



Photovoltaic growth slow despite new opportunities in emerging markets

SPECIAL FEATURE

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The World-Market Status special report – In a strong shift from previous years of European leadership, Asia takes lead in the PV market with more than half of the total world market. Europe settles as the second largest market, followed by North America.

The feed-in tariff reduction in most of the traditional markets, especially in Europe, and regulatory changes had a considerable impact on the growth of PV industries and markets in 2014. We are facing a change in the regulatory approaches in emerging markets such as America, Middle East, China or even Chile. New opportunities in emerging markets have helped to reduce costs and increase attractiveness of PV, even in regions where electricity generation from renewable sources are non-subsidized.

The newly installed global PV power capacity reached 39 GW in 2014, which represents a slightly higher value than in 2013, by only 8% (36 GW). This annual percentage increase was not as pronounced as in previous years, such as in 2013 where the increase in installed capacity worldwide was 23% above the 2012 value. As in the prior year, in 2014 Asia led the PV sector with approximately 22.87 GW of installed capacity. This deviates from the trend of previous years, 2012 and 2011, where Europe was the prevalent market in the PV sector. In fact, in 2014 the Asian PV market represents more than half of the total market, around 58%, in terms of installed capacity worldwide.

The European market is the second largest market with approximately 19% of the total market, followed by North America with 17%, and Oceania with approximately 2%. In 2014, Europe installed about 4 GW less than 2013, continuing the trend of 2013 where it could be observed that growth in the European market has decreased. In all other regions the installed capacity has increased compared to 2013. Compared to installed capacity in 2013, South America increased by about 20 times, and Africa increase by around 7 times in 2014.

The major markets in Europe in 2014 were UK (2.44 GW), Germany (1.90 GW), France (0.98 GW), Romania (0.46 GW) and Italy (0.39 GW) making 81% of the total newly installed European capacity.

In Asia, China and Japan top the ranking far above the other countries with 10.60 GW and Japan 9.66 GW, respectively, followed by South Korea (0.92 GW) and India (0.79 GW). These countries represent 96% of newly total installed PV capacity in Asia.

The major market in North America is the United States (6.20 GW), which together with Canada (0.50 GW) make the 98% on total newly installed capacity in North America.

In both Oceania and Africa there are clear leaders. In Oceania this leader is Australia with 0.88 GW (corresponding to 98% of total installed capacity), and in Africa it is South Africa with 0.77 GW (corresponding to 95% of total installed capacity).

Traditional markets

In previous years the traditional markets have been the European markets, in particular Germany, France, UK, Italy, Romania, and Spain.



A slight increase for global PV power capacity in 2014 (Image courtesy of Shutterstock).

Region	Cumulated Installed Capacity 2014		Installed Capacity 2014		Estimated Electricity Generation 2014
	[GW]		[GW]		[TWh/y]
North American	19.42		6.78		34.52
South American	0.65		0.42		1.28
Europe	85.45		7.61		90.79
Asia	57.43		22.87		86.12
Oceania	4.10		0.90		8.73
Africa	1.08		0.81		2.04
World Total	168.15		39.38		223.49
Largest National Market	Germany	38.24	China	10.60	

Figure 1
Summary of the global PV power market in 2014.

Germany has seen a strong reduction of new PV installations, installing in 2014 about half of the capacity installed in 2013. This was caused by a change in the Feed-in-Tariff (FiT) mechanism, which resulted in a decrease of the FiT. Accordingly, the plants connected within January 2014 up to 1 MWp, received 0.1158 €/kWh, while up to 10 MWp, 0.0947 €/kWh and plants connected within December 2014 up to 1 MWp, received 0.1095 €/kWh, while up to 10 MWp, 0.0872 €/kWh [40].

Within Europe the UK market represents the greatest growth, installing in 2014 more than double that in 2013, and leading Europe in most newly installed capacity. The UK solar PV market has grown to this point thanks to the Renewable Obligation (RO) policy. The objective of the policy is to encourage the development of large scale renewable energy projects. The policy works with the issue of Renewables Obligation Certificates (ROC) to the electricity generators depending on how much energy they have generated from renewable sources.

At this point, generators can sell the ROC for which they will receive an extra payment, apart from the electricity price. The amount of ROCs per MW that would be needed for suppliers to meet their targets has been decreasing in the past years. For the 2014/15 period the number of ROCs was 0.244 ROCs per MWh in England, Scotland and Wales, and 0.107 ROCs per MWh in Northern Ireland.

In 2014, the Italian market showed another strong reduction in operating PV plants. In June 2014, the Italian Parliament approved a retroactive law by either a reduction of 8% on the applicable feed-in-tariff rates for photovoltaic plants with a nominal power exceeding 200 kW, or a tariff reduction of between 17 and 25% against an extension of the payment period by four years. On the other hand, for new installations, GSE (Gestore Servizi Energetici) officially announced the stop of the incentive after its cap of 6700 million euro was reached and therefore the cut of the subsidies by the government.

The French solar market had an increase of 45% compared to the previous year. Since 2011 France has had a regulated feed in tariff, which is revised every 3 months taking into account technology cost reductions. During the first quarter of 2014 the tariff for ground mounted installations up to 12 MW has been 0.0736 €/kWh.

Romania was the fourth largest market in Europe for newly installed capacity in 2014. Still, the newly installed capacity was lower than that in 2013. One reason was due to the reduction in incentives. The Romanian system is based on a quota system for which developers acquire green certificates for every megawatt generated up to a period of 15 years. Afterwards, each certificate could be traded on a spot market. From January 2014 the number of green certificates was decreased from six to three.

Until last year the photovoltaic market in Greece has been one of the most important traditional markets in Europe. During 2014 the Greek market suffered a dramatic decline. In 2013 over 1 GW was installed in Greece decreasing this number down to 13 MW during 2014. Within these 13 MW, 11 MW came from ground mounted systems and 2 MW from rooftop installations. This drastic drop is mainly caused by the 2012 suspension of the approval process for photovoltaic systems and the financial crisis that is plaguing Greece.

New and emerging PV markets

As in 2013, China was the top market last year with 10.6 GW of newly installed capacity. It can be observed that China continues a similar trend in terms of installed capacity ranges as in 2013 when 11.3 GW were installed. Chinese government expectation for 2014 was even higher, at 14 GW. One of the reasons why the installed capacity in 2013 was greater could be due to the fact that the tariff in force in 2013 (for large-scale plants, and based on the radiation level at the locations, 0.9 yuan/kWh (€ 0.102/kWh). 1 yuan/kWh (€ 0.117/kWh) was assigned to projects connected until 1 January 2014, and therefore this deadline created a rush at the end of the year.

This was previously observed in other markets such as Germany or Spain. This massive growth was driven mostly by the generous feed-in tariff for both utility-scale as well as distributed generation installations (roof tops and residential installation). The objective of reaching 35 GW by 2015 will likely be achieved and China is now targeting 100 GW by 2020. Despite all this, in China the electricity generated by solar energy still does not exceed 1% of the total energy consumption. It is expected that China may become an established market in the short term.

Japan continues as second in terms of newly installed capacity worldwide in 2014, and also in the second position of accumulated

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