operates on another level which means that simpler, less expensive systems, primarily of the thermosiphon type (no controller, probe or need for electricity), can be installed.

Solar thermal system subsidy reductions caused by recession-inspired budgetary discipline policies are another reason for Europe's shrinking ST market. The new incentive systems also penalize solar thermal. Some countries award incentives to a wide range of technologies (condensing boilers, thermodynamic hot-water heaters, air-source heat pumps, and so on) without necessarily considering energy performance levels and investment costs. In the absence of any obvious differentiation in the aid given, consumers tend to opt for the cheapest systems to purchase.

Image and communication are a make-or-break issue for the solar thermal sector, for the ST option simply does not occur to the general public for conventional heating system replacement as there are no sector-specific information campaigns.

NEWS FROM AROUND THE MAIN EUROPEAN UNION MARKETS

GERMANY ROUNDS OFF ITS INCENTIVE PROGRAMME

Data published by AGEE-Stat, the Working Group on Renewable Energy-Statistics for the German Environment Ministry confirms the decline of the country's ST market. The organization claims that 831 000 m² of collectors were installed in 2015, including 806 000 m² of the glazed type (733 500 m² flat and 72 500 m² vacuum collectors) and 25 000 m² of the unglazed type for pool heating. If the installations decommissioned during 2015 are deducted, the German collector area is put at 18 625 000 m² including 660 000 unglazed collectors. According to BSW Solar (the German solar industry association), there were 2 152 000 solar thermal systems installed by the end of the year, namely 101 000 more than in 2014. Even if the German market is slowing down, it is easily the European Union's biggest and still enjoys sales of around 0.75 billion euros.

Rock-bottom gas and oil prices are the reason for the solar thermal market's low performance. At the same time Germany sales of "fossil fuel" boilers picked up. According to the BDH, the German heating system industry association, sales of fossil fuel boilers increased by 6% in 2015 (i.e. 623 500 units sold) while sales of all categories of renewable heating systems dropped (by 10% for solar thermal, 18% for biomass boilers and 2% for heat pumps). Another issue in the market's decline is that heating system installers no longer recommend solar thermal heating solutions as they consider them to be harder to install (they involve roof work) and more expensive than the other technical solutions.

The government raised the "Marktanreizprogramm (MAP)" subsidy level from 1 April onwards (see the May 2015 CSP solar thermal barometer) to stem the market's particularly acute decline early in 2015. Since 1 January 2016, it has made new provisions through "Anreizprogramm Energieeffizienz (APEE)", a new energy efficiency stimulation programme which aims to help fund the replacement or modernization of existing heating systems provided that efficiency is gained. Optimization can only be achieved by replacing a gas- or oil-fired heating system (condensing boilers are excluded from the measure) with a heating system that either runs on biomass, or is a heat pump system or combined solar thermal system (hot water + heating). The incentive also applies to solar thermal panels coupled to the system to boost the existing system's efficiency.

The additional APEE incentive amounts to 20% of the subsidy awarded through the MAP programme, topped up by a € 600 premium for any investment that increases an existing heating system efficiency.

Some examples follow. Installing at least 7 m² of vacuum collectors for a combined solar thermal system and a 50-L hot-water tank per m² of collectors with the existing boiler could benefit from the € 2 000 subsidy awarded through

the MAP programme, an additional 20% bonus (i.e. 20% of the € 2 000, namely € 400) and a € 600 subsidy for optimizing the heating system, totalling € 3 000 of aid.

The subsidy level will be € 2 500 for installing a combined solar thermal system to replace a boiler, awarded through MAP (€ 2 000 plus € 500 for changing the boiler), and since 1 January 2016, a supplementary grant of € 500 through the new APEE programme (20% of € 2 500) plus the € 600 subsidy for optimizing the heating system, totalling € 3 500 of aid.

For a combined 15–40 m² system with vacuum collectors, the MAP premium is € 140 per m² of collectors. Thus a 25 m² system will receive a € 3 500 MAP grant (€ 140 x 25 m²), plus a € 700 APEE subsidy (€ 3 000 x 20%) plus the € 600 subsidy for optimizing the heating system, totalling € 4 800 of aid. The same principle applies to 20–100 m2 systems; the subsidy awarded through MAP is € 20 per m² of collectors or € 0.45 per kWh. The 20% APEE premium and € 600 optimization subsidy round this off.

Germany's new solar thermal incentive policy is beginning to show results. The BDH claims that the market started to recover in the first quarter of 2016, with sales 3% up on the same quarter in 2015.

THE POLISH MARKET PICKS UP A LITTLE

Although the Polish market is only a third of the size of the German market, it was ranked second in the European Union in 2015 with 277 000 m² (194 MWth), having grown by 6.5% over the twelve-month period. However there is some uncertainty surrounding the reliability of these figures because the 2015 data was sourced from the Association of Producers and Importers of heating appliances (SPIUG) for the first time, whereas EC BREC Institute for Renewable Energy Ltd, which terminated its survey last year, had previously provided the market data.

Tabl. n° 1

Annual installed surfaces in 2014 per type of collectors (in m2) and power equivalent (in MWth)

Country	Glazed collectors		Unglazed collectors	Total (m²)	Equivalent power (MWth)
	Flat plate collectors	Vacuum collectors			
Germany	814 600	85 400	20 000	920 000	644.0
Greece	270 000	600		270 600	189.4
Italy	236 280	32 220		268 500	188.0
Poland	208 000	52 000		260 000	182.0
Spain	235 355	15 900	3 839	255 094	178.6
France*	189 239		6 000	195 239	136.7
Denmark	179 186			179 186	125.4
Austria	150 530	2 910	1 340	154 780	108.3
Czech Republic	27 095	11 148	35 000	73 243	51.3
Netherlands	27 000	3 000	27 396	57 396	40.2
Belgium	42 500	9 500		52 000	36.4
Portugal	50 064	903		50 967	35.7
United Kingdom	24 590	5 870		30 460	21.3
Ireland	14 691	10 644		25 335	17.7
Croatia	18 952	2 575		21 527	15.1
Cyprus	18 834	633		19 467	13.6
Romania	6 200	12 300	170	18 670	13.1
Hungary	10 580	6 170	1 250	18 000	12.6
Slovakia	5 500	1 000	500	7 000	4.9
Sweden	5 024	1 649		6 673	4.7
Bulgaria	5 600			5 600	3.9
Finland	3 000	1 000		4 000	2.8
Slovenia	2 925	700		3 625	2.5
Latvia	1 940	420		2 360	1.7
Lithuania	800	1 400		2 200	1.5
Estonia	1 000	1 000		2 000	1.4
Luxembourg	1 985			1 985	1.4
Malta	1 164	291		1 455	1.0
Total EU 28	2 552 634	259 233	95 495	2 907 362	2 035

** Included 38 739 m² in the overseas departments.* ***Source: EurObserv'ER 2016.***

The change in the Polish incentive system funded by the National Fund for Environmental Protection and Water Management (NFOSiGW) in 2015 was ambivalent for the solar thermal market. The good news is that since 1 August 2015 the aid programme administrator removed a major barrier for solar thermal market development – namely that eligibility for a solar heating system installation subsidy is no longer contingent on having a renewable electricity generating system installed. On the downside, the administrator decided to reduce the solar thermal subsidy level on the same date. Since then the solar thermal system costs eligible for subsidy have dropped from 3 200 to 2 000 zlotys (roughly € 730 to € 426 per kW), capped at 20% of the eligible costs in 2016 and at 15% for the years to come.

SPAIN'S SOLAR MARKET IS WEANING ITSELF OFF SUBSIDIES

The Spanish market slipped again after a modest two-year upturn. According to ASIT, the Spanish solar thermal association, it contracted by 5.5% compared to its 2014 level, achieving 241 165 m² of installed surface including 3 375 m² of unglazed collectors in 2015. As regards distribution by application sector, collective installations (119 660 m²) overtook individual systems (118 130 m²) for the first time, to which the 3 375 m² of unglazed collectors for pool heating should be added.

ASIT primarily ascribes this decline to the sluggish construction market, which also contracted by 5%. The Spanish solar thermal market is tightly bound by the "Technical Building Code" which makes the installation of solar panels compulsory for domestic hot water production in new buildings or building redevelopment projects. ASIT also mentions a secon-

Tabl. n° 2

*Annual installed surfaces in 2015** per type of collectors (in m2) and power equivalent (in MWth)*

Country	Glazed collectors		Unglazed collectors	Total (m²)	Equivalent power (MWth)
	Flat plate collectors	Vacuum c ollectors			
Germany	733 500	72 500	25 000	831 000	581.7
Poland	230 000	47 000		277 000	193.9
Greece	271 000	600		271 600	190.1
Spain	226 669	11 121	3 375	241 165	168.8
Italy	203 201	27 387		230 588	161.4
Denmark	185 000			185 000	129.5
France***	143 800		6 000	149 800	104.9
Austria	134 260	2 320	890	137 470	96.2
Czech Republic	22 000	9 000	30 000	61 000	42.7
Belgium	39 000	7 500		46 500	32.6
Portugal	46 134			46 134	32.3
Netherlands	17 548	3 971	2 621	24 140	16.9
Ireland	13 297	10 200		23 497	16.4
Croatia*	18 952	2 575		21 527	15.1
United Kingdom	16 935	3 306		20 241	14.2
Romania*	6 200	12 300	170	18 670	13.1
Cyprus	18 000	600		18 600	13.0
Hungary	10 080	5 570	1 250	16 900	11.8
Slovakia*	5 500	1 000	500	7 000	4.9
Sweden*	5 024	1 649		6 673	4.7
Bulgaria	5 600			5 600	3.9
Finland*	3 000	1 000		4 000	2.8
Slovenia*	2 925	700		3 625	2.5
Luxembourg	3 537			3 537	2.5
Latvia*	1 940	420		2 360	1.7
Lithuania*	800	1 400		2 200	1.5
Estonia*	1 000	1 000		2 000	1.4
Malta	742	186		928	0.6
Total EU 28	**2 365 644**	**223 305**	**69 806**	**2 658 755**	**1 861**

*2015 market data not available during the survey realised in may 2016. * Observ'ER estimation based on the 2014 market. ** Estimate (latest available information at the end of May 2015). ***included 39 220 m² in overseas departments.* **Source: EurObserv'ER 2016.**

dary factor for the market's decline, namely its deteriorating performance in Andalusia (the top regional market accounting for about a third of the Spanish market) whose regional incentive programme, Prosol, ended in June 2015. Current measures enable up to 40% of ST investment costs to be covered capped at € 12 000. ASIT feels that the Spanish market's growth prospects will improve in 2016 and 2017, as the construction market gradually picks up steam. The association also points out that despite the lack of incentives, the demand for installation not covered by a regional subsidy increased in Andalusia, and the same goes for Spain's other regions. Part of the reason for development of the unsubsidized systems market is that the solar system manufacturers and energy service companies are offering customers ingenious new financing terms (see industry new section on p.9).

THE FRENCH MARKET SINKS FURTHER

The French market indicators are stuck on red. According to data from the French HVAC industry union, Uniclima, the ST market in mainland France dropped by about 35%, taking the market below 97 800 m² in 2015 compared to 150 500 m² in 2014. Individual solar hot-water heater deliveries dropped by 34% from 18 600 in 2014 to 12 300. The combined solar system segment has turned into a niche market with only 400 systems installed (dropping by 46%). Uniclima reports that while these systems enjoy a 50% market share in Germany, they have failed to establish a foothold in the new build or renovation segments in France.

The new solar thermal hot-water production collector area for multi-occupancy buildings (apartment blocks and tertiary buildings) declined at the same pace as the market (35%) to 48 800 m² in 2015 (75 500 m² in 2014).

If we add the collector area installed in the overseas territories, that Observ'ER puts at 39 220 m² in 2015 and the unglazed collector market, the French market figure for 2015 as a whole is 149 800 m².

The market's decline has been exacerbated by the new version of the CITE (energy transition tax credit). This measure that aims to encourage improvements to residential energy quality no longer differentiates between heating appliances said to be high performance and thus awards a single 30% tax credit rate across the board. It likens condensing boilers to heat pumps (except air-to-air HPs), thermodynamic hot-water heaters and the other systems that use renewable energies. The administrative simplification puts systems with higher investment costs at a disadvantage. Given the same tax credit terms, buyers prefer to invest in cheaper rather than greener systems. Another factor mentioned by the manufacturers is that installers are less inclined to recommend solar thermal solutions because they entail rooftop working.

Furthermore, the RT2012 heat regulation that enforces recourse to at least one renewable energy source in family home construction has not bolstered solar heat solutions. Thus in new build, individual solar hot water heaters face stiff competition from thermodynamic hot-water heaters, which are much cheaper to purchase.

In the case of multi-occupancy buildings, RT2012 has not led to the uptake of ST installations firstly, because solar gains (in the calculation engine's default values for calculating a building's energy efficiency) are incorrect and secondly, because energy performance requirements have been waived. A transitional period for multi-occupancy housing was introduced through to 1 January 2015 to enable the regulations to be phased in along with less costly solutions, setting a target of 57.5 kWh/m²/p.a. instead of 50 kWh/m²/p.a. The order dated 19 December 2014 extended the RT2012 waiver for another 3 years through to 1 January 2018, for multi-occupancy housing. Uniclima claims that the waiver has robbed collective ST of its momentum in new build.

Although the French sector is falling apart, strong growth in the number of solar hot-water heaters is forecast from 2018–2023 in the Environment Ministry's draft "renewable energy production capacity programming" decree recently opened for consultation. The bill forecasts 180 ktoe of energy output by 31 December 2018, and low and high options of 270 ktoe and 400 ktoe respectively by 31 December 2020. André Joffre, Managing Director of Tecsol, a solar energy specialist and chairman of Qualit'EnR, views these aims as "sky high, especially with gas prices falling". They would call for a solar thermal collector base of 4.2 million m² in 2018 and 6.2–9.3 million m² in 2023, creating a 480 000 m²/p.a. market from 2015–2018 and 410 000–1 000 000 m²/p.a. market from 2018–2023. Unless the incentive system is overhauled and a large-scale communication campaign is run, these aims are just a pipe dream.

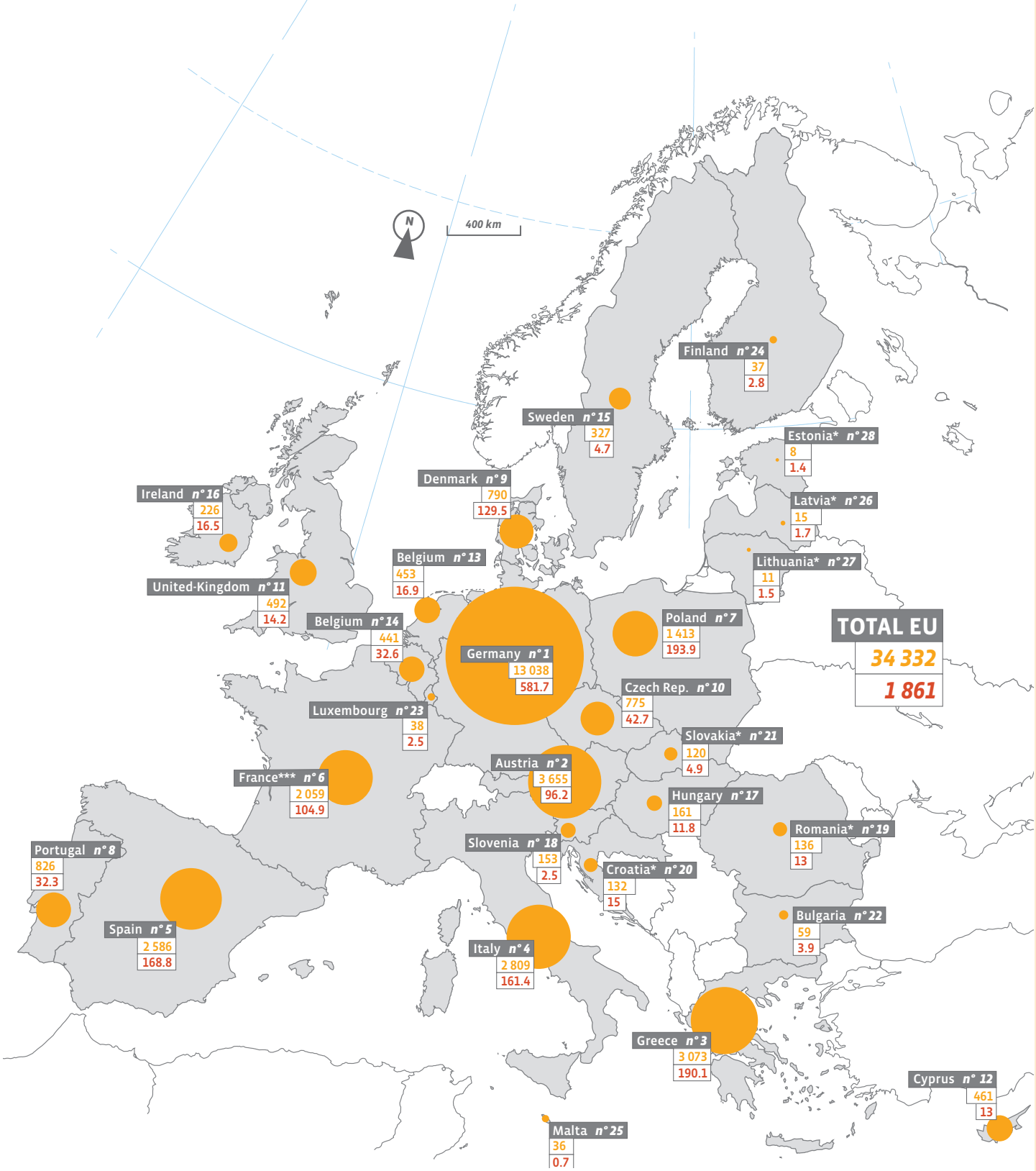
CONTO TERMICO 2.0 ROLLED OUT

The Italian market had another very tough year. According to Federico Musazzi of Assotermica, the Italian heating appliance and component manufacturers' association, newly-installed capacity dropped by 14%, perpetuating the market contraction that started in 2011. The decline can be partly explained by the continuing economic downturn, but also by the inefficient national subsidy scheme, Conto Termico, which is under-utilized.

Three alternative aid systems operate for solar thermal in Italy. The first and most popular is a 65% tax deduction paid back over 10 annuities for energy efficiency-related expenses. The system has been extended through to 31 December 2016. Another device that is more seldom used in connection with solar thermal, paves the way to a 50% tax deduction on expenses incurred for building renovation work up to 31 December 2016, after which the rate will drop to 36% as from 1 January 2017, unless the current scheme is extended.

The third type of incentive is Conto Termico, which provides for the payment of a sum calculated on the basis of the solar installation's energy production parameters. The system's inefficiency has been widely criticized. On 1 April 2016 and after 33 months in operation, the incentive mechanism's manager, GSE, displayed only 74 completed public sector projects and 11 894 private residential projects on the website counter. To make this subsidy system more efficient, a new version, dubbed Conto Termico 2.0, was rolled out on 31 May 2016. It differs from the first version in that the system area eligible for subsidies has

Solar thermal power capacity installed in the European Union at the end of 2015** (MWth)



Key

34 332 — *Total solar therma capacity installed at the end of 2015* (MWth)*

1 861 — *Solar thermal capacity installed during the year 2015** (in MWth)*

*2015 market data not available during the survey realised in may 2016. * Observ'ER estimation based on the 2014 market. ** Estimate. *** included 39 220 m² in overseas departments.* **Source: EurObserv'ER 2016.**

Individualized collective solar heating

been increased from 1 000 to 2 500 m², which should herald the development of solar heating networks. Furthermore, the aid system is no longer merely pegged to the size of the installation area, but also to the expected yield of the collectors used. By way of example, a small 5 m² system will be eligible for a subsidy of € 340 €/m² (2.58 m² of flat glazed collectors) to € 450/m² (4.71 m² of vacuum collectors), i.e. € 1 700–2 250 for a full system. The subsidy for a 100 m² system ranges from € 200 to € 300/m² depending on which collector technology is used.

THE ST INDUSTRY IS EYEING UP NEW MARKETS

The solar thermal industry players are having a hard time coping with the market's ongoing decline. Factory closures and company mergers have succeeded each other thick and fast, yet there are still growth areas that a number of players have succeeded in infiltrating.

Tabl. n° 3

Cumulated capacity of thermal solar collectors installed in the European Union in 2014 and 2015** (in m² and in MWth)*

	2014		2015	
	m²	MWth	m²	MWth
Germany	17 987 000	12 591	18 625 000	13 038
Austria	5 165 107	3 616	5 221 342	3 655
Greece	4 287 775	3 001	4 390 375	3 073
Italia	3 781 739	2 647	4 012 327	2 809
Spain	3 452 473	2 417	3 693 638	2 586
France***	2 820 000	1 974	2 942 000	2 059
Poland	1 741 497	1 219	2 018 497	1 413
Portugal	1 133 965	794	1 180 099	826
Denmark	943 761	661	1 128 761	790
Czech Republic	1 045 542	732	1 106 542	775
United Kingdom	683 101	478	703 342	492
Cyprus	670 624	469	659 224	461
Netherland	643 832	451	647 397	453
Belgium	585 128	410	630 628	441
Sweden	470 022	329	467 333	327
Ireland	299 141	209	322 638	226
Hungary	213 723	150	230 089	161
Slovenia	215 199	151	218 824	153
Romania	176 055	123	194 725	136
Croatia	167 092	117	188 619	132
Slovakia	164 420	115	171 420	120
Bulgaria	84 200	59	84 800	59
Luxembourg	51 072	36	54 609	38
Finland	50 013	35	53 513	37
Malta	49 976	35	50 904	36
Latvia	19 010	13	21 370	15
Lithuania	13 550	9	15 750	11
Estonia	10 120	7	12 120	8
Total EU 28	46 925 137	32 848	49 045 885	34 332

** All technologies included unglazed collectors. ** Estimate. *** Overseas department included . Source: EurObserv'ER 2016*

Furthermore, a number of them are heading for financializing their business model and this is reminiscent of the photovoltaic sector around 2012.

As the European continent has been hardest hit by the solar thermal decline, European businesses are going through a tough spell and having to reorganize. Sun & Wind Energy reports that since 2014, two Austrian companies Gasokol and Sunwin have merged. In 2015, ESC Energy Systems halted production. The same goes for Wikoria and REM in Germany and Watt in Poland. Solvis had a close call and when its activity almost ground to a halt when it declared bankruptcy in October 2015, but fortunately its activity started up again thanks to an 11th-hour sales contract. The journal, basing its views on a Solrico survey, confirms that GREENoneTEC is still the leading producer of simple collectors. According to the company's data it produced 540 000 m² of collectors in 2015, but in doing so only used a third of its 1 600 000 m² annual production capacity. The other three key European solar collector manufacturers are heating generalists – Bosch Thermotechnik, Viessmann and Vaillant – who have a firm hold on most of the European market.Europe's manufacturers are now turning towards new geographical markets to buoy sales. The Middle-East seems increasingly attractive as the United Arab Emirates, Egypt and Morocco have already given the industry breathing space and this is set to continue. Additionally new markets could open up in Africa such as Sudan, Nigeria and Ghana.

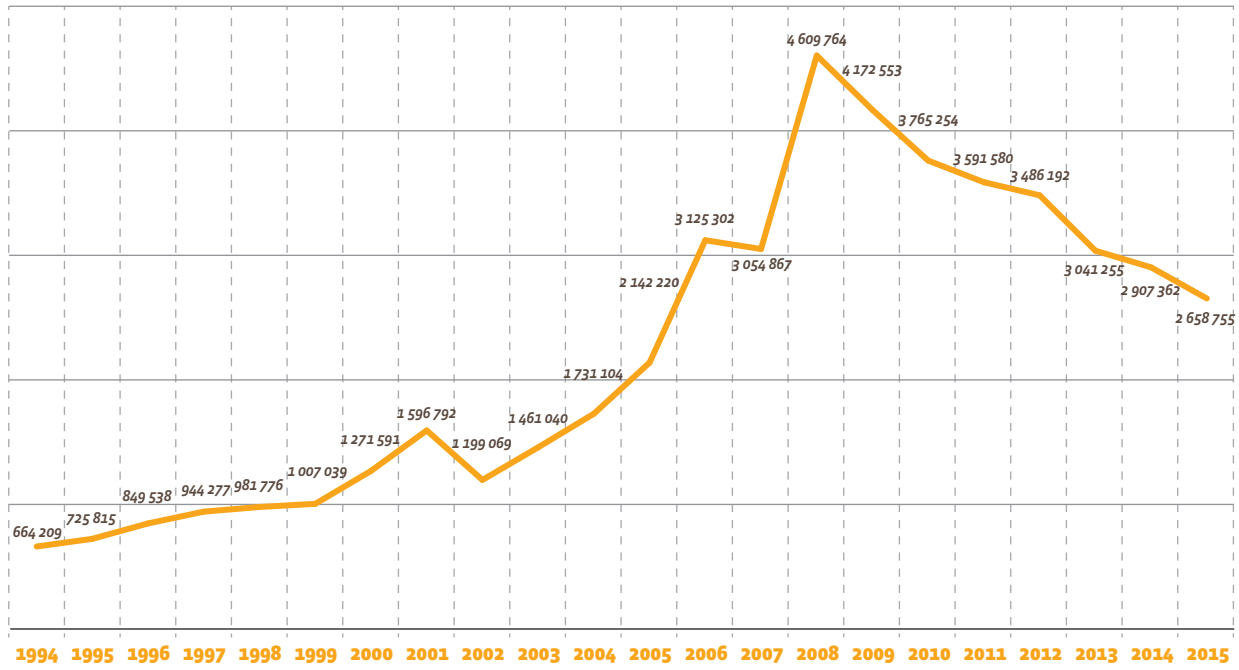
The despondent individual residential sector is a catalyst for market change. New opportunities with new typology of demand are surfacing that could revitalize a number of players. Solar thermal integration into industrial processes and collective habitat could help the sector keep afloat.

Industry could use solar thermal more widely in its production processes to supply hot water. Both the food-processing sector and laundries offer prime pickings. For example, the Bonilait Protéines food-processing plant at Chasseneuil-du-Poitou (Poitou-Charentes) was equipped with 630 solar collectors in 2014. The hot water produced is directly re-used by the powdered milk manufacturing processes. Yet this application of solar thermal is still relatively unheard of in industry, so it is up to the solar thermal players to gear their strategies to the industrial sector. Great efforts will have to be invested into the learning process because full knowledge of the running, process heat entry points and industry-specific technical jargon is needed to build an integration offer for a given industry's processes. This is compounded by the formidable cost of feasibility studies.

Collective housing is also a potential pool of opportunities for solar thermal. The social housing sector in France is opening up to the idea. The Heat Fund prompted a number of public housing association authorities to install solar thermal from 2008–2013, which at the same time generated some counter-references. With this in mind, the Social Housing Union (USH) published a guide to assist owners in their solar thermal facility projects. The guide is written to dispel anxiety when the social housing sector invests in pro-

Graph. n° 1

Evolution of annually installed surfaces of solar thermal collectors in the European Union since 1994 (in m²)



Member states included at the date of their accession. ** Estimate.* ***Source: EurObserv'ER 2016***

jects involving solar thermal. For its part the Socol project, directed by Enerplan, created a library of standard hydraulic drawings for collective solar thermal. Organization is underway to convince these as-yet low-demand markets.
Lastly, heating networks could offer further outlets. Denmark has pioneered this area, which has been exported elsewhere. Thus in Austria, a feasibility study has been conducted to set up the Big Solar project, led by Energie Steiermark and S.O.L.I.D. The project should culminate in a 450 000 m² installation, with 350 MWth of capacity to heat the city of Graz.
Solar thermal professionals are also expanding their service remit to offer their customers financing facilities, since the initial cost of installation curbs uptake in the residential market. New financing offers that remove this hurdle have appeared in Spain and freed solar thermal of its reliance on subsidies. The models that Novasol and Sumersol have developed are presented by solarthermalworld.org. These mechanisms are similar to the leasing models previously developed in the PV sector. The idea is that private customers will not pay for the initial investment of the installation but instead pay the installer or manufacturer a small amount every month that will be lower than what they would have had to pay even without the installation. Novasol is a component manufacturer that offers end customers financing solutions. It negotiates loans with a banking establishment for them and the credit enables the customers to spread the solar equipment purchase cost over 6 or 7 years. The monthly instalments payable to Novasol equate to their energy bill less a discount.
Sumersol has set up a similar scheme. The company is an Energy Service Company (ESCO), and thus offers energy services to its customers. It invests, installs and monitors the solar systems installed on hotels and nurseries. It retains ownership of the installation. The customer pays the ESCO the amount of their normal monthly energy bill discounted by 10–20% and the operation is spread over 18 years.

Tabl. n° 4

Solar thermal capacities in operation*
*per capita (m²/inhab. and kWh/inhab.) in 2015***

Country	m²/inhab.	kWth/inhab.
Cyprus	0.778	0.545
Austria	0.608	0.426
Greece	0.406	0.284
Germany	0.229	0.161
Denmark	0.199	0.140
Malta	0.119	0.083
Portugal	0.114	0.080
Slovenia	0.106	0.074
Czech Republic	0.105	0.074
Luxembourg	0.097	0.068
Spain	0.080	0.056
Ireland	0.070	0.049
Italia	0.066	0.046
Belgium	0.056	0.039
Poland	0.053	0.037
Sweden	0.048	0.034
Croatia	0.045	0.031
France***	0.044	0.031
Netherland	0.038	0.027
Slovakia	0.032	0.022
Hungary	0.023	0.016
Bulgaria	0.012	0.008
United Kingdom	0.011	0.008
Latvia	0.011	0.008
Romania	0.010	0.007
Finland	0.010	0.007
Estonia	0.009	0.006
Lithuania	0.005	0.004
Total EU 28	0.097	0.068

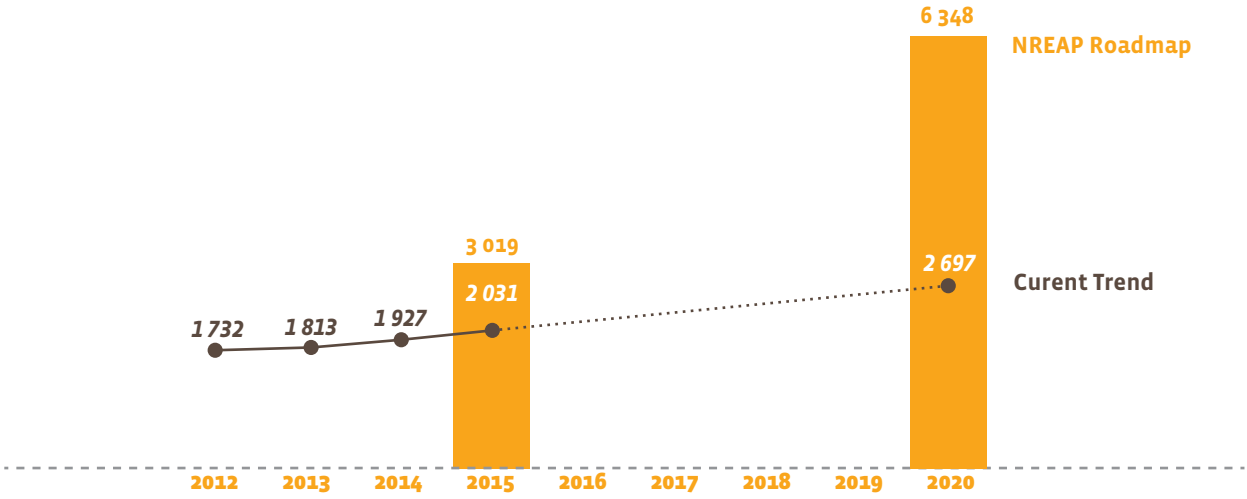
** Included unglazed collectors. ** Estimate. *** Overseas departments included.*
Source: EurObserv'ER 2016.

2020: NEW PUBLIC COMMITMENT?

With the passing of every year Europe's solar thermal sector faces a tougher situation and simply cannot stabilize the market. This market downswing observed since 2009 naturally opens up an ever-widening gap with the National Renewable Energy Action Plans (NREAPs). The midway trajectory for the plans was set at 3 Mtoe in 2015, but at the end of the day the market will only achieve 2.2 Mtoe. EurObserv'ER believes that the target could be missed by in excess of 50% **(graph 2)** if nothing is done quickly to reverse the trend.
That is also the conclusion reached by the European Commission in its latest Progress Report on renewable energies published in June 2015 (Cf. p. 10, table 1. Projected Deployment and Deviation from Planned EU Technology Deployment 2014 and 2020). If we take up the Vienna University of Technology (TU Wien) calculation model results, final energy from the solar thermal installations will at most only reach 3.7 million toe (Mtoe) in 2020.
In its report, the Commission identifies the pressing need to implement additional initiatives so that this technology (along with geothermal energy and biogas) can meet the 2020 renewable targets. Many of the solutions for relaunching the sector are in the hands of the public authorities. Estif (the European Solar Thermal Industry Federation) particularly singles out the Member States' lack of enthusiasm to transpose certain key

Graph. n° 2

Comparison of the current trend against the NREAP (National Renewable Energy Action Plans) roadmaps (in ktoe)



Source: EurObserv'ER 2016

points of the renewable energy directive (2009/28/EC), primarily regarding the "Administrative procedures, regulations and codes" (article 13) and "Information and training" (article 14). Point 6 of article 13, which targets the thermal regulations in construction[1] and point 6 of article 14[2] which targets informing and promoting the use of renewable energies by the general public are in the firing line. In the sector's current state, market revival can only succeed if national communication campaigns are run to promote solar heating combined with national implementation of much more binding regulatory frameworks on energy efficiency.

1) Article 13-6: "With respect to their building regulations and codes, Member States shall promote the use of renewable energy heating and cooling systems and equipment that achieve a significant reduction of energy consumption. Member States shall use energy or eco-labels or other appropriate certificates or standards developed at national or Community level, where these exist, as the basis for encouraging such systems and equipment."

2) Article 14-6: "Member States, with the participation of local and regional authorities, shall develop suitable information, awareness-raising, guidance or training programmes in order to inform citizens of the benefits and practicalities of developing and using energy from renewable sources."

Sources: AGEE Stat (Allemagne), Assotermica (Italie), SPIUG (Poland), ASIT (Espagne), Uniclima (France), Observ'ER (DOM france), Planenergi (Danemark), AEE Intec (Autriche), Ministry of Industry and Trade (République tchèque), CBS (Pays-Bas), Apisolar (Portugal), ATTB (Belgique), STA (United Kingdom), SEAI (Irlande), University of Miskolc (Hongrie), APEE (Bulgarie), STATEC (Luxembourg), SEWCU (Malte), Observ'ER.

The topic of the next barometer will be biofuels.

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