

China's Domestic Solar PV Market Development in 2014 – 10.5 to 12 GW installed

13 GW installed in 2013, China's total installed PV power generation capacity amounted to 19.4 GW according to figures released by the National Energy Administration (NEA) that year. In January the same administration set a target of 14.05 GW for 2014, made up by 8 GW (distributed) and 6.05 GW (utility-scale). Favouring distributed PV vs. utility-scale, the govt. was aiming at a 10 x times increase YoY, because in 2013 merely 800 MW were considered distributed PV. Although Chinese project developer support the governments drive towards distributed generation, however, given the prevailing administrative, financial, technical, and operational complexity of distributed solar PV compared with large-scale ground mounted projects it did not come as a surprise that in the first nine months of 2014 distributed solar installations fell very short of its expectations. In this context, early October according to official figures between Q1-3/2014 just 2.45 GW utility-scale and 1.34 GW of distributed solar PV projects were deployed.

Given the myriad of constraints hampering a fast and smooth execution of distributed projects across China, the NEA published its distributed solar PV policy update on September 2nd. Although considered fairly comprehensive, however the "new" policy certainly requires time to bear fruit. Nevertheless, as an indication for sustained demand was that in Oct the NEA granted the Southern Xinjiang Autonomous Region an additional 1 GW to be installed, thus amounting to in total 1.85 GW, which means that obviously the provincial targets set earlier last year were not set in stone. As well the "new definition" of distributed projects, i.e. since September 2nd projects up to 20 MW including ground-mounted applications in specific areas like fishponds, agriculture, mountain slopes, tidal zones, etc. feeding into the mid-voltage (35 kV) grid are falling into the category of distributed systems which thus allows projects prior to the policy announcement classified as utility-scale to "migrate" into the distributed category. Such a "migration of projects" has according to AECEA the potential to "add" an estimated 1.5 to 2 GW of projects to the NEA's desired share of distributed projects and could mean that overall distributed solar projects amount to approx. up to 4 GW, which still would be a 5 x time increase YoY.

Already on December 25, 2014 the then head of NEA announced during its annual national energy conference that by the end of 2014 the country's total solar PV capacity has hit the 30 GW mark, without providing further details. This official statement implies that overall at least a 10.5 GW were installed in 2014 which overall translates into an approx. 20% market decrease YoY. The statement implies furthermore that in Q4 alone approx. 6.7 GW were added, a figure very similar to Q4/2013 installations. Given that the announcement was made before the end of the year AECEA is of the opinion there "is room for more", i.e. in light of AECEA's monthly project demand monitoring analysis that a 12 GW appears to be feasible. A total installation of 12 GW would mean that the share of utility-scale projects increased from initially set at 6 GW to have increased up to 8 GW.

China's Approaching 13th Five-Year-Plan (2016-2020) and what it may mean for solar PV in 2015

Last year China's power sector, i.e. additionally installed power generation capacities amounted to 104 GW up

1.3% YoY and domestic power consumption just grew by 3.8% YoY (2013: 7.5%). Driven by supply and security concerns, unprecedented levels of local environmental pollution, an annual migration of 20 mio people from rural to urban areas, ensures that energy is very high on the political agenda and China's president Xi Jinping has therefore called for an "Energy Revolution" last summer. The year 2015 is a "window of opportunity" for the central government to address a series of overdue power sector related reforms and to remove prevailing institutional barriers, thus enhancing administrative efficiency and greater enforcement of corresponding regulations at all levels.

China's 13th Five-Year-Plan (2016-2020)

2015 will set the tone for the things to come

❖ Macro-Economic Perspective

Energy Supply | Energy Security | Environmental Protection | GHG & Climate Change

President Xi Jinping has called for an "Energy Revolution" in summer 2014

China's Future Urbanization

❖ Policy Agenda

Power Sector Reform (Utilities & Grid Operators) / Removal of Institutional Barriers

Pricing of Energy and Incentive Policies (Ceiling for Coal Consumption & RPS)

Financing (Adjustment of Feed-in-Tariff & Administering of RE Development Fund)

Distributed Generation (Key – Priority)

Grid Planning (Mini/Micro Grid & Integration of Variable Power Generation) & Storage

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AECEA is of the opinion that during 2015 a number of far reaching solar PV related decisions will be taken and may include the following like the setting of future FIT levels and its annual/bi-annual degression, further increase of RE power surcharge, the promotion of a domestic carbon emission trading scheme as an additional financial tool, guidance on annual or mid-term installation targets, further fine-tuning of distributed generation related support policies. The latter, perhaps in an attempt to demonstrate its political commitment the NEA decided in late December to increase the number of national demonstration zones for distributed solar PV from 18 to 30 whereas increasing the target to 3.55 GW to be realized by the end of 2015.

Zhejiang’s Xiuzhou PV High-Tech Industrial Development Zone is taking the lead in promoting distributed PV

Early January AECEA was invited to attend the 2nd Anniversary of the Xiuzhou PV High-Tech Industrial Development Zone located in Jiaxing, Zhejiang Province. Established in December 2012 the “PV Industrial Park” with a size of approx. 14 km² has an estimated rooftop space of 2-3 Mio m² considered large enough to accommodate the PV Industrial Park’s target of 200 MW installed solar PV power generation capacity by the end of 2015. Currently the PV Industrial Park is home to 30 PV manufacturers and 61 MW of installed solar PV with the single largest rooftop project featuring 10 MW. A cloud based software programme is monitoring approx. 60% of all installed systems. Since its establishment the administration of the PV Industrial Park has released a series of support policies designed to specifically promote distributed solar PV across its jurisdiction. As of today, project developers can benefit four-fold, i.e. are eligible to receive national, provincial, city-level, and industry park subsidies, thus making the Xiuzhou PV Industry Park one of the most attractive area for distributed solar PV across the country. The Park’s aggressiveness to promote distributed solar PV gained nationwide attention and as a result was declared a “National Model” by the National Energy Administration after holding a national PV conference in Jiaxing last year August. Until recently the focus of the Park was primarily on solar PV manufacturing and local deployment. In the coming two years the Park plans to intensify its efforts on electrical energy storage, building material incl. BIPV and smart energy solutions.

Zhejiang Province / Jiaxing



National Model for Local Support Policy for Distributed Solar PV



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AECEA’s Asia Country Watch-List “Indonesia”

Asia Country Watch-List – Indonesia



January 2015 Removal of Fuel Subsidies Encourages PV Deployment

- ✦ 17,500 Islands = 2 Mio sqm; Electrification rate = 76%
- ✦ Population = 252 Mio; Energy consumption growth rate = 7% annually
- ✦ 95% Fossil Fuel Dependency, Energy Subsidies = 1/5 of govt. spending
- ✦ Natl. RE Target 25% in primary energy mix by 2025; at present = 5%
- ✦ 2025 govt. target 1.2 GW of solar PV capacity up from currently = 60 MW
- ✦ Solar Irradiation Range 4.2 and > 6 kWh/sqm day (West → East)
- ✦ FIT US\$ 0.25/kWh or US\$ 0.30/kWh if the module contains 40% or more local components
- ✦ 2015 GDP forecast growth put at approx. 5%
- ✦ January 1, 2015 fuel subsidies removed, frees up savings of USD 16 bln to be used for infrastructure
- ✦ Govt. focus is on roof-top for both residential and industrial applications based on net-metering scheme as introduced in November 2013
- ✦ Mining + Fishing Industries create near term commercial solar PV project opportunities



Picture Courtesy Horst Kinuse / Jakarta

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Today Indonesia is the world largest coal exporter by weight and exports approx. 75% of its domestic production. However, as the largest economy in South-East Asia, Indonesia is currently reorienting its energy production from serving primarily export markets to serve its growing domestic needs. Currently existing power generation capacity amounts to approx. 45 GW. The govt. has set a goal that 90% of all households will have electricity by 2020. In this context already in 2006 the govt. decided to add 20 GW of power generation capacity with a first phase of 10 GW (coal-based) and 10 GW (gas, geothermal and other renewables).



The government demonstrated its seriousness in realizing its untapped solar power potential by involving the private sector when it introduced Feed-in-Tariffs in July 2013. However, deployment of renewable energy power generation capacities is still substantially lagging behind mainly due to e.g. inadequate govt. regulations in connection with missing strategic policy or incentives to encourage foreign investors; bureaucracy for project development and execution; poor quality standards and lack of experienced local companies; and high logistic challenges to reach remote locations in general. However, Indonesia’s new government which recently abolished decade old fuel subsidies allowing fiscal prospects to brighten, i.e. govt savings generated through scrapping fuel subsidies have been estimated to amount to approx. USD 16 bln are expected to be partially used for the construction of energy infrastructure across the country.

Given the new government’s target to achieve an average GDP growth rate of 7% in the coming years requires substantial investments in the power sector and solar PV is expected to play a greater role than in the past, hence AECEA is of the opinion that “Indonesia” qualifies to be on it’s “Asia Country Watch-List”.

AECEA – Internal Affairs

Upcoming Activities *****



PV Tech invited AECEA as a contributor to PV Tech’s bi-monthly blog starting January 2015. AECEA’s first guest blog calls “China 2014 – Still 10.5 to 12 GW despite new policies favouring distributed solar PV” and shall be online from

January 19th onwards under: PV Tech blog http://www.pv-tech.org/guest_blog/list

AECEA was commissioned by the Renewable Energy Policy Network for the 21st Century to contribute to REN21’s annual flagship report “Global Status Report 2015” which shall be published early June. <http://www.ren21.net/REN21Activities/GlobalStatusReport.aspx>



AECEA – Internal Affairs

Recent Activities *****

AECEA was part of a joint effort to undertake a study assessing “Solar Opportunities and Risks – Curtailment and Subsidy Delay Analysis – Across Eight Chinese Provinces” on behalf of a major international financial institution and leading international solar PV project developer. The study was concluded in December.



AECEA was invited to review the “Renewable Energy Prospects: China” study undertaken by the International Renewable Energy Agency (IRENA) published in late November.

<http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=36&CatID=141&SubcatID=480>

Company Profile

Frank Haugwitz is an independent solar energy consultant based in Beijing since 2002. In his early years in China he was seconded by the German govt. and involved in a bilateral solar / PV energy technical cooperation program. Following this assignment he was responsible for the renewable energy component of the EU-China Energy & Environment Program until the fall of 2009. Since then he has been consulting foreign enterprises and international organizations on the development of renewable energies in general and solar / photovoltaic in particular in China. Since early 2010 he works for the organizer of Intersolar as their Head of Intersolar Conference Development.

From late 2009 until August 2012 he worked as a director in the Deutsche China Consult Co. Ltd. (HK) and in October 2012 he founded his company “Asia Europe Clean Energy (Solar) Advisory Co. Ltd. (AECEA) in HK. His services include working with individual clients to apply his extensive China photovoltaic energy-focused insights to their specific needs. Industry experience and in-depth analysis shall assist strategy development and corporate decision making. Focus is on the regulatory framework conditions, policy, as well market and business development. His advisory services provide objective and independent research.

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