

**CHINA'S PV MARKET TILL 2020 –  
VIET NAM AN EMERGING UP AND DOWNSTREAM SOLAR PV MARKET**

Frank Haugwitz<sup>1</sup>

<sup>1</sup>Asia Europe Clean Energy (Solar) Advisory Co. Ltd. Hong Kong, China

China aims at 105 GW of solar PV and 5 GW of CSP of total installed capacity by 2020 according to its 13<sup>th</sup> Five-Year-Plan (2016-2020) for Solar Energy Development. By the end of 2016, China was home to 77 GW of installed solar PV power generation capacity and in the 1<sup>st</sup> quarter of 2017 added approx. 7.14 GW. Current market forecast suggest that in the course of 2017 approx. 28 to 32 GW solar PV will be added, i.e. it is highly likely that by the end of 2017 China will have achieved its 2020 target three years ahead of the 13<sup>th</sup> Five-Year-Plan.

The remaining three years of the 13<sup>th</sup> Five-Year-Plan till 2020 are anticipated to witness significant changes like e.g. lower annual installation volumes compared to 2016 (34.54 GW) and 2017 (28-32 GW) in particular, the replacement of the current Feed-in-Tariff structure by a national green electricity certificate trading scheme scheduled to be introduced as mandatory during 2018, further regulatory changes facilitating the greater deployment of distributed solar PV and an ever increasing market share being taken up by the so-called “Top-Runner Programme” driving demand for mono-crystalline in particular.

The presentation seeks to shed light on the most recent developments in China's domestic solar PV market and to project demand for local deployment, potential changes and their entailed impact till the end of the current 13<sup>th</sup> Five-Year-Plan period. As well on how at the same time Chinese solar PV developers are expected to increase their global footprint significantly, in particular against the backdrop of China's “One Belt, One Road (OBOR) initiative launched in late 2013.

Viet Nam – An Emerging Up and Downstream Solar PV Market

To date, Viet Nam is home to less than 10 MW of cumulatively installed solar PV capacity, despite the fact that the average annual electricity consumption growth rate was above 12% and therefore almost double the average GDP growth rate of approx. 6.1% between 2005 and 2015 causing e.g. during 2014 that during 36 days the industry was subject to reduced power access. The latter is the main reason why during the past 12-18 months a number of commercial and industrial solar rooftop projects were implemented, thus allowing the factory owners to be less subject to frequent power rationing and higher peak demand retail electricity tariffs.

Against this background in spring 2016 the Vietnamese government released the revised version of its 7<sup>th</sup> National Power Development Plan (PDP VII) strongly emphasizing the role of utilizing locally available renewable energy sources till 2030. Accordingly, by 2020, 2025 and 2030 the total installed solar PV power generation capacity shall amount to 850 MW, 2 GW and 12 GW respectively. To this end, the Vietnamese government has endorsed a series of policies designed to stimulate demand for solar PV in future. In this context, most recently, mid-April 2017 a Feed-in-Tariff support scheme combined with net-metering was introduced. At present, a national “renewable energy portfolio” is under consideration and once implemented will further drive demand for solar PV. As of June 2017, the national project pipeline has exceeded 4 GW.

However, over the last 2-3 years Viet Nam has established itself as an attractive destination for upstream activities as well. Half a dozen of mostly Chinese solar PV manufacturer are presently planning to set up production capacities for both module and cells in the Northern Province of Bac Giang. Estimates suggest that by the end of 2017 Viet Nam could be home to approx. 7 GW of combined module and cell production capacities.

This presentation aims to focus on the current developments in Viet Nam's solar market in both up and downstream with an outlook till 2020.