IEA PVPS report | Trends 2019 in Photovoltaic Applications

The new 2019 edition of the IEA PVPS report Trends in Photovoltaic Applications is now available. This edition browses 24 years of PV installations in the IEA PVPS member countries and many others. Policies to support PV deployment, industry development and the integration of PV in the power sector are analyzed in-depth. Visit the Trends page and find the 24 editions of the report.

The publication is available here.

While COP25 is looking for solutions to fight climate change, solar PV becomes one of the key enabling technologies that can provide reliable solutions: the installed global PV fleet, at the end of 2018, saved close to 600 Mtons of CO2eq emissions every year, which represents a reduction of 4,5 % of the power sector emissions, a higher percentage compared to PV's energy share, thanks to its massive adoption in countries with highly carbon-intensive electricity mixes.

With more than 512,3 GW installed at the end of the year 2018, PV could provide almost 3% of the global electricity demand, a fast-growing number. Much more would be needed to decarbonize the energy sector and fulfill the COP21 agreement: while some countries start to take PV seriously, most haven't yet considered the full potential of an energy source that went below 0,02 USD per kWh in the most competitive tenders. In 2018, the global PV sector weighted USD 132 billion.

At least 103,2 GW of new PV capacity have been installed worldwide in 2018, a similar level as the record year 2017. The stabilization of the market in 2018 hides the major growth on all continents, hidden by the decline of the Chinese PV market. And the growth is continuing in 2019: PV develops fast thanks to its improved competitiveness and more efficient policies for distributed PV applications.

Utility-scale PV continued to represent more than 60% of installations while distributed PV represented a bit more than one-third of all PV installations. Floating PV passed the GW of cumulative capacity for the first time, while agri-PV develops, especially in Asia. Building-integrated photovoltaics (BIPV) continued developing at a low pace while the first vehicle-integrated photovoltaics (VIPV) systems integrated into electric vehicles (EVs) are expected soon.

Policies evolved towards more competitive tenders for utility-scale PV but also for distributed installations. Feed-in tariffs were still dominant but decreasing while net-metering was still being implemented in new countries and phased-out in favor of self-consumption in others. Collective and decentralized self-consumption policies are being tested or cautiously implemented in new countries while merchant PV was gaining ground in a few markets. In a nutshell, distributed PV was still hampered by difficulties to set up adequate policies in dozens of emerging markets.

At the same time, production capacities increased in all segments of the PV value chain, mostly in Asia but not only. Such an increase led to a new imbalance, which from June 2018 pushed the prices of all components low and reduced the margins, increasing again the competitiveness of PV solutions.

Monocrystalline wafers and cells started to dominate the market again in 2018, while bifaciality is being rolled-out. In general, modules and cell technologies are bringing an increased variety of end-products to the market: different back-sheets, glass-glass modules, half-cells, and shingling are bringing more opportunities. Cell technology saw some metal wrap through (MWT) and heterojunction technology (HJT) developments, while cadmium telluride (CdTe) has experienced a major market push in 2018 and 2019.

PV, with lowered prices, coupled with storage, electric mobility, heating & cooling, and hydrogen, is one of the few competitive solutions to fight climate change. As the emergency to tackle climate change is topping the political agenda, PV should be considered as its full potential to reduce GHG emissions.

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 Technology Collaboration Program (TCP) was created with a belief that the future of energy security and sustainability starts with global collaboration. The program is made up of thousands of experts across government, academia, and industry dedicated to advancing common research and the application of specific energy technologies.

The IEA Photovoltaic Power Systems Programme (IEA PVPS) is one of the TCP's 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 deals with market and industry analysis, strategic research and facilitates the exchange and dissemination of information arising from the overall IEA PVPS Programme.

The IEA PVPS participating countries are Australia, Austria, Belgium, Canada, Chile, China, Denmark, Finland, France, Germany, Israel, Italy, Japan, Korea, Malaysia, Mexico, Morocco, the Netherlands, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, and the United States of America. The European Commission, Solar Power Europe, the Smart Electric Power Alliance (SEPA), the Solar Energy Industries Association and the Copper Alliance are also members.

Contact for further information:
Gaëtan Masson, Task 1 Operating Agent g.masson@iea-pvps.org
Izumi Kaizuka, Task 1 Deputy Operating Agent: kaizuka@rts-pv.com