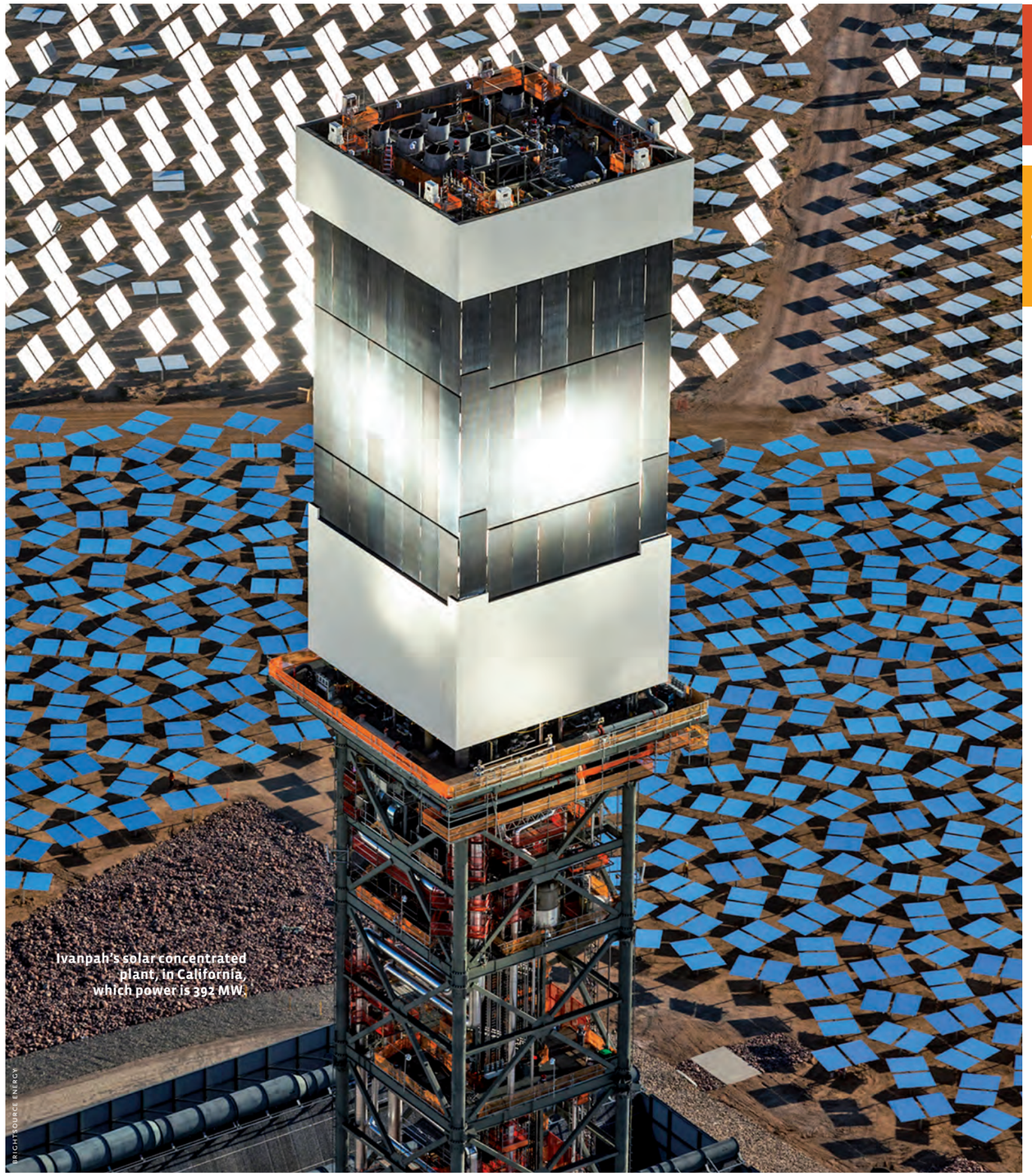


Ivanpah's solar concentrated plant, in California, which power is 392 MW.

BRIGHTSOURCE ENERGY

2 311,5 MWe

concentrated solar power in the European Union at the end of 2014

CONCENTRATED SOLAR POWER AND SOLAR THERMAL BAROMETER

A study carried out by EurObserv'ER.

EurObserv'ER

European concentrated solar power capacity remained stable in 2014 and will probably post a negligible increase in 2015. Construction work on a number of new facilities in Italy that are scheduled for commissioning in 2016 and 2017 could commence in the second half of the year.

The European solar thermal market for producing heat, domestic hot water and heating has not found the recipe for recovery. According to EurObserv'ER, the market contracted by a further 3.7% from its 2013 level which is the sixth decrease in a row.

2,9 millions m²

installed surfaces of solar thermal collectors in the European Union in 2014

32 987 MWth

installed thermal solar park in the European Union in 2014

SOLAR THERMAL AND CONCENTRATED SOLAR POWER BAROMETER – **EUROBSERV'ER** – MAI 2015

Shams 1 concentrated solar plant, 100 MW, in Abu Dhabi, United Arab Emirates.

MASDAR

This edition of the European barometer on the use of the thermal energy of the sun's rays starts with an update on the development of solar thermodynamic technologies dedicated to electricity production. The second part deals with the direct use of solar thermal energy to produce domestic hot water, heating and cooling. It monitors the main three solar thermal technology markets – namely glazed flat-plate collectors, vacuum collectors and unglazed collectors. Air-type collectors that are rarely found in the European Union are excluded from this survey.

PART I: CONCENTRATED SOLAR POWER (CSP)

ALMOST 4 300 MW INSTALLED ACROSS THE WORLD

The world focus for CSP plant commissioning in 2014 was the USA. According to the Solar Energy Industries Association (SEIA), it connected 767 MW over the twelve-month period. This additional capacity is split between the Ivanpah project (a 392 MW tower plant complex), the second phase of the Genesis project (a 125 MW parabolic trough plant) and the Mojave Solar project (another 250 MW parabolic trough plant). As a result of these grid connections, EurObserv'ER puts the combined installed capacity of the USA's CSP plants at 1 808 MW at the end of 2014. This figure changed in March 2015 when the new Crescent Dune (110 MW) tower plant complex developed by SolarReserve went on stream, taking the new total for 2015 to 1 918 MW. No other connections are scheduled for this year.

The SEAI's projection for 2016 gives little room for cheer. The developers have put their projects on the back-burner as they view the window as being too short to benefit from the federal American aid package that expires at the end of the year. A number of projects currently on hold, including Abengoa's Palen Solar (500 MW), Brightsource's Hidden Hills (2 x 250 MW) and SolarReserve's Rice Solar (150 MW) facilities.

According to the CSP World (www.cspworld.org) database, there were about 120 CSP plants operating across the world at the end of 2014, including pilot projects and demonstrators. EurObserv'ER puts the combined capacity of these plants at about 4.3 GW spread over some twenty countries with a further 1.2 GW of CSP capacity currently under construction.

The sector's growth pace should increase significantly over the next five years. Most of the specialists reckon that in 2020 worldwide CSP capacity will be between 10 and 15 GW, and should soar over the next three decades. In its Technology Roadmap: Solar Thermal Electricity, published in September 2014, the International Energy Agency (IEA) downgraded its growth forecasts to 2050 slightly. By that time in the high renewable scenario, the IEA forecasts that CSP will contribute about 4 380 TWh, and account for 11% of worldwide electricity output. This equates to 982 GW of capacity installed – as 204 GW in the Middle East, 229 GW in the USA, 186 GW in India, 147 GW in Africa, 118 GW in China, 43 GW in the other American countries (OECD and non-OECD), 28 GW in the European Union. The remainder would be situated in the other OECD countries (19 GW) and Asian countries (9 GW). The 1 000 TWh threshold will probably be crossed in 2030 with about 261 GW of installed capacity.

The development pace will largely depend on the manufacturers' capacity to reduce their production costs, and the IEA is expecting these costs to tumble as the market develops. It puts the current levelized cost of solar thermal electricity (LCOE) at $ 146–213/MWh (mean cost: $ 168/MWh) for years 2013–2015. By 2030 the figure could range from $ 86–112/MWh (mean cost $ 98/MWh) and $ 64–94/MWh (mean cost $ 71/MWh) by 2050.

CSP IN 2014 – A NON-EVENT IN THE EUROPEAN UNION

The European Union's CSP capacity was static in 2014. It should move up slightly from its 2014 level of 2 311.5 MW **(graph 1 and table 1)** in 2015 (with an additional 1 MW expected in Italy). EurObserv'ER calculates the capacity of Member States' projects under development on 1 January 2015 at about 608.1 MW **(table 2)**, with the caveat that some of them are still subject to authorization or depend on the implementation of sufficiently profitable incentive systems.

Spain's solar thermodynamic plants generated more than 5 TWh

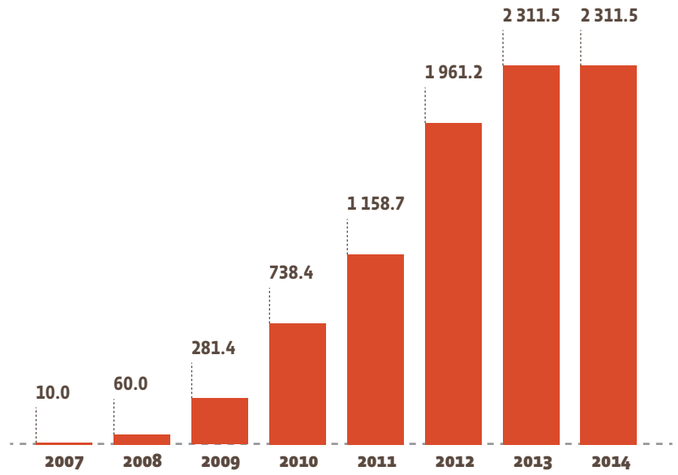
No additional CSP capacity was added in Spain over the last twelve months showing little likelihood of any new developments for the rest of this decade. The Spanish Energy Ministry report released in February 2015 forecast only 211 MW of additional CSP capacity by 2020 through a tendering system. The surprise announcement, which has yet to be confirmed, appears to virtually mothball the country's CSP sector by making a U-turn from the Spanish NREAP targets.

When interviewed by EurObserv'ER, Luis Crespo, the General Secretary of Protermosolar (the Spanish CSP industry Association), pointed out that for the time being no calls for tender for the sector were in the pipeline. However he hopes that the Spanish government will invite bids for limited new CSP capacity in the next few months or more likely next year.

The 50 CSP Spanish plants offer combined capacity of 2 304 MW and have performed to expectations. As the most recent plants were commissioned in 2013 the installed capacity has now operated for a full reference year. Output rose to 5 024 GWh in 2014 compared to 4 442 GWh in 2013, i.e. a 13.1% increase, and in so doing covered 2.1% of Spain's electricity demand. August 2014 was the most productive month of the year when

Graph. n° 1

European Union concentrated solar power capacity trend (MWe)



Source: EurObserv'ER 2015

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833 GWh covered 4.1% of the country's power requirements. Output peaked at 6 p.m. on 3 August when CSP delivered more than 8.5% of the country's needs.

More than 1 billion euros worth of projects expected in Italy

Taking a leaf out of Spain's books, Italy did not connect any CSP plants to the grid in 2014. Construction is underway on a single project – a 1 180 kW Fresnel type plant developed by Archimede SRL at Melilli, Sicily – and it should be up and running at the end of 2015. The grid meter could soon be running faster as many projects have entered the final authorization stage. ANEST (the Italian Solar Thermal Energy Association) has pinpointed about ten projects with 280 MW of combined capacity whose construction could start in 2015.

Two of these projects have already received their permits – Solecaldo led by MF Energy, a 41 MW Fresnel-type plant capable of producing 116 GWh of electricity per annum, due to start commercial operation in December 2016 and Trinacria Solar Power's Bilancia 1 project, which is another Fresnel-type plant with 4 MW of capacity capable of producing 9.5 GWh and due to be commissioned in September 2016.

Three of the biggest projects worth mentioning are the three parabolic trough plants in Sardinia – Flumini Mannu (55 MW), Gonnosfanadiga (55 MW) and CSP San Quirico (10.8 MW). Other major projects are the Mazzara Solar tower plant (50 MW) developed by Abengoa Solar in Sicily and the Banzi parabolic trough plant (50 MW) in the Basilicata region of Southern Italy.

The most recent data published by ANEST shows to a total of 17 plant projects in Italy (1 in the Basilicata region, 3 in Sardinia and 13 in Sicily). Their combined capacity is 361.3 MW and they should produce 1 080 GWh of solar power. The investment value of the projects developed between 2015 and 2017 is put at 1.2 billion euros.

Nonetheless, Paoli Pasini, ANEST's General Secretary, points out that the new decree regulating payment for power to plants installed in 2015 and 2016, should be published in May 2015. He warns that many planned investment projects will fall by the wayside if the incentives provided (Feed-in Tariff, maximum output and capacity ceiling) are too low.

France's projects stuck in a waiting game

France is suffering from inertia. The first two plant projects to be accepted as part of the 1st call for tenders (CRE 1) in 2012 that were scheduled to start up at the end of 2015 are plagued by delays. In May, the 9 MW Llo plant in the Pyrénées-Orientales was still awaiting administrative permission to start construction work. Constructions industrielles de la Méditerranée (CNIM) responsible for this project has had to ask the authorities for an extension pending delivery of the required permits. Roger Pujol, Director General of CNIM's Solar Energy Division disclosed to EurObserv'ER that he hope to obtain the authorizations in the second half of 2015 for construction that could kick off in 2016.

Solar Euromed's Alba Nova 1 plant project, whose construction officially started in April 2014, is also struggling to get off the ground. In this case, the company has yet to sew up the financing of the 60 million euros it needs to fund the project. A small part has yet to be secured, which is delaying roll-out.

These delivery problems affecting CSP projects selected in the first round of bids did nothing to encourage the government to award a new CSP option in the third solar power tender for high-capacity(> 250 kW) facilities launched in November 2014, even though the sector wanted to take up a 100 MW tender.

According to Roger Pujol, who also chairs the CSP Commission of Renewable Energies Syndicate (SER), the sector's future could be assured by implementing new support mechanisms for innovative segments, provided for by the draft energy transition bill currently going through its second reading at the French National Assembly. Article 30 of

Tabl. n° 1

Concentrated solar power plants in operation at the end of 2014. (Source: EurObserv'ER 2015)

Project	Technology	Capacity (MW)	Commisionning date
Spain			
Planta Solar 10	Central receiver	10	2006
Andasol-1	Parabolic trough	50	2008
Planta Solar 20	Central receiver	20	2009
Ibersol Ciudad Real (Puertollano)	Parabolic trough	50	2009
Puerto Errado 1 (prototype)	Linear Fresnel	1.4	2009
Alvarado I La Risca	Parabolic trough	50	2009
Andasol-2	Parabolic trough	50	2009
Extresol-1	Parabolic trough	50	2009
Extresol-2	Parabolic trough	50	2010
Solnova 1	Parabolic trough	50	2010
Solnova 3	Parabolic trough	50	2010
Solnova 4	Parabolic trough	50	2010
La Florida	Parabolic trough	50	2010
Majadas	Parabolic trough	50	2010
La Dehesa	Parabolic trough	50	2010
Palma del Río II	Parabolic trough	50	2010
Manchasol 1	Parabolic trough	50	2010
Manchasol 2	Parabolic trough	50	2011
Gemasolar	Central receiver	20	2011
Palma del Río I	Parabolic trough	50	2011
Lebrija 1	Parabolic trough	50	2011
Andasol-3	Parabolic trough	50	2011
Helioenergy 1	Parabolic trough	50	2011
Astexol II	Parabolic trough	50	2011
Arcosol-50	Parabolic trough	50	2011
Termesol-50	Parabolic trough	50	2011
Aste 1A	Parabolic trough	50	2012
Aste 1B	Parabolic trough	50	2012
Helioenergy 2	Parabolic trough	50	2012
Puerto Errado II	Linear Fresnel	30	2012
Solacor 1	Parabolic trough	50	2012
Solacor 2	Parabolic trough	50	2012
Helios 1	Parabolic trough	50	2012
Moron	Parabolic trough	50	2012
Solaben 3	Parabolic trough	50	2012
Guzman	Parabolic trough	50	2012
La Africana	Parabolic trough	50	2012
Olivenza 1	Parabolic trough	50	2012
Helios 2	Parabolic trough	50	2012
Orellana	Parabolic trough	50	2012
Extresol-3	Parabolic trough	50	2012
Solaben 2	Parabolic trough	50	2012
Termosolar Borges	Parabolic trough + Hybrid biomass	22.5	2012
Termosol 1	Parabolic trough	50	2013
Termosol 2	Parabolic trough	50	2013
Solaben 1	Parabolic trough	50	2013
Casablanca	Parabolic trough	50	2013
Enerstar	Parabolic trough	50	2013
Solaben 6	Parabolic trough	50	2013
Arenales	Parabolic trough	50	2013
Total Spain		2303.9	
Italy			
Archimede (prototype)	Parabolic trough	5	2010
Archimede-Chiyoda Molten Salt Test Loop	Parabolic trough	0.35	2013
Total Italy		5.35	
Germany			
Jülich	Central receiver	1.5	2010
Total Germany		1.5	
France			
La Seyne-sur-Mer (prototype)	Linear Fresnel	0.5	2010
Augustin Fresnel 1 (prototype)	Linear Fresnel	0.25	2011
Total France		0.75	
Total European Union		2 311.5	

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the bill empowers the government to legislate by order to make for the organization and development of competition procedures for experimentation and the use of innovative technologies. This new sector-supporting procedure could combine research aid and production aid (guaranteed Feed-in Tariff) that would pave the way to funding commercially-sized demonstrator projects and bypassing the conventional tendering system aimed at so-called mature technologies. Roger Pujol reminded us that the French sector's aim is to construct several commercially-sized demonstrators on French soil to build up a technology showcase that is essential for developing international sales in the future as opposed to developing a CSP sector in France or even in Europe.

NEWS FROM THE MAIN PROJECT DEVELOPERS

While Spain's market has come to a standstill for new facilities, past investments borne by Spain have enabled Europe's industry, and Spain's in particular to build up a solid industrial base. Spanish and European players have a foothold in the main emerging markets, usually with local partners who secure all or part of the project funding. Two players in particular, Spain's Abengoa Solar and Saudi Arabia's ACWA that has technology ties with SENER from Spain, have excellent order books.

Abengoa Solar developing its business in South Africa and Chile

Abengoa Solar is the world's leading CSP plant developer in the world. Its latest project, inaugurated in January 2015, is the Mojave solar plant in California, its second plant in the USA. Its gross capacity is 280 MW, which is enough to supply 91 000 Californian households with electricity. Abengoa Solar now has 1 603 MW of commercially-operating capacity with plants in Spain, the USA (Solana, Mojave), Algeria (Hassi R'Mel) and the United Arab Emirates (Shams 1). Abengoa is currently constructing three plants – two in South Africa (KaXu Solar one, a 100 MW project and Khi Solar one, a 50 MW project) and one in Chile (Atacama 1, a 110 MW project). The latter, whose construction kicked off in January 2015, will be the first CSP plant to be constructed in Latin America. It will be located in the Segunda region of Northern Chile, and will be associated with a 100 MW PV plant. The tower CSP plant will have a storage system capable of storing electricity for 17.5 hours. Commissioning is scheduled for the second quarter of 2017.

In March 2015, Abengoa announced it had secured $ 660 million of funding to construct a third plant, Xina Solar One (100 MW) in South Africa, a parabolic trough plant with 5 hours of storage capacity sited near Pofadder in North Cape Province. It will be owned by a consortium, controlled by Abengoa with 40% of the shares, the other members being IDC (Industrial Development Corporation), the Government Employees Fund represented by the PIC (Public Investment Corporation) and Kaxu Community Trust.

KaXu Solar One concentrated solar plant, 100 MW, built by Abengoa in South Africa.

ACWA takes market shares in Africa

Africa, especially North Africa, is now a major growth area for the global solar thermodynamic industry. On 9 January 2015, Morocco announced the results of

Tabl. n° 2

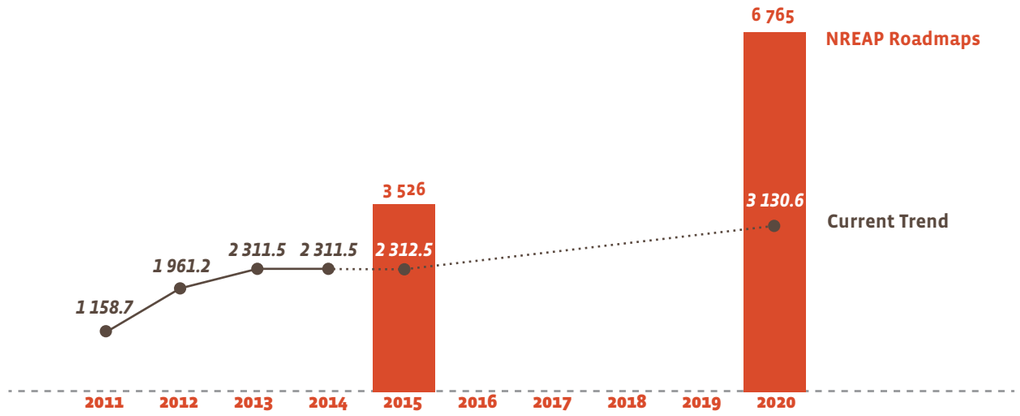
Concentrated solar power plants under developement at the beginning of the year 2015

Project	Location	Capacity (MW)	Technology	Commercial date of operation
Italy				
Flumini Mannu	Villasor, Cagliari (Sardegna)	55	Parabolic Trough	2017
Gonnosfanadiga	Gonnosfanadiga, Nuoro (Sardegna)	55	Parabolic Trough	2017
CSP San Quirico	San Quirico, Oristano (Sardegna)	10.8	Parabolic Trough impianto ibrido	2017
Banzi	Banzi, Potenza (Basilicate)	50	Parabolic Trough	2017
Mazara Solar	Mazara del Vallo, Trapani (Sicily)	50	Central receiver (power tower)	2017
Archimede	Melilli, Siracusa (Sicily)	1	Parabolic Trough	2015
Lentini	Lentini, Siracusa (Sicily)	55	Parabolic Trough	n.a.
Reflex Solar Power	Gela, Caltanissetta (Sicily)	12.5	Parabolic Trough	2016
Solecaldo	Aidone, Enna (Sicily)	41	Linear Fresnel	2016
Michelangelo	Palermo (Sicily)	3	Linear Fresnel	n.a.
Bilancia 1	Palermo (Sicily)	4	Linear Fresnel	2016
Bilancia 2	Palermo (Sicily)	4	Linear Fresnel	n.a.
Calliope	Trapani (Sicily)	4	Linear Fresnel	n.a.
Zeronovantuno 2	Trapani (Sicily)	4	Linear Fresnel	n.a.
Jacomelli	Trapani (Sicily)	4	Linear Fresnel	2016
Porthos	Trapani (Sicily)	4	Linear Fresnel	n.a.
Stromboli Solar	Trapani (Sicily)	4	Linear Fresnel	n.a.
Total Italy		361.3		
France				
Alba Nova 1	Ghisonaccia (Corsica)	12	Linear Fresnel	2016-2017
eLLo	Llo (Pyrénées-Orientales)	9	Linear Fresnel	2016-2017
Total France		21		
Cyprus				
Helios Power	Larnaca	50.8	Dish Stirling	n.a.
Total Cyprus		50.8		
Greece				
Maximus Dish project	Florina	75	Dish Stirling	n.a.
Hyperion 1	Crète	70	Parabolic Trough	n.a.
Total Greece		145		
Spain				
PTC50 Alvarado	Alvarado, Badajoz	50	Central receiver (power tower) - Biomass	n.a.
Total Spain		50		
Total European Union		628.1		

Source: EurObserv'ER 2015

Graph. n° 2

Comparison of the current trend against the NREAP (National Renewable Energy Action Plans) roadmaps (en MW)



Source: EurObserv'ER 2015

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its construction tender for two plants – NOOR II (200 MW parabolic trough type) and NOOR III (150 MW tower type). The successful bid was made by the consortium led by the Saudi ACWA and Spain's SENER, beating Abengoa, a consortium led by GDF Suez-Masdar and another consortium led by EDF-Alstom. ACWA's proposed electricity tariffs of 1.36 DH/kWh for Noor II (€ 126/MWh) and 1.42 DH/KWh for Noor III (€ 132/MWh) clinched the contract.
ACWA had previously pulled off the first tender for the construction of NOOR 1, a 160 MW parabolic trough plant with three hours' storage capacity in another consortium alongside Aries and TSK. Construction on the plant kicked off in May 2013 and it should be running in August 2015.
Under the terms of the consortium with SENER, ACWA Power will be responsible for the design, funding, operation and maintenance of both plants, while SENER will provide the solar technology (design and supply of engineering components, construction and commissioning). The two plants, which will come on steam in 2017, will each be equipped with about 7 hours' storage capacity to deliver electricity to the grid after nightfall. Once the complex is completed it will have a total capacity of 510 MW, potentially making it the world's biggest solar thermodynamic complex.
The Saudi enterprise is well-placed in the South African market, where it is currently developing the Bokpoort plant project (a 50 MW parabolic trough plant) and has just successfully bid for the construction of the Redstone Solar Thermal Power project with a consortium led with SolarReserve. The latter, based at Postmasburg near Kimberley in North Cape Province will have 100 MW of capacity and 12 hours of storage capacity.

AREVA Solar looking for a buyer

Areva, burdened by serious financial problems, announced in August 2014 that it was pulling out of the CSP sector. The announcement had a considerable impact in the sector, because Areva Solar has a 500 MW project portfolio across the world. The nuclear operator's solar division was founded in 2010 following its buyout of Ausra, a Californian company that had developed robust steam generation technology via Fresnel mirrors that is particularly suitable for desert areas. AREVA explains that considerable losses in its renewable energy businesses have prompted this withdrawal. In 2013, the group's solar and wind energy businesses posted a loss of 248 million euros and in the first half of 2014 made a further loss of 373 million euros. In its 2014 financial statement, the group reckons that the businesses are "in the process of being pooled or negotiation with a view to disposal", essentially offshore wind energy and solar power that posted a net deficit of 635 million euros, primarily arising from provisions for 570 million euros of impairment losses or risks. The group is currently looking for a buyer for the 300 MW in service and under construction that it holds in India, Australia and the USA.

Tabl. n° 3

Main european CSP project developpers in 2014

Company	Country	Activity	MW developed or under construction	Turnover	Employees
Ibereolica	Spain	Engineering - EPC - O&M - Project developer	960	n.a.	n.a.
Abengoa	Spain	Promoter - Project developer - EPC - Engineering - O&M - Components	651	7.151 *	24.748 *
Magtel Renewables	Spain	Promoter - Project developer - EPC - O&M - Engineering - Consulting	1 050	n.a.	n.a.
ARIES ingenieria y sistemas	Spain	Promoter - Project developer - EPC - O&M - Engineering - Consulting	500	n.a.	n.a.
Cobra	Spain	Promoter - Project developer - EPC - Engineering - O&M	500	4.200 *	26.000 *
Acciona Energy	Spain	EPC - Project developer - Promoter	314	2.200 **	2.300 **
Torresol Energy	Spain	Promoter - Project developer - O&M - Engineering	119	n.a.	n.a.
FCC Energia /Enerstar	Spain	Promoter - Project developer	100	6.334 *	80.000 *
Hyperion	Spain	Promoter - Project developer - O&M	103	n.a.	n.a.
Samca	Spain	Promoter - Project developer - O&M	100	850 *	3,500 *
Sener	Spain	Components - Engineering - Project developer	100	1.218 *	5.570 *

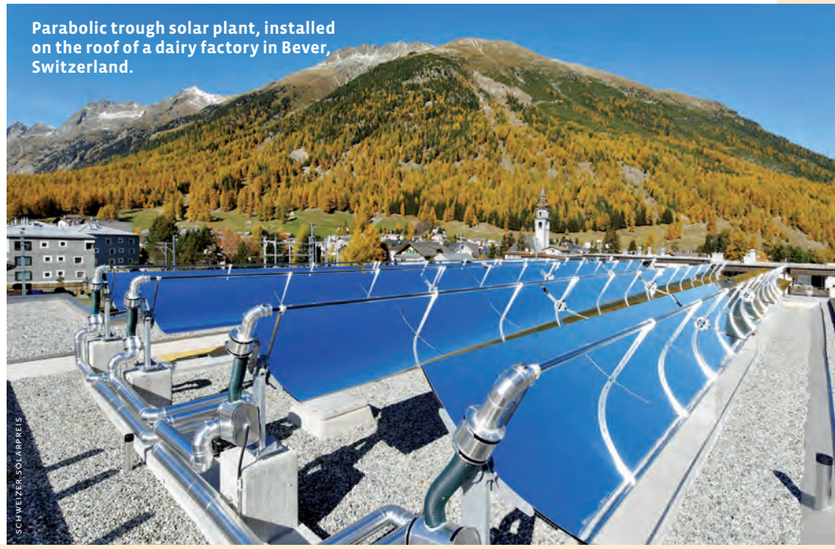
** Entire group, not only solarthermal or renewable division. ** Energy Division.*
***Source: EurObserv'ER 2015** (based on company information and CSP-World: http://www.csp-world.com/guide).*

THE EUROPEAN SECTOR'S FUTURE IS DEPENDENT ON COOPERATION MECHANISMS

The national renewable energy action plans defined under the framework of the European directive forecast 7 044 MW of capacity by the 2020 timeline equating to 20 TWh of output across the EU: 5 079 MW in Spain, 600 MW in Italy, 540 MW in France, 500 MW in Portugal, 250 MW in Greece and 75 MW in Cyprus. However the finances of the Mediterranean countries, the only ones likely to develop production capacities, are not strong enough to shoulder the CSP sector investments on their own. Today, the question is of quite another order... namely how many hundreds rather than thousands of megawatts can be installed by 2020. ESTELA, the European Solar Thermal Electricity Association, still holds out hope that European public policies will turn around. In its publication "Concentrating Solar Power on the Road to 2030" it states that if the European Union is to maintain its technology leadership worldwide, a minimum of 250 MW needs to be installed every year. Development on this scale would be consistent with the IEA estimates that forecast 15 GW of installed capacity by 2030 in Europe.
A potential growth vector for the sector would involve greater development of the grid infrastructures between the countries of Southern Europe (Iberian Peninsula, Southern Italy and Greece) and those of Northern Europe. According to ESTELA, this option would be a step in the direction of securing energy supplies which implies diversifying Europe's energy sources. The energy storing capacity of solar thermodynamic technology would make it a perfect fit for a single integrated, connected and secure market – the European Commission's aspiration under the Energy Union. This would call for solid coordination between the Member States and at European institution level to take full advantage of the complementarities of renewable energies across the European Union. In other words involvement in the cooperation mechanisms (as provided for in article 6 of the 2009/28/EC RES Directive) would be a prerequisite for achieving their national targets for the 2020 or 2030 timeline.

PART II: SOLAR THERMAL

In 2014, the European Union solar thermal market came up with no recipe for recovery; instead it suffered its sixth annual decline in a row, which confirms its flagging state. According to EurObserv'ER, the European Union market dropped below the 3 million m² threshold in 2014 and settled at an installation level comparable to that of 2007. New installations amounted to some 2 929 000 m² in 2014 (2 050 MWth), equating to a 3.7% year-on-year decline **(tables 4 and 5)**. The total installed area in the EU stood at about 47.1 million m² (32 987 MWth) – a 5.5% increase **(table 6 and graph 3)**. Our estimate includes the three main solar thermal technologies (flat plate collectors, vacuum collectors and unglazed collectors) and makes allowance for 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. As happened in 2013, the 2014 market decline affected most of the EU markets, with many key markets recording drops in excess of 10%, as happened in Germany (11.5%), Austria (14.3%), France (11.7%), Belgium (11.9%) and the UK (15.3%). Italy, Poland and the Czech Republic fared slightly better with drops of 5.7%, 5.1% and 7.9% respectively. Only a few countries made positive growth; they include Greece (19.1%) and Spain (9.7%). In a different league – that of very high-capacity systems – Denmark put on strong growth (53.5%). (See below).
The main reason for the European market decline is the drop in house sales. The market has been badly hit in this segment over the past few years by governments' stop-go policies on regards investment support. To make budget savings, many countries have curbed their incentives or the amounts allocated to their incentive programmes. Elsewhere, the fault lies with implementing new incentive systems that are too complicated or misconstrued. Two examples of this are Italy with its Conto Termico (which should be overhauled before the summer) and the UK with the Domestic Renewable Heat Incentive (RHI Domestic), whose expected impact is taking time to be felt.
The solar thermal sector also suffers from competition from alternative technologies (sanitary hot water heat pump, condensing gas boilers, and so on) that


Parabolic trough solar plant, installed on the roof of a dairy factory in Bever, Switzerland.
SCHWEIZER SOLARPREIS

are also eligible for incentives and offer cheaper installation costs. Furthermore, it has to contend with internecine competition from solar photovoltaic which is now addressing the domestic hot water segment. For several years there has been a dearth of communication on the solar thermal sector with no national institutional promotion campaigns. The sector players view these campaigns as essential because they imply public authority advocacy of solar thermal technology and help guide consumers in their investment choices. Finally, dramatically lower oil and gas prices in 2014 and also first half of 2015 offer little incentives for house owners to switch to investments in a solar heating system.

NEWS FROM AROUND THE COUNTRIES

Germany wants to revive solar thermal

For the first time since 2007, the Germany solar thermal market's installation figure dipped below one million m² of collectors. AGEE-Stat, the Working Group on Renewable Energy-Statistics for the Ministry for Economic Affairs and Energy (BMWi) puts it as low as 920 000 m² (including 20 000 m² of unglazed collectors) which marks an 11.5% decrease on 2013. In actual fact the market has been on a downward slide since 2009 (except for a slight increase in 2011) and has contracted to less than half its size in the reference year, 2008. According to the German Solar Industry Association (BSW), only 112 000 systems were installed in 2014 compared to about 210 000 in 2008. Yet the total number of systems installed in Germany has passed the 2 million unit mark.

In 2015, the German government finally decided to stop this decline in its tracks, arguing that the final renewable energy consumption targets for heating and cooling had not been met. Today's renewable energy share is about 9.9% whereas the target set out in the law on renewable heat is 14% by 2020. To remedy the situation, the government revised its market incentive programme Marktanreizprogramm (MAP), with effect from 1 April 2015, aiming to increase the renewable energy share of heat supply. Since the beginning of April, solar thermal domestic hot water production installations in existing buildings, whose subsidies had previously been axed, are once more eligible for a subsidy of 50 euro/m² with a ceiling of 500 euro. The subsidy level for combined systems (<14 m²) has been raised to 2 000 euro (from 1 500 euro), while that of the largest systems (>14 m²) has risen from 90 to 140 euro/m².

High energy performance buildings are also eligible for subsidies, which were previously reserved for solar thermal installations ranging from 20–100 m², residential buildings with at least three apartments and non-residential buildings with >500 m² of floor area. Now they also apply to new build residential dwellings (individual and multi-family) where solar heat consumption is more than 50% of the building's heat consumption total.

For new build the subsidy for domestic hot water production systems is 75 euro/m². For combined systems and other applications (industrial heat, etc.) it has been raised to € 150/m². For existing buildings, the subsidy has risen to € 100/m² for domestic hot water production and € 200 €/MWh for other applications. Innovatively-designed buildings may alternatively take up a production premium of about € 0.45/kWh. No production monitoring is applied to this system, as the premium is calculated on the basis of the collectors' technical characteristics drawn up on the basis of an additional table provided by Solar Keymark certification.

Spain's market is picking up

The Spanish market is one of the few in Europe to have reversed the downward trend. Data released by the Spanish solar thermal association, ASIT, shows that it grew by 9.7% from 232 515 m² in 2013 to 255 088 m² in 2014. This performance consolidates the slight recovery (1.5%) registered in 2013, after sales slumped

Tabl. n° 4

Annual installed surfaces in 2013 per type of collectors (in m²) and power equivalent (in MWth)*

Country	Glazed collectors: Flat plate collectors	Glazed collectors: Vacuum collectors	Unglazed collectors	Total (m²)	Equivalent power (MWth)
Germany	907 800	112 200	20 000	1 040 000	728.0
Italy	261 369	35 640		297 009	207.9
Poland	199 100	75 000		274 100	191.9
Spain	222 552	6 169	3 794	232 515	162.8
France**	216 185	6 300	6 000	228 485	159.9
Greece	226 700	450		227 150	159.0
Austria	175 140	4 040	1 460	180 640	126.4
Denmark	116 770			116 770	81.7
Czech Republic	32 306	12 225	35 000	79 531	55.7
Netherlands	30 054	2 694	27 396	60 144	42.1
Belgium	48 500	10 500		59 000	41.3
Portugal	57 234			57 234	40.1
United Kingdom	27 721	8 223		35 944	25.2
Ireland	17 022	10 679		27 701	19.4
Romania	9 000	14 850	180	24 030	16.8
Hungary	10 580	7 170	250	18 000	12.6
Croatia	15 700	1 750		17 450	12.2
Cyprus	16 652	472	34	17 158	12.0
Slovenia	7 089	1 949		9 038	6.3
Sweden	6 124	2 487	351	8 962	6.3
Slovakia	5 200	1 000	500	6 700	4.7
Luxembourg	6 179			6 179	4.3
Bulgaria	5 600			5 600	3.9
Finland	3 000	1 000		4 000	2.8
Lithuania	800	1 400		2 200	1.5
Latvia	1 500	500		2 000	1.4
Estonia	1 000	1 000		2 000	1.4
Malta	1 223	493		1 715	1.2
Total European Union 28	2 628 100	318 191	94 965	3 041 255	2 128.9

** Estimate. ** Overseas department includeds.* ***Source: EurObserv'ER 2015***

Tabl. n° 5

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

Country	Glazed collectors: Flat plate collectors	Glazed collectors: Vacuum collectors	Unglazed collectors	Total (m²)	Equivalent power (MWth)
Germany	814 600	85 400	20 000	920 000	644.0
Italy	260 000	20 000		280 000	196.0
Greece	270 000	600		270 600	189.4
Poland	208 000	52 000		260 000	182.0
Spain	235 355	15 900	3 839	255 094	178.6
France**	195 739		6 000	201 739	141.2
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
Portugal	55 000			55 000	38.5
Belgium	42 500	9 500		52 000	36.4
United Kingdom	24 590	5 870		30 460	21.3
Ireland	14 691	10 644		25 335	17.7
Croatia	18 400	2 500		20 900	14.6
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
Lithuania	1 000	1 500		2 500	1.8
Latvia	1 940	420		2 360	1.7
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 European Union 28	2 587 438	246 135	95 495	2 929 068	2 050.3

Estimate. ** Overseas department included ie 39 239 m².* ***Source: EurObserv'ER 2015*

SOLAR THERMAL AND CONCENTRATED SOLAR POWER BAROMETER – EUROBSERV'ER – MAI 2015

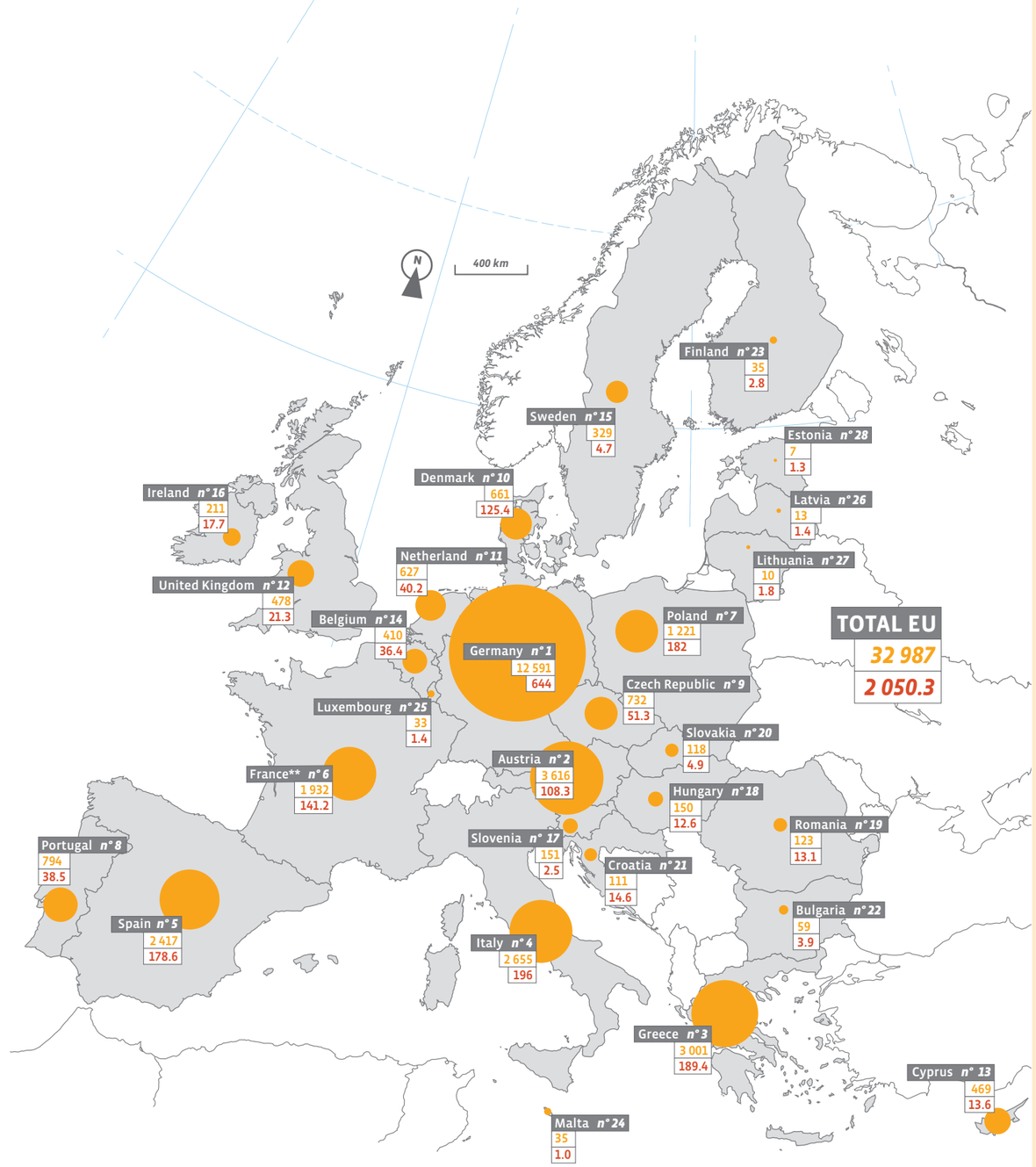
In Vojens, Denmark, 70 000 m² of panels produce 50 MWth of solar thermal power to the municipal heat grid.

for four years (the market had plunged from 465 000 m² in 2008 to 229 000 m² in 2012). The main reason for this growth is the development of prefabricated systems whose sales have increased by 42% (133 446 m²) and now account for 52% of the market. The vacuum collector segment has also surged (by 157%), i.e. 15 894 m² sold (6% market share).
An improvement in the new build sector is responsible for this return to growth, coupled with a thermal regulation that imposes the use of solar energy. The legislation is particularly helpful to the multi-family segment that accounted for 40.6% of the Spanish market in 2014. ASIT claims that the positive growth is also due to Andalusia's decision, and the last region in the country to do so, to continue actively supporting solar thermal.

The French slides again

Nothing is going right for the French solar thermal sector. According to data from Uniclima, the mainland solar thermal market is once again in free fall (21%), with 150 500 m² installed in 2014 down from 190 300 m² in 2013. Individual solar hot water heater deliveries dropped from 20 500 units in 2013 to 18 600 units in 2014. The combined systems market also contracted with 700 new installations in 2014 compared to 1 100 in 2013. The multi-family and tertiary building market was also hit as it contracted from 97 500 m² in 2013 to 75 500 m² in 2014. In the French overseas territories – the focus of a special Observ'ER survey – the decline was not so marked. About 39 239 m² of collectors were installed in 2014 compared to 41 289 m² in 2013.
The main reason for the renovation segment shrinkage is the change to the sustainable development tax credit system (CIDD) on 1 January 2014 which was detrimental to the solar thermal sector. The government effectively abolished its advantage for individual solar water heaters or combined systems which were eligible for a higher tax credit rate (32%, increased to 40% if part of a work package), by introducing a single tax credit rate of 15% with an increased rate of 25% if part of a work package.
This version of the CIDD only lasted 8 months. A new, more generous energy transition tax credit (CITE), came into force on 1 September 2014. It retains the principle of a single rate for eligible technologies but has risen to 30% with no work package criterion. Solar industry

Solar thermal power capacity installed in the European Union at the end of 2014 (MWth)*



Key

32 987 — *Total solar therma capacity installed at the end of 2014* (MWth)*

2 050.3 — *Solar thermal capacity installed during the year 2014 (in MWth)*

** Estimate. ** Overseas department included.*
Source: EurObserv'ER 2015.

players say that the new system actually came into effect at the end of 2014 and so far has made no impact on sales volumes. In any case it will only make a slight impact on the solar thermal market because the system still favours eligible technologies with lower investment costs, namely thermodynamic hot water heaters or condensing natural gas boilers.
Implementation of the new thermal regulation (RT 2012) applicable to all new-build construction permits delivered since 1 January 2013 whose new construction standards include the obligation to use renewables energies for the first time, has not benefitted the solar thermal market. Industry players blame this situation on the relatively low renewable energy production performance levels required. Effectively, to meet RT 2012 criteria, a simple solar thermal installation kit with a 2 m² collector suffices, which is half the size of a conventional system. They also decry the fact that a simple sanitary hot water heat pump with a coefficient of performance (COP) of just over 2 is enough to satisfy the standard. This solution is currently popular with individual housing developers because the installation costs are lower (72 539 units sold in 2014, a 58% increase on 2013). The downside of this low specification is that the hot water heaters do not contribute to the French renewable energy targets, as most of their energy outputs are too low (with seasonal factor coefficients very much lower than the required 2.5). Hence they are disqualified as renewable energy-producing systems under the terms of the European RES Directive.
The RT 2012 is also blamed for the multi-family or tertiary building market contraction for the second year running. The sector players explain that the absence of any renewable energy obligation for multi-family dwellings in the RT 2012 is to blame. This is compounded by the construction sector-prompted government decision to extend the exemption for multiple unit building promoters to comply with the building energy performance obligation set at 50 kWh of primary energy per m², per annum until 2017. In the meantime the obligation is watered down to 57.5 kWh.

Tabl. n° 6

Cumulated capacity of thermal solar collectors installed in the European Union in 2013 and 2014** (in m² and in MWth)*

	2013		2014	
Country	m²	MWth	m²	MWth
Germany	17 222 000	12 055	17 987 000	12 591
Austria	5 054 698	3 538	5 165 107	3 616
Greece	4 180 175	2 926	4 287 775	3 001
Italy	3 515 239	2 461	3 793 239	2 655
Spain	3 197 379	2 238	3 452 473	2 417
France***	2 575 000	1 803	2 759 439	1 932
Poland	1 485 000	1 040	1 744 000	1 221
Portugal	1 024 004	717	1 133 965	794
Czech Republic	972 299	681	1 045 542	732
Danemark	786 000	550	943 761	661
Netherlands	880 450	616	895 846	627
United Kingdom	669 841	469	683 101	478
Cyprus	681 157	477	670 624	469
Belgium	534 628	374	585 128	410
Sweden	478 188	335	470 022	329
Ireland	275 909	193	301 245	211
Slovenia	211 574	148	215 199	151
Hungary	196 109	137	213 723	150
Romania	157 385	110	176 055	123
Slovakia	161 050	113	168 050	118
Croatia	137 050	96	157 950	111
Bulgaria	83 600	59	84 200	59
Finland	46 413	32	50 013	35
Malta	48 456	34	49 991	35
Luxembourg	45 590	32	47 576	33
Latvia	16 650	12	19 010	13
Lithuania	11 350	8	13 850	10
Estonia	8 120	6	10 120	7
Total European Union 28	44 655 314	31 259	47 124 004	32 987

** All technologies included unglazed collectors. ** Estimate. *** Overseas department included . Source: EurObserv'ER 2015*

The Austrian market returns to its level of a decade ago

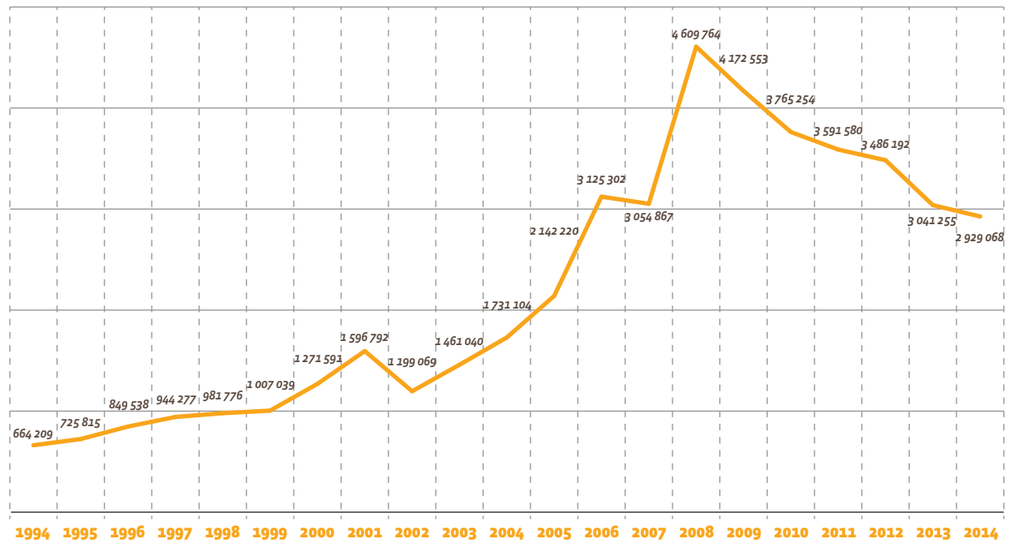
Along with Cyprus, the Austrian market has the highest equipment rate (0.6 m²/inhab.) **(table 7)** yet shows no signs of stopping its fall. Data from AEE Intec, a research institute specialising in renewable technologies that monitors many renewable technologies on behalf of the government, shows that in 2014 the solar thermal market amounted to 154 780 m² of installed collectors (150 530 m² of flat glazed collectors, 2 910 m² of vacuum collectors and 1 340 m² of unglazed collectors). This equates to a further 14.3% decline on 2013 and has brought the market down to its level of a decade ago when 164 481 m² of collectors were installed. This is the fifth consecutive fall since 2010, 2009 being the reference year with 364 887 m² installed. There are several factors behind this decline, firstly its high equipment rate but most of all increasingly stiff competition from photovoltaic systems now frequently coupled to hot water tanks. An AEE Intec analysis suggests that this decline is due to sharp contraction of the individual homeowners' segment, and it also appears that demand from customers receptive to environmental issues has already been met; hence marketing strategies should from now on target other customers who are more sensitive to costs. Very large dimension systems are another major growth segment. Last year, the government renewed its Climate + Energy Fund, a 5 million euro annual fund that aims to subsidize 100–2 000 m² solar thermal systems for the fifth year running. The incentive is capped at 50% of the additional costs arising from this type of installation compared to a conventional thermal solution, while the solar input must cover at least 20% of the whole system's requirements. The government also seeks to promote technological development of these systems to develop this market segment abroad.

43 solar heating networks in Denmark

Planenergi, an independent research company has released data demonstrating that >500 m² solar thermal installations accounted for 96% of the total of 179 186 m² collector area installed in the country, and they were primarily connected to heating networks. In 2013, this share was 92% (116 770 m²). Denmark's market is atypical, because it has opted to develop the use of solar thermal collector fields to supply heating networks, and already has 43 listed on the solvarmedata.dk website. On 1 May 2015, ARCON Solar inaugurated one of the new projects, the biggest solar thermal collector field with an area of 52 491 m² (37 MWth). It will be connected as an extension to the heating network of Vojens, which was hooked up to its first 17 500 m² field in 2012 (13 MWth). The town's grid is now supplied by almost 70 000 m² of collectors that equate to 50 MWth of solar thermal energy, or a per capita equipment rate of 9 m². It has overtaken the capacity and collector area of the Dronninglung solar thermal network which has 37 275 m² of collectors. The Vojens facility, which will produce most of its thermal energy during the summer, will be equipped with a 190–200 million litre hot water storage pool to supply the heating network

Graph. n° 3

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 2015*

during the winter. The project extension budget is about 120 million Danish kroner (16 million euros). The solar collector field amounts to 53% of the project's cost, namely 70 million Danish kroner (9.4 million euros), the storage pool 30 million (4 million euros) and the engineering costs 20 million Danish kroner (27 million euros). It will cover half the heating and hot water needs of the 2 000 households connected to the network.

RESTRUCTURING OF THE EUROPEAN INDUSTRY CONTINUES

The solar thermal crisis caused by plunging sales since 2009 has prompted a root-and-branch reorganization of the European industrial landscape. The year 2013 saw some of the main names in solar thermal leave the market including Germany's Schüco, Austria's Greiner and Denmark's Velux. In 2014 they were followed by two Italian players, Tecnosolar and GPM, two Polish players, ZAE Ergom and Solar Polska, a Belgian player ZEN Renewables and Portugal's Richworld Renewables. But Germany made the biggest headline in April 2014 when one of its stalwarts, Wagner and Co Solartechnik, which had been in the market since 1979, filed for bankruptcy. In September 2014 the receiver handling the liquidation finally found an investor, the Dutch group Sanderink, which was ready to take over some of the assets. The latter has committed to taking over the company's activities in the solar thermal, photovoltaic and assembly systems areas, saving about 80 jobs.

The Sanderink group happened to be a customer of Wagner, via its specialized solar thermal subsidiaries, primarily Dutch Solar, so it was quite familiar with the German manufacturer's quality and technological strengths. However Sanderink's asset buyout only involves the German part of Wagner Solar. The Wagner Solar group's foreign subsidiaries under receivership will have to find their own buyers. These former subsidiaries will retain the right to work with Wagner Solar and use the brand name, but as customers of the German company. The Sanderink group has many companies involved in the sphere of environmental technologies. It is well-placed in the American market where it has about fifteen subsidiaries.

Market reorganization and the exit of major players are likely to play into the hands of manufacturers that enjoy less financial exposure including the major non-specialist heating groups. However it is hard to gauge the change in market shares of these main players, irrespective of whether they are specialists or non-specialists. In the current context, monitoring collector and solar thermal system production has become very difficult as most companies have stopped public release of their production figures. Accurate monitoring is even harder because the manufacturers producing systems source partly from original equipment manufacturers of collectors. The largest is Austria's GreenOneTec that claims a production volume of 600 000 m² in 2014 (634 000 m² in 2013), on its website, i.e. one third of the European market. The latest available estimates covering the output of the major collector manufacturers were published in October 2014 in the Sun and Wind energy magazine. According to its ranking, based on 2013 production data, the main European manufacturers are the major heating groups, namely the German groups Bosch Thermotechnik, Viessmann, Vaillant and the Dutch group Thermea. They are followed by companies specializing in thermosiphon systems such as Dimas from Greece and companies specializing in both solar thermal and photovoltaic systems such as Austria's Riposol.

Tabl. n° 7

Solar thermal capacities in operation per capita (m²/inhab. and kWh/inhab.) in 2014***

Country	m²/inhab.	kWth/inhab.
Cyprus	0.782	0.547
Austria	0.607	0.425
Greece	0.393	0.275
Germany	0.223	0.156
Denmark	0.168	0.117
Malta	0.118	0.082
Portugal	0.109	0.076
Slovenia	0.104	0.073
Czech Republic	0.099	0.070
Luxembourg	0.087	0.061
Spain	0.074	0.052
Ireland	0.065	0.046
Italy	0.062	0.044
Netherlands	0.053	0.037
Belgium	0.052	0.037
Sweden	0.049	0.034
Poland	0.046	0.032
France***	0.042	0.029
Croatia	0.037	0.026
Slovakia	0.031	0.022
Hungary	0.022	0.015
Bulgaria	0.012	0.008
United Kingdom	0.011	0.007
Latvia	0.009	0.007
Finland	0.009	0.006
Romania	0.009	0.006
Estonia	0.008	0.005
Lithuania	0.005	0.003
Total European Union 28	0.093	0.065

** All technologies included unglazed collectors. ** Estimate. *** Overseas departments included.*
Source: EurObserv'ER 2015


Mounting operation of a solar thermal collector.

LOOKING FOR NEW IMPETUS FOR 2020

A number of experts expected the solar thermal market to stabilize in 2014, but in the end it contracted slightly less than in 2013. What we should be asking today is whether certain markets have hit rock bottom or whether they can continue to fall and risk suffering long-term disruption. It must be concluded that many countries of the European Union's environmental and renewable energy promotion policies have been blunted and that most of the Member States are drifting further away from their NREAP trajectories. EurObserv'ER reckons that if the current trend continues through to 2020, solar thermal will only contribute about 3 Mtoe, which is less than half the combined Europe-wide NREAP target figure **(graph 4).**

The situation hangs in the balance for 2015. Some observers are pessimistic about a market recovery in Central Europe (primarily Poland, the Czech Republic and Austria). There are nonetheless some encouraging signs. The situation in Germany should pick up thanks to the new measures taken in the context of the MAP incentive programme. The build-up of the UK's RHI Domestic programme and the improved tax credit mechanism in France are also likely to put paid to the downward spiral. The Italian market should also benefit from the new version of the Conto Termico incentive system that aims to streamline the system and the tax credit mechanism (alternative system) that is popular with the Italians. The solar thermal market should at last benefit from the new regulation on the environmentally-friendly design requirements of boilers and hot water heaters published in the official journal in September 2013. From 26 September 2015 onwards, the energy label will be fixed to all heating and hot water producing appliances. It will enable consumers to make fully-informed choices on the solution with the best performance characteristics and compare the efficiency and consumption differences between the various systems. This legislation offers backing to solar hot water producing systems in particular because techni-

Tabl. n° 8

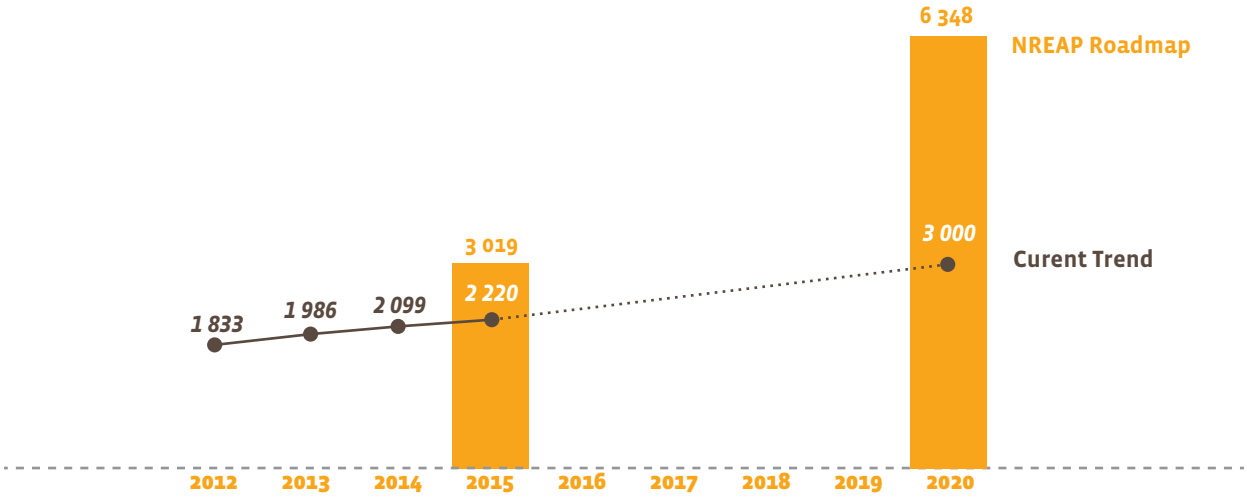
Representative European solar thermal collector manufacturers

Company	Country	Activity	Production 2012/2013 (collector area in m²)	Turnover 2014 (in M€)	Employees 2014
GREENoneTEC *	Austria	Flat plate and vacuum tube collector	634 000	82	280
Bosch Thermotechnik *	Germany	Heating equipment supplier / Flat plate collector manufacturer	310 000	2.800 ***	12.900 ***
Viessmann *	Germany	Heating equipment / solar thermal	240 000	2.200 ***	11.500 ***
Vaillant Group *	Germany	Heating equipment supplier / solar thermal	170 000	2.400 **	12 000
BDR Thermea Group *	Netherlands	Heating equipment supplier / solar thermal	160 000	1.800 ***	6.500 ***
Dimas *	Greece	Flat plate collector manufacturer	130 000	n.a.	n.a.
Riposol	Austria	Flat plate collector manufacturer	125 000	n.a.	n.a.
Wolf *	Germany	Heating equipment supplier	120 000	337 **	1.810 **
Nobel Xilinakis *	Greece	Flat plate collector manufacturer	115 000	n.a.	80
Cosmosolar *	Greece	Flat plate collector manufacturer	70 000	n.a.	n.a.
Ariston *	Italy	Flat plate collector manufacturer	60 000	1.340 ***	6.600 ***

** No ranking - representative overview of European companies in the Solar thermal sector. Estimations based on company information and Sun and Wind Energy 10/2014 (Solar Thermal World Map 2014). Note: There may be substantial uncertainties due to the different collector types and OEM inputs. ** 2013. *** Entire group.* ***Source: EurObserv'ER 2015***

Graph. n° 4

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



Source: EurObserv'ER 2015

cally they are the only ones to achieve class A+++.

The European solar thermal sector has entered a reorientation phase for its outlets. It should put less reliance on the individual house market and gradually expand its multiple-family dwellings, tertiary and industrial segment activities, aided by the implementation of new thermal regulations. Another current growth vector is the connection of solar thermal collector fields to existing heating networks equipped with storage pools for the winter season. This technology which is already very widespread in Denmark and Sweden is now developing in Germany, Austria, the Netherlands and even in France. Popularization of this technology would make for much faster expansion of solar thermal heating, taking a leaf out of the books of the photovoltaic sector whose high-capacity installations have contributed to radically reducing production costs.

Above all the solar thermal market could take up the new impetus that the European Commission is seeking to initiate through the implementation of an Energy Union which primarily aims to boost investments in the renewable heating and cooling production sector. Therefore, announcements are expected during the UN Climate Change Conference to be held in Paris from 30 November to 15 December 2015 that we hope could be the starting point for a revival of European energy policy. □

Sources table 4 et 5 : AGEE-Stat (Germany), The Institute for Renewable Energy (Poland), Assotermica (Italy), ASIT (Spain), Uniclima- Observ'ER (France), AEE Intec (Austria), Planenergi (Denmark), ministry of Industry and Trade (czeck Republic), Apisolar (Portugal), Holland Solar (Netherlands), ATTB (Belgium), University of Miskolc (Hungary), ministry of Energy, Trade, Industry and Tourism (Cyprius), SEAI (Ireland), Econet Romania, Jozef Stefan Institut (Solvenia), Energy Center Bratislava (Slovakia), APEE (Bulgaria), Statec (Luxembourg), STA (United Kingdom), SEWCU (Malta), Estif.

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EurObserv'ER is posting an interactive database of the barometer indicators on the www.energies-renouvelables.org (French-language) and www.eurobserv-er.org (English-language) sites. Click the "Interactive EurObserv'ER Database" banner to download the barometer data in Excel format.

The topic of the next barometer will be biofuels.

Co-funded by the Intelligent Energy Europe Programme of the European Union

ADEME Agence de l'Environnement et de la Maîtrise de l'Energie

Caisse des Dépôts

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