IEA INTERNATIONAL ENERGY AGENCY

2014

Snapshot of Global PV Markets

PVPS

PHOTOVOLTAIC
POWER SYSTEMS
PROGRAMME

Report IEA PVPS T1-26:2015

The International Energy Agency (IEA), founded in 1974, is an autonomous body within the framework of the Organization for Economic Cooperation and Development (OECD). The IEA carries out a comprehensive programme of energy cooperation among its 28 members and with the participation of the European Commission. The IEA Photovoltaic Power Systems Programme (IEA PVPS) is one of the collaborative research and development agreements within the IEA and was established in 1993. The mission of the programme is to "enhance the international collaborative efforts which facilitate the role of photovoltaic solar energy as a cornerstone in the transition to sustainable energy systems."

In order to achieve this, the Programme's participants have undertaken a variety of joint research projects in PV power systems applications. The overall programme is headed by an Executive Committee, comprised of one delegate from each country or organisation member, which designates distinct 'Tasks,' that may be research projects or activity areas. This report has been prepared under Task 1, which facilitates the exchange and dissemination of information arising from the overall IEA PVPS Programme.

The participating countries are Australia, Austria, Belgium, Canada, China, Denmark, France, Germany, Israel, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Thailand, Turkey, and the United States of America. The European Commission, the European Photovoltaic Industry Association, the Solar Electric Power Association, the Solar Energy Industries Association and the Copper Alliance are also members.

PICTURE CREDITS
Cover picture: NREL, Denver International Airport - 2 MW PV system at the Denver International Airport.
Page 5: NREL, Solar Energy Systems, USA
Page 10: Canadian Solar – Rhodes – Courtesy of Sunwiz, Australia
Page 14: NREL, Dennis Schroeder, USA

Data: IEA-PVS Reporting Countries, EPIA, Becquerel Institute (BE), RTS Corporation (JP)
Analysis: Gaëtan Masson, IEA PVPS Task 1
Editing: Mary Brunisholz, IEA PVPS
Design: Sinead Orlandi, Becquerel Institute

ISBN 978-3-906042-32-9 A Snapshot of Global PV (1992-2014)

A SNAPSHOT OF GLOBAL PV: 2014, A YEAR OF NON-HOMOGENEOUS GROWTH

IEA PVPS has distinguished itself throughout the years by producing unbiased reports on the development of PV all over the world, based on information from official government bodies and reliable industry sources. This third edition of the "Snapshot of Global PV Markets" aims at providing preliminary information about how the PV market developed in the last year. The 20th edition of the PVPS complete "*Trends in Photovoltaic Applications*" report will be published in Q3 2015.

In 2014, the PV market experienced a new year of development, with a limited expansion globally. However, the limited growth hides many contrasted developments in various regions. Firstly, the stabilisation of the Chinese PV market with more than 10 GW and secondly, the rapid growth of the Japanese PV market which reached more than 9,7 GW, confirm Asia as the first world region for PV. Next to these two giants, other markets have confirmed their maturity: Australia, Korea, Thailand or Taiwan are now established PV markets. Many others are also showing signs of possible rapid PV development in the coming years, such as Malaysia and the Philippines. On the other hand, India's installation number above 600 MW contrasts slightly with the country's positive policy tone towards PV.

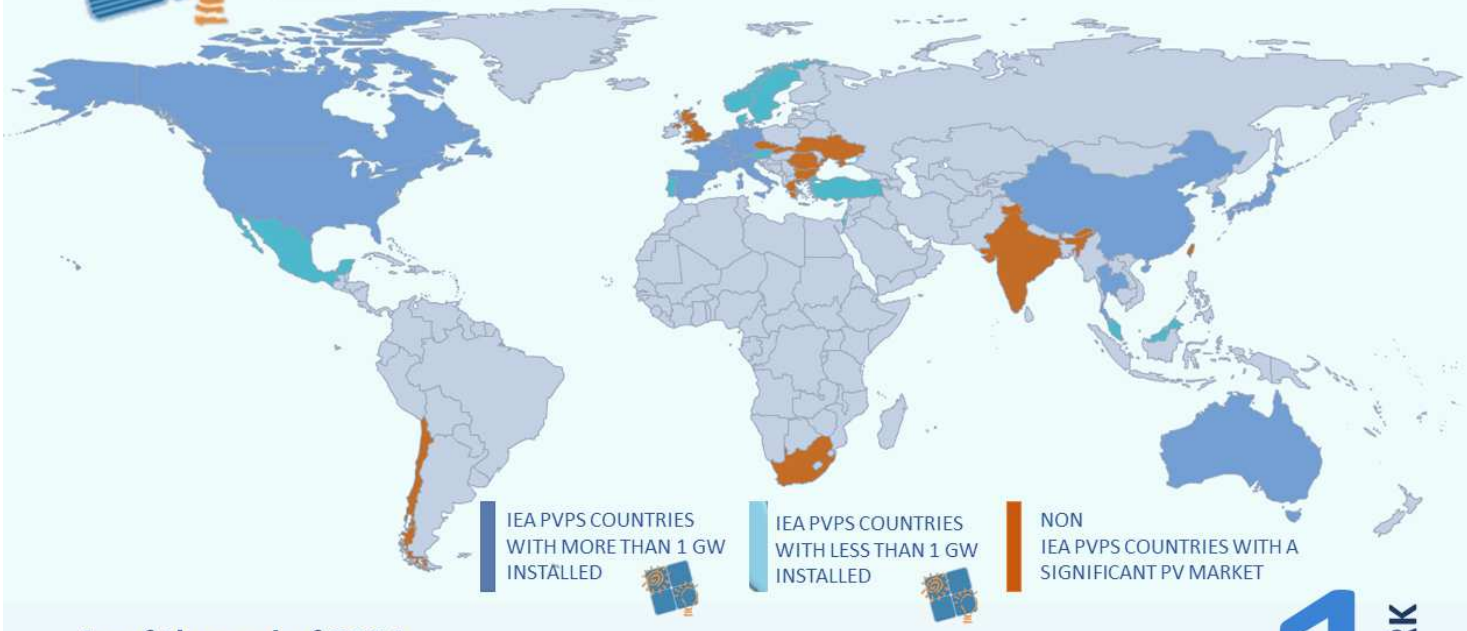
In the Middle East, Israel remained the very first market but the announcement of a 100 MW (increased to 200 MW later) plant in Dubai with the lowest PPA (58,5 USD/MWh) ever granted, shows that there is ample activity elsewhere. While it remains to be shown that this system can be commercially viable, it shows how the cost decline of PV systems in the last years has brought down PV electricity production costs.

In Europe, the market continued to decline, despite the growth of the UK market that established itself as first place in Europe with 2,27 GW in 2014. Germany experienced another market decline to 1,9 GW, with extremely competitive incentives. France grew again to close to 1 GW while the Italian market, as all markets where feed-in tariffs were phased-out, descended to a rather low level (400 MW). Some medium-size European markets continued to progress, such as the Netherlands or Switzerland, while others declined (Austria, Denmark and Romania) but stayed at reasonable levels. Former GW markets experienced a complete shutdown, with between nothing and a few MW installed: Spain, Czech Republic, Belgium, Greece and Bulgaria.

In Africa, South Africa became the first African country to install close to 1 GW of PV in 2014. More countries have announced projects, but so far, most installations have been delayed or simply are still in the project evaluation phase.

In North America, the US market continued to grow, and reached 6,2 GW in 2014. Canada and, to a lesser extent, Mexico (64 MW) are also progressing. Chile has installed close to 400 MW, becoming de facto the first PV country in South America.
All of these developments could have raised the PV market much higher than what it finally achieved, if Europe could have maintained its market level and China fulfilled expectations. On the contrary, European markets installed at least 4 GW less than in 2013 and China didn't reach, at least according to the very first numbers published, the 14 GW some believed it could have reached.

2014 Global PV Evolution



As of the end of 2014

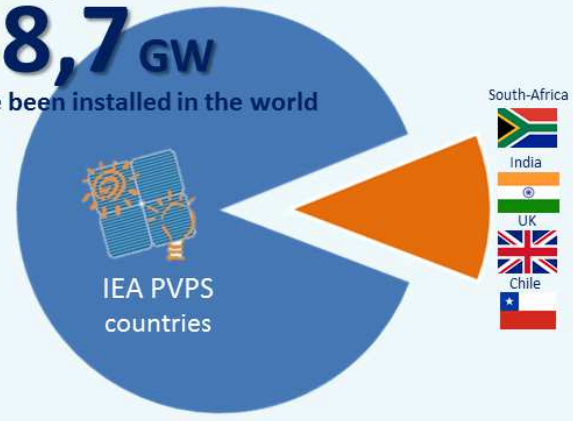
177 GW

Have been installed all over the world

and only in 2014

38,7 GW

Have been installed in the world



20 countries have now passed the **1 GW MARK**

of cumulative PV systems capacity at the end of 2014 and 5 countries installed at least 1 GW in 2014 (compared to 9 in 2013).

IN 2014 THE TOP 3 WORLD COUNTRIES, WHICH ARE ALSO PART OF THE IEA PVPS PROGRAM WERE:

1. China 10,6 GW
2. Japan 9,7 GW
3. USA 6,2 GW

1% OF THE WORLD ELECTRICITY GENERATION IS NOW COVERED WITH PV AND

19 COUNTRIES

IN THE WORLD NOW HAVE AT LEAST ENOUGH PV TO COVER

1% OF THEIR ANNUAL ELECTRICITY DEMAND WITH PV.

TOP 3

2014 HIGHLIGHTS

Preliminary reported market data shows a growing market in 2014, but below expectations. **At least 38,7 GW** of PV systems have been installed and connected to the grid in the world last year. While these data will have to be confirmed in the coming months, some important trends can already be discerned:

- The global PV market grew slightly, to at least **38,7 GW** in 2014, compared to 37,6 GW in 2013.
- With additional installations not yet reported (or from Non-reporting countries), the final number for the 2014 PV market could be close to **40 GW.**
- Asia ranks in first place for the second year in a row with around **60%** of the global PV market.
- China revised its installation numbers downward for 2013 (from 12,92 GW to 10,95 GW) and reached **10,6 GW** in 2014, in a stable market.
- Japan continued to boom with around **9,7 GW** installed and connected to the grid in 2014.
- The market in **Europe has decreased** significantly from 22 GW in 2011 to around 7 GW in 2014.
- The US market increased again to **6,2 GW**, with large-scale and new business models dominating.
- Several established markets confirmed their maturity in 2014, including Australia (**0,9 GW**), Korea (**0,9 GW**), Canada (**0,5 GW**), Taiwan and more.
- **Emerging markets** started to contribute to the global PV development in 2014, such as South Africa (0,8 GW), Chile (0,4 GW), Mexico (64 MW) and Turkey.
- The MEA market experienced the highest growth, thanks to **South Africa**, but they still represented only around 1 GW.
- The first European country for installations in 2014 was **UK** with 2,27 GW, followed by **Germany** (1,9 GW) and **France** going up again (0,9 GW).
- In the top 10 countries, there are 4 Asian Pacific countries (China, Japan, India and Australia), three European countries (Germany, Italy and France), two countries in the North American region (USA, Canada) and one in African country (South Africa).
- Italy, Greece and Germany have now enough PV capacity to produce respectively **7,9%,**

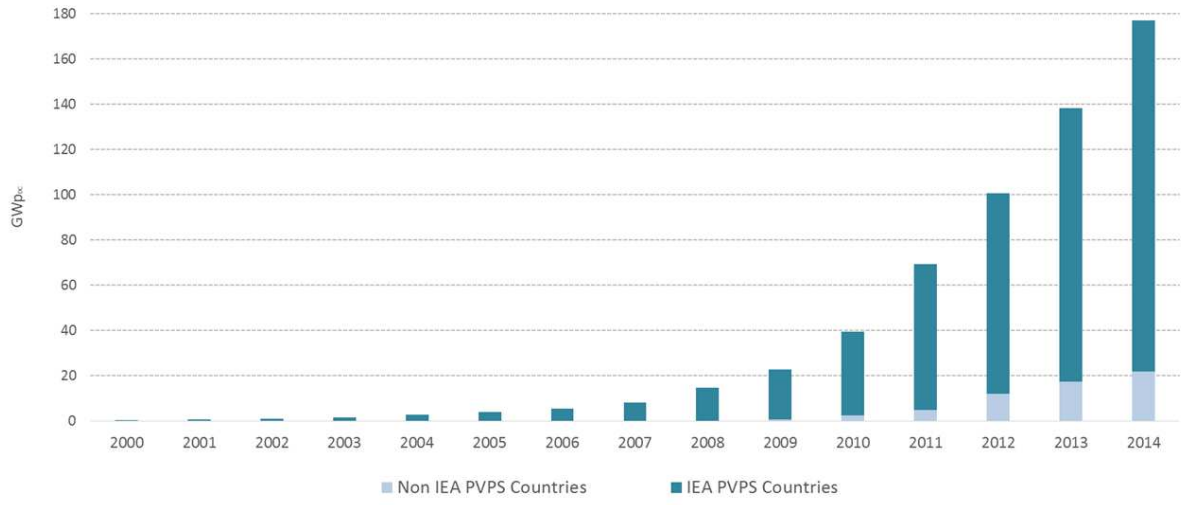
7,6% and **7,0%** of their annual electricity demand with PV. **19** countries have enough PV capacity to produce at least 1% of their electricity demand with PV.

- PV represents 3,5 % of the electricity demand in Europe and 7% of the peak electricity demand.
- PV represents at least **1%**[1] of the global electricity demand.
- **20 countries had at least 1 GW** of cumulative PV systems capacity at the end of 2014 (Switzerland, the Netherlands and Thailand reached that level in 2014) and 5 countries installed at least 1 GW in 2014 (compared to 9 in 2013).

HOW MUCH PV CAPACITY IS PRODUCING ELECTRICITY IN THE WORLD TODAY?

The total installed capacity at the end of 2014 globally amounted to at least **177 GW**. The 23 IEA PVPS countries represented 155 GW of cumulative PV installations together, mostly grid-connected, at the end of 2014. Additional countries that are not part of the PVPS programme represent at least 22 additional GW, mostly in Europe: UK with 5,1 GW, The Czech Republic with 2,1 GW (stable in 2014), Greece with 2,6 GW (stable in 2014), Romania with 1,2 GW, Bulgaria with 1 GW (stable in 2014), and below the GW mark, Slovakia and Ukraine. Following these countries, India has installed more than 2,9 GW and Taiwan more than 750 MW. While other countries around the world have reached various PV installation levels, the total of these remains hard to quantify with certainty. At present, it appears that 177 GW represents the minimum installed by end 2014 with a firm level of certainty. Remaining installations account for some additional GW installed in the rest of world (non-reporting countries, off-grid installations, etc.) that could bring the total installed capacity to more than 177 GW in total. Germany still leads with 38,2 GW, followed by China (28,2 GW), Japan (23,3 GW), Italy (18,5 GW) and the USA (18,3 GW). All other countries are far behind in terms of PV installations.

FIGURE 1: EVOLUTION OF PV INSTALLATIONS (GWp_{DC})



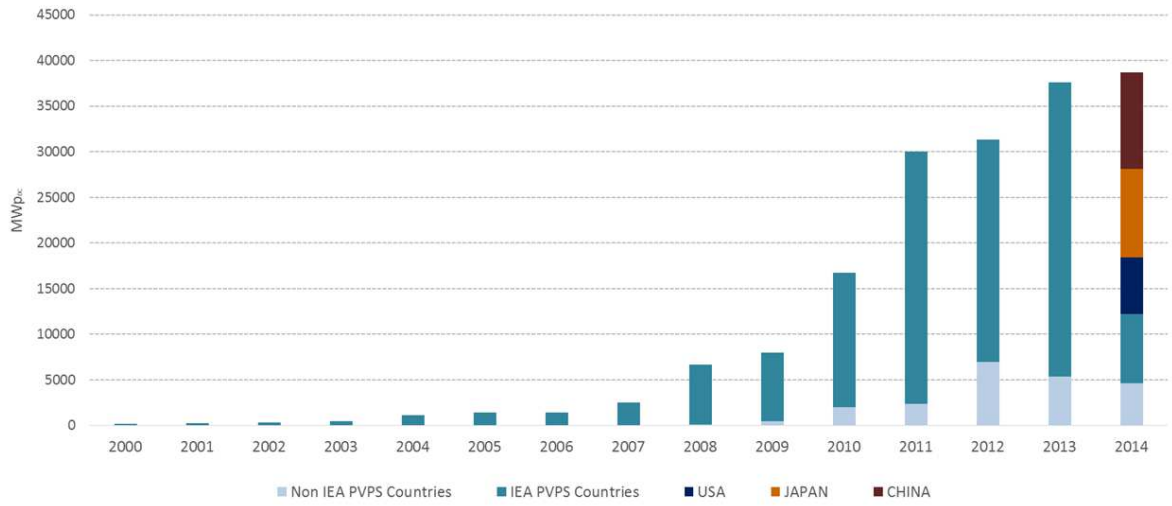
Source: IEA PVPS

[1] IEA – Key World Energy Statistics 2013 – Based on 18 400 TWh of electricity consumption.

HOW MUCH WAS INSTALLED IN 2014?

The record level of installations in 2014 can be split between PVPS countries and the rest of the world. The PVPS countries have installed 34 GW of PV, and at least 4,7 GW have been reported in non IEA PVPS countries. The worldwide installed capacity during 2014 totalled at least **38,7 GW**, if all reporting countries are taken into consideration.

FIGURE 2: EVOLUTION OF ANNUAL PV INSTALLATIONS (MWp_{DC})



Source: IEA PVPS

China's final installation numbers for 2013 reached 10,95 GW, down 2 GW compared to previously released figures (12,92 GW). This difference comes from systems that were not connected in 2013 and the same most probably happened in 2014. This reflects the Chinese authorities' ambitions of continuing to develop the internal PV market and especially distributed PV that started to progress in 2014. The objective of reaching 35 GW by the year 2015 should be achieved and China is now targeting 100 GW by 2020, **Japan** was the second market for PV in 2014 with an estimated 9,7 GW of PV installations. While final numbers could slightly differ, this shows both countries have driven the PV market in 2014. The **USA** took the third place again in 2014 with 6,2 GW installed compared to 4,75 GW in 2013.

The **UK** installed 2,27 GW in 2014, taking first place in the European market while **Germany** decreased to 1,9 GW, down from 3,3 GW in 2013. This happened in a context of reduced feed-in tariffs, changing PV support regulations and the political will to reduce the cost of renewables for electricity consumers.

Together, these five countries represent close to 80% of the annual installations in 2014 and less than 64% in terms of total installed capacity by the end of 2014.

Behind the top five, no country has installed more than 1 GW of PV systems in 2014. **France** installed 927 MW in 2014, after a market decline in 2013. **Australia** remains a strong market with 900 MW installed in 2014. **South Africa** installed 800 MW supported by call for tenders.

India went down significantly while solar confirms its potential for medium-term electricity development (with 616 MW). Finally **Canada** installed 500 MW.

These 5 countries together with the top 5 countries represent 90% of the 2014 world market annual installations; an increase compared to 2013 when the same 10 countries represented 80% of the annual capacity.

Several markets that have been developing in recent years declined or disappeared in 2014. For example, **Greece** joins the club of booming markets that have disappeared.

Following the two market leaders in Asia, Korea installed more than 900 MW, **Thailand** continued to grow, with 475 MW installed in 2014 and 1,3 GW of total capacity. Other markets continued to grow, such as **Taiwan** (400 MW), **Malaysia** for the third year of its feed-in tariff system (at least 87 MW), as well as a few other countries.

In Europe, Italy installed only 0,4 GW of PV systems, compared to 9,3 GW in 2011, 3,6 GW in 2012 and 1,6 GW in 2013. This can be explained by the phase-out of the Feed-in tariffs that are not granted anymore for new PV installations, leaving the market driven by the self-consumption scheme and additional tax rebates that are now in place.

In Europe again, net-metering systems allowed the market to develop in several countries. In **Denmark,** only 39,4 MW were installed in 2014 after a change in the net-metering system that prevented a repeat of the 300 MW level of 2012. In the **Netherlands,** around 400 MW are expected to have been installed but final numbers are not yet confirmed. In markets driven by either feed-in tariffs or tax incentives, significant additions were made in **Switzerland** (320 MW) and **Austria** (140 MW). Despite the downwards revision of the FiT and the economic situation, **Portugal** added around 110 MW in 2014, more than doubling the installed capacity in 2013 thanks particularly to the connection of several PV plants licenced under the former IPP framework. In **Sweden** and **Norway** PV installations continued to increase with respectively 36 MW and 2 MW.

Some European countries that previously grew quickly have now stalled or experienced very small or significantly reduced additions. **Spain** reported around 22 MW of new additions in a difficult context of economic crisis and power generation overcapacity. Moreover the evolution to self-consumption has been delayed due to inadequate regulations including a "solar tax". The market in **Belgium** went down from 600 to 65 MW in the context of a subsidy decline as well as with discussions on additional grid costs. The PV installed capacity has now reached more than 3 GW.

In South America, several GW of PV plants have been validated in **Chile** but the real development has finally materialized with close to 400 MW in 2014. Several countries adopted policies that could favour the development of PV in the coming years, especially **Mexico**, **Brazil** and **Peru** where, unfortunately, the real PV market remained symbolic.

In the Middle East, **Israel** progressed rapidly, with around 250 MW installed in 2014 while the PV installations in **Turkey** have started more slowly, with around 40 MW installed in 2014.

MAIN REGULATORY CHANGES

CALL FOR TENDERS

In 2014 several countries introduced continued call for tenders to grant feed-in tariffs. This was the case of USA (Texas), South Africa, India, Panama or UAE (Dubai), to consider the most interesting examples. France has been using this way of granting PPAs to medium-to-large scale PV systems for some years already. Germany has decided to reverse auctions for large-scale PV from 2015 onwards. The Netherlands and Brazil have also set up reverse auctions in which PV is trying to find a place to compete. While this method has not yet fully proven that it can ensure a smooth and sustainable PV market development, it brings with it the possibility of controlling the electricity mix development.

ELECTRICITY MARKETS INTEGRATION

Europe has started to favour the market integration of renewables, including solar PV. While this is more a recommendation than a compulsory decision, several countries are modifying their support schemes in order to make them more "market compliant." Consequently, Germany and the UK, for instance, have introduced feed-in premiums with a variable premium that compensates for the variations of electricity market prices. However, this situation hasn't been translated yet in many countries.

RETROACTIVE MEASURES

In 2014, several countries continued to introduce retroactive changes in the PV support policies for existing PV plants. The most important changes took place in Spain, which imposed retroactive measures to PV system owners arguing about difficult economic conditions. In Italy, in order to reduce the impact of PV on the electricity consumers, the government imposed a decrease of the FiT level compensated by an increase of the payment years. Other countries also applied retroactive measures that reduced the level of financial support or changed the conditions applying to already existing PV systems. Bulgaria and the Czech Republic have discussed or applied such measures in the last two years, often with the consequence of destroying investors' confidence and bringing down the PV market.

GRID FINANCING AND ADDITIONAL TAXES

In Belgium, the region of Flanders will impose in 2015 a grid connection tax aimed at compensating for the losses in grid revenue linked to the existing net-metering scheme. This same question has been raised by policymakers and grid operators in several countries. In the USA, several debates took place with regard to the compensation of net-metering policies, with the consequence of establishing either caps to net-metering or small additional fees. Other countries such as Italy and Spain have either setup or discussed additional taxes on solar PV systems.

SUPPORT POLICIES EVOLUTION

The decrease of financial support continued in 2014 at a slower pace. However, the arrival of call for tenders pushed down the LCOE of PV systems to extreme limits. 58,5 USD/MWh has been recorded in the UAE, and similar levels have been seen in other calls in other countries.

On the other side, several countries stopped their FiT policies. This was the case in Australia and Italy. Also, several countries in Europe took indirect measures that stopped the market development (Bulgaria, Slovakia for instance) or reduced it (France, Belgium and Germany, to mention only a few).

Countries that adopted a quota-system with green certificate trading are diminishing. Korea, Australia and, to a certain extent, Belgium are still using this support scheme to incentivize PV. Several countries are now supporting PV through a combination of incentives.

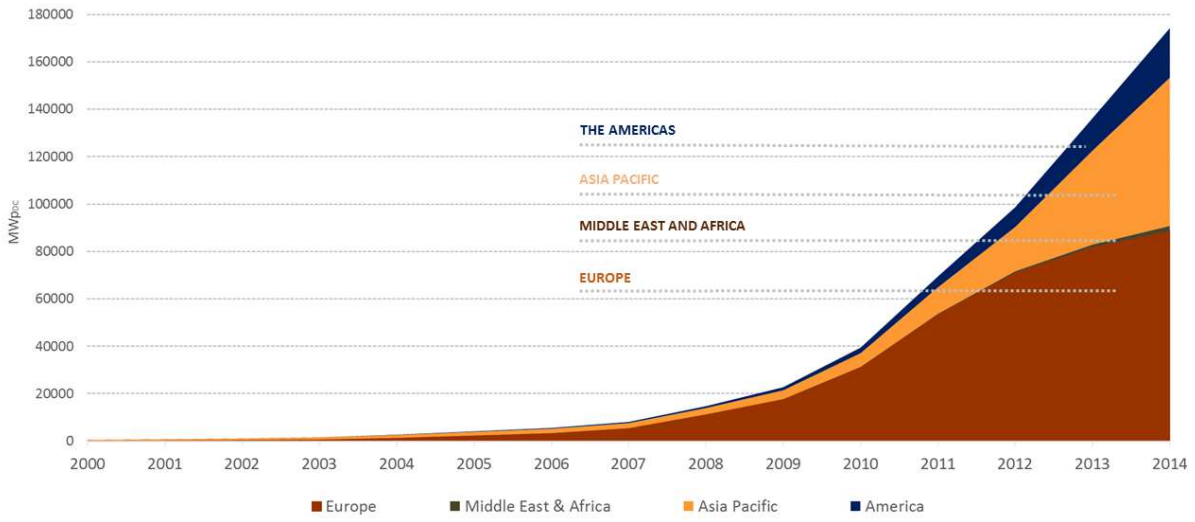
FROM PRODUCERS TO *PROSUMERS*

The idea that PV producers could be considered as "prosumers" – both producers and consumers of energy – is evolving rapidly and policies are being adapted accordingly in several countries. Net-metering policies are being considered in some countries such as Mexico (these policies have previously supported market development in the USA, Denmark (but with a reduced compensation period), The Netherlands, Portugal, Sweden and partially in Belgium and many countries around the world are either discussing its introduction or a variant through self-consumption. Therefore, self-consumption is becoming a major driver of distributed PV installations.

EVOLUTION OF TOTAL INSTALLED PV CAPACITY PER REGION

While Europe represented a major part of all installations globally, Asia's share started to grow rapidly in 2012 and this growth was confirmed in recent years. Now Europe represents around 50% of the total installed capacity and this percentage shall continue decreasing in the coming years. Figure 3 shows the relative share of cumulated PV installations in four regional market segments.

FIGURE 3: EVOLUTION OF REGIONAL PV INSTALLATIONS (MWpDC)



Source: IEA PVPS

AC & DC NUMBERS, GRID-TIED AND OFF-GRID

PVPS counts all PV installations, both grid-connected and off-grid. By convention, the numbers reported refer to the nominal power of PV systems installed. These are expressed in W (or Wp). Some countries, such as Spain, are reporting the power output of the PV inverter (the device converting DC power from the PV system into AC electricity compatible with standard electricity networks). The difference between the standard DC Power (in Wp) and the AC power can range from as little as 5% (conversion losses) to as much as 30%. For instance, some grid regulations in Germany limit output to as little as 70% of the peak power from the PV system. Canada, Japan (since 2012) and Spain report AC numbers. The numbers indicated in this report have been transformed to DC numbers to maintain the coherency of the overall report.

THE TOP 10 COUNTRIES IN 2014

In the major evolutions, 5 of the top 10 markets for PV in 2014 have installed at least 1 GW of PV systems (down from 9 in 2013). Looking at the total installed capacity, 20 countries are entering the 1 GW club.

As mentioned earlier, capacities, for the few countries that report PV installations in AC power, have been converted in DC power to ease comparison with DC-reporting countries. This could lead to discrepancies with official PV data in several countries such as Canada, Japan and Spain.

TABLE 1: TOP 10 COUNTRIES FOR INSTALLATIONS AND TOTAL INSTALLED CAPACITY IN 2014

	TOP 10 COUNTRIES IN 2014 FOR ANNUAL INSTALLED CAPACITY		TOP 10 COUNTRIES IN 2014 FOR CUMULATIVE INSTALLED CAPACITY	
1st	China	10,6 GW	Germany	38,2 GW
2nd	Japan	9,7 GW	China	28,1 GW
3rd	USA	6,2 GW	Japan	23,3 GW
4th	UK	2,3 GW	Italy	18,5 GW
5th	Germany	1,9 GW	USA	18,3 GW
6th	France	0,9 GW	France	5,7 GW
7th	Australia	0,9 GW	Spain	5,4 GW
8th	Korea	0,9 GW	UK	5,1 GW
9th	South Africa	0,8 GW	Australia	4,1 GW
10th	India	0,6 GW	Belgium	3,1 GW

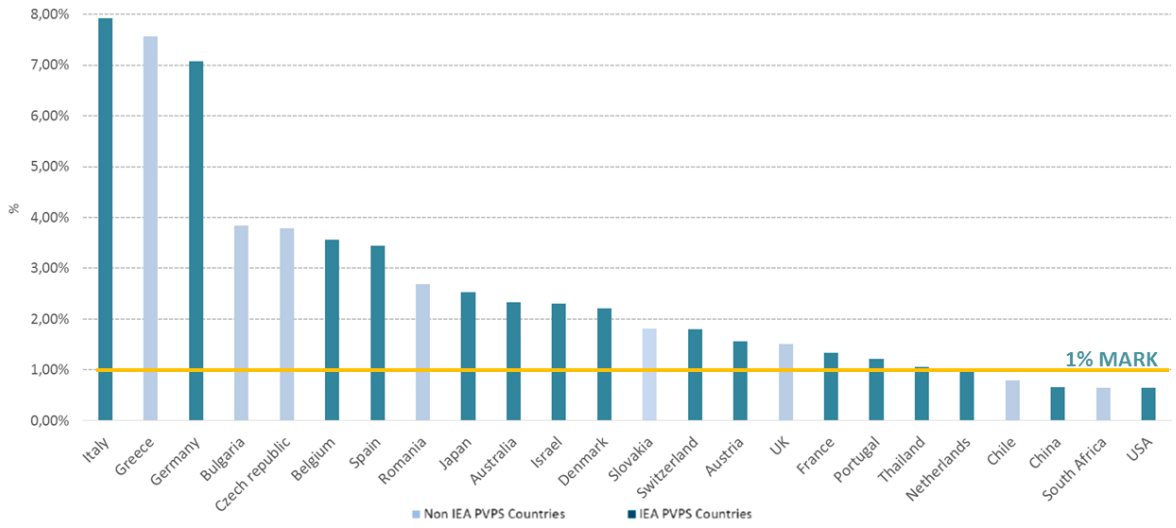
NUMBERS HAVE BEEN ROUNDED

Source: IEA PVPS

ELECTRICITY PRODUCTION FROM PV

PV electricity production is easy to measure for a power plant but much more complicated to compile for an entire country. In addition, the comparison between the installed base of PV systems in a country at a precise date and the production of electricity from PV are difficult to compare. A system installed in December will have produced only a small fraction of its regular annual electricity output; systems installed on buildings may not be at optimum orientation, or may have partial shading during the day; and/or the weather in 2014 may not have been typical of the long term average. For these reasons, the electricity production from PV per country as shown below estimates what the PV production could be based on the cumulative PV capacity at the end of 2014, close to optimum siting, orientation and average weather conditions.

FIGURE 4: 2014 THEORETICAL PV PRODUCTION



Source: IEA PVPS

In several countries, the PV contribution to the electricity demand has passed the 1% mark with Italy in first place with 7,92% and the overall European PV contribution amounting to around 3,5 % of the electricity demand of Europe. Australia, Japan and Thailand have also passed the 1% mark but larger consumers of electricity such as China or the USA will require more installations to reach this threshold. In total, 19 countries already produce at least 1% of their electricity needs with PV. Figure 4 shows how PV theoretically contributes to the electricity demand in PVPS countries, based on the PV capacity installed by the end of 2014.

CONCLUSION AND FUTURE PROSPECTS IN PVPS COUNTRIES

PV technology today has become a major actor in the electricity sector in several countries. Globally, at least 200 TWh, or 200 billion kWh will be produced in 2015 by PV systems installed and commissioned until January 2015. This represents about 1% of the electricity demand of the planet, though some countries have reached rapidly significant percentages.

This progressive growth of PV can be put in perspective with the development of renewable power sources in several countries in 2014. It is difficult to extract a global pattern and despite its growth in the last years, PV hasn't yet reached a widespread development. On the contrary, the development of PV remains driven by a handful of countries. Even more, less GW markets contributed to the installations in 2014.

Around 177 GW of PV are now installed globally, at least 10 times higher than in 2008.

The growth of Asian markets in 2014 confirms the PV market landscape change from 2013. With declining prices in the last few years, PV appeared on the radar of policymakers in charge of energy policies in numerous countries and plans for PV development have increased rapidly all over the world. However, this hasn't really contributed to the market development significantly. The development of PV remained concentrated in 2014 in less than 40 countries.

In PVPS countries, several Asian countries have announced their intention to continue developing PV, and the market remains steady in North America where it could continue to grow at a reasonable pace. In Europe, the picture is more contrasted with a complex process of transitioning from the current financially supported market to a more competitive PV market. All these elements considered together should maintain the PV market in an upward trend in the coming years.

SYNTHESIS TABLE

Table 2 compiles preliminary information valid as of 21 March 2015. PVPS countries' data are issued by national experts. Data related for Non IEA PVPS countries have been delivered by the European Photovoltaic Industry Association (EPIA) and the Solar Energy Industry Association (SEIA from the USA) until 2013 and by the Becquerel Institute in Belgium and RTS Corporation in Japan. Data for some countries may still be updated by national authorities. In particular, data for Canada, Korea and the Netherlands are not definitive but official estimates. Updated data will be published in the next edition of the complete report *"TRENDS 2015 In Photovoltaic Applications."*

Solar yield data has been provided by member countries or GIS data providers.

Electricity production is a **theoretical calculation** based on average yield and the PV installed capacity as of the **31 December 2014**. Real production data could differ due to differences in irradiation across the countries themselves and the characteristics of the PV power plants considered.

Electricity consumption data has been provided by official authorities. In most cases, 2013 or older data have been used when 2014 data was not yet available.

TABLE 2: ANNUAL AND CUMULATIVE INSTALLED PV POWER IN 2014

	ANNUAL INSTALLED CAPACITY	CUMULATIVE INSTALLED CAPACITY		ANNUAL INSTALLED CAPACITY	CUMULATIVE INSTALLED CAPACITY		ANNUAL INSTALLED CAPACITY	CUMULATIVE INSTALLED CAPACITY
Australia	910 MW	4 136 MW	Greece	16 MW	2 595 MW	Romania	69 MW	1 219 MW
Austria	140 MW	766 MW	India	616 MW	2 936 MW	Slovakia	0,4 MW	533 MW
Belgium	65 MW	3 074 MW	Israel	250 MW	731 MW	South Africa	800 MW	922 MW
Bulgaria	1,6 MW	1 022 MW	Italy	385 MW	18 460 MW	Spain	22 MW	5 358 MW
Canada	500 MW	1 710 MW	Japan	9 700 MW	23 300 MW	Sweden	36 MW	79 MW
Chile	365 MW	368 MW	Korea	909 MW	2 384 MW	Switzerland	320 MW	1 076 MW
China	10 560 MW	28 199 MW	Malaysia	87 MW	160 MW	Taiwan	400 MW	776 MW
Czech Republic	1,7 MW	2 134 MW	Mexico	64 MW	176 MW	Thailand	475 MW	1 299 MW
Denmark	39,4 MW	603 MW	Netherlands	400 MW	1123 MW	Turkey	40 MW	58 MW
France	927 MW	5 660 MW	Norway	2,2 MW	13 MW	UK	2 273 MW	5 104 MW
Germany	1 900 MW	38 200 MW	Portugal	110 MW	391 MW	USA	6 201 MW	18 280 MW

NUMBERS HAVE BEEN ROUNDED

Source: IEA PVPS

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