## TASK 1 IMPLEMENTING AGREEMENT ON PHOTOVOLTAIC POWER SYSTEMS



## **Trends Preview**

This document provides an approximated snapshot of the market deployment information that will appear in more detail in the *Trends in Photovoltaic Applications* report to be published this year.

As part of the work of the IEA PVPS Programme, annual surveys of PV power applications and markets are carried out in the reporting countries. The 17<sup>th</sup> international survey provides an overview of PV power systems applications, markets and production in the reporting countries and elsewhere at the end of 2011.

National survey reports can be found on the website www.iea-pvps.org

<b>PVPS Country</b>	PV installed in 2011 (MW)	Cumulative installed capacity (MW)
Australia	837	1408
Austria	92	187
(Belgium)	958	1997
Canada	278	559
China	2200	3000
Denmark	10	17
France	1634	2831
Germany	7500	24820
Israel	120	190
Italy	9301	12803
Japan	1296	4914
Korea	157	812
Malaysia	1	14
Mexico	7	37
Netherlands	42	130
Norway	<1	9
Portugal	13	144
Spain	345	4260
Sweden	4	16
Switzerland	100	211
(Thailand)	50	100
Turkey	1	7
UK	899	976
USA	1867	3966
<b>Estimated totals</b>	27713	63349

xx Data sourced as part of the national survey report process

yy Data sourced from elsewhere

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## Selection of country deployment information

A total of 837 MW of PV were installed in **Australia** in 2011, more than twice the capacity added in 2010 and representing 36% of new electricity generation capacity. Of this, 91% were grid-connected, taking the cumulative grid-connected portion to 88%, up from 84% the previous year. Total installed capacity in Australia now exceeds 1,4 GW. PV power has now reached grid parity in many areas and government support programmes are winding down.

Supported by various promotion mechanisms of the federal provinces and the federal government a new stronger market diffusion of PV systems was observed in **Austria** during 2011. Grid-connected plants with a total capacity of 91 MW were installed during the year. The cumulative total installed capacity reached 187,2 MW. As a consequence, the estimated renewable electricity produced by PV amounted to 174 GWh in 2011 and led to a reduction in  $CO_2$  emissions of 71 856 tons.

By the end of 2011 **Denmark** (including Greenland) had about 17 MW of PV installed, an increase of more than 9 MW compared to 2010. Grid-connected distributed systems constitute the majority of PV systems (90%). Denmark has no general incentive for reducing the investment cost of PV systems but has a net-metering scheme set by law for private households and institutions. Due to increasing taxes on electricity the net-metering scheme is becoming increasingly attractive, driving the PV market increase of 140% from 2010 to 2011.

The grid-connected PV power installed in **France** during 2011 amounted to 1 634 MW, up from 817 MW in 2010, representing 57% of newly installed electricity generation capacity. The 100% annual market increase derives mainly from medium-scale systems (36 kW to 250 kW) and large-scale systems (> 250 kW) contributing to 36% and 46% respectively of the annual installed power. 432 MW of ground-mounted centralized systems and 1 232 MW of distributed systems (mainly building applications) were connected to the electricity grid during 2011.

PV power installed in **Italy** during 2011 reached 9 301 MW, over 60% of all new electricity generation capacity. Cumulative installed and operating PV power reached 12 803 MW. The national market stimulation initiative in operation during the year was the Conto Energia Programme (second, third and fourth phase). Two main barriers have emerged that could adversely affect the booming PV market in Italy: firstly, the adequacy of the electricity grid in some regions of southern Italy, where the installed power of wind turbines and PV is almost the same order of magnitude as the peak load and secondly, the annual cost of the incentive tariffs is rapidly approaching the budget limits fixed by the Conto Energia Programme.

The annual installed capacity of PV in **Japan** exceeded 1 GW for the first time, reaching 1 295 MW in 2011 - a 31% increase over the 2010 figure. The PV market is led by a subsidy programme for residential PV systems and a programme to purchase surplus PV power at a preferential price from systems of less than 500 kW. The breakdown of PV systems installed in 2011 is 2,2 MW for off-grid domestic applications, 2,3 MW for off-grid non-domestic applications and 1 245 MW for grid-connected distributed applications, mainly residential PV systems. 45,9 MW were newly installed grid-connected centralized applications, mainly by the electricity utilities. Cumulative installed capacity of PV systems in Japan in 2011 reached 4,9 GW or 2,1% of total national electricity generation capacity.

**Switzerland's** PV market deployment almost tripled in 2011 to 100 MW of newly installed capacity. This was driven by another reduction in the feed-in tariffs by about 20% at the beginning of 2011. Due to this reduction the Federal Office of Energy could significantly increase the yearly cap for PV. Besides the (capped) national FiT scheme there are many regional, local and utility support schemes operating either with direct subsidies or FiTs equal or below those offered at the federal level.

The **United States** added approximately 1 867 MW of PV (including CPV) grid-connected generating capacity in 2011 (approaching 10% of new electricity generation capacity), bringing cumulative installed capacity to 3 966 MW. This represents an 88% growth in cumulative capacity over 2010. More than 60 000 PV systems were connected in 2011, compared to 50 000 in 2010. At the state level, California represents 29% of new capacity in 2011 compared to 32% in 2010, indicating stronger growth in other states. By the end of 2011 there were approximately 214 000 distributed, grid-connected solar electric systems installed in the United States; the nation added 770 MW of utility-scale generation capacity during 2011.