

China’s Domestic Market Development during Q1-3 / 2014 – A Review



The 2014 Year of the Horse is associated with wood which fuels flames and therefore industries related to the element of fire are expected to do well which includes electricity, i.e. as well solar PV. In the beginning of 2014 govt institutions announced installations targets ranging from 8 to 14 G and eventually the National Energy Administration (NEA) set a target of 8 GW (distributed) and 6.05 GW (utility) making up combined 14.05 GW. However, in August the head of NEA indicated in public that the govt is aiming at 13 GW and early Nov another NEA representative indicated that possibly approx. 10 GW will be installed during 2014, emphasizing that with only 10 GW the Chinese market will be still the largest in the world.

Interestingly, both public remarks have left out how much distributed and utility projects shall contribute to these “targets”. An explanation may provide the fact that the govt is knowingly pushing distributed PV, i.e. it aims at a 10 x increase YoY (in 2013 only 800 MW were distributed) which was received by the Chinese solar PV industry with certain reservations, ultimately questioning the feasibility of such an ambitious target. Against this background, already by the end of the first quarter it became evident that due to a number of constraints the industry won’t be able to realize the 8 GW target set by the govt. Realising the obvious need to further optimize relevant legislative framework conditions additional policies were announced early Sept. These amendments allow that projects previously categorized as utility-scale ground mounted migrate into the category of distributed projects. AECEA estimates that possibly approx. 1-2 GW of projects will now be considered distributed PV and overall this year’s distributed projects may amount to 4-5 GW.

At the same time, consequently the utility market segment is expected to compensate the shortfall of distributed projects to a certain extend. As an example, mid October NEA granted Southern Xinjiang the right to approve 1 GW of utility projects in addition to the 850 MW target (incl. 50 MW of distributed) set early February. To date, Xinjiang is the first case where the original target / quota were increased. Such an increase is in line with the September policy announcement where the provincial govt was encouraged to apply for an adjustment of the quota, if necessary. AECEA is of the opinion that such an administrative flexibility may ensure a realization of the 2014 national target set by the central govt. despite the relatively slow market development until September. Tracking project developments AECEA is of the opinion that China is on track in achieving 10-12 GW (conservative case) and 13-14 GW (optimistic case) in 2014. In particular Q4 is expected to witness the execution of multiple GW of installations.

Update on China’s Renewable Energy Portfolio Standard

Since September 2007 China is home to a Renewable Energy Portfolio Standard (RPS) stipulated in the back then published Mid and Long-Term Renewable Energy Development Plan 2007-2020. Accordingly, both local power utilities and grid operators have to have certain share of either clean power generation capacities or a certain amount of green electricity transmitted via the grid in their respective portfolios. To date, e.g. power utilities in order to comply with the RPS requirements opted for the cheapest available option, i.e. especially hydro power, whereas solar PV only gained momentum during the last two years.

Considered a major policy tool by the NEA it is the govt intention to reformulate the existing RPS aiming at to make it stricter. In this context, the existing RPS has been under review since May 2012. Initially the revised RPS were scheduled to become effective in the fall of 2013, however unable to reach a consensus among involved stakeholders is the main reason why the official endorsement was

Policy & Regulatory Landscape



Update of Renewable Energy Portfolio Standard (RPS) 10/2014

Mid and Long-Term Renewable Energy Development until 2020 (published 09/2007)	2010	2020
Grid Operators (share of RE electricity excl. hydro)	1%	3%
Power Utilities* (share of RE power generation capacity excl. hydro)	3%	8%

Background

- ✦ 08/2014: relevant governmental entities have in principle agreed to the first official draft version
- ✦ 09/2014: First announcement that a draft version were submitted to State Council for consultation
- ✦ East China shall play a leading role, i.e. higher quotas for Eastern Provinces appears to be more likely
- ✦ Strengthen State Grid’s responsibility in order to ensure that quotas will be fulfilled
- ✦ Two types of quotas, i.e. basic quota and advanced quota (definition not clear yet)
- ✦ Quotas shall be set for 2015, 2017 and 2020 respectively
- ✦ Penalties for non-compliance unclear at this stage
- ✦ Timeline by when the “new” RPS will become effective not yet communicated

Note: * with capacities larger than 5 GW

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repeatedly delayed. September 2014 a first draft was officially submitted to the State Council seeking official feedback. As of today limited information has been made available on how the revised RPS will look like.

AECEA is of the opinion that the new RPS once effective will undoubtedly stimulate demand for further solar PV deployment, especially in the event and the new RPS won't feature one single quota covering all RE, but will feature sub-quotas for each and every renewable energy source. Equally crucial will be the imposed penalties in case of non-compliance. The requirement to deploy more solar PV could translate into that the role of local power utilities will grow in future.

Policies Designed to Promote the Industrial Development of Western China Features Solar PV

Early August China's National Development and Reform Commission (NDRC) published its new version of "Encouraged Industry Directory for China's Western Development". The aim of this "Directory" is to encourage and support the development of industries across western provinces in an attempt to restructure / upgrade the prevailing industry infrastructure through a set of incentive policies. The "Directory" has become effective on October 1, 2014. Accordingly, the directory covers in total 12 provinces, autonomous regions and municipalities directly under the State Council. Across seven provinces solar PV has been identified as an encouraged industry. With the exception of Sichuan where as well the production of cell & modules is being promoted, in particular construction, testing, operation and maintenance of solar PV systems are encouraged.



According to the directory no distinction is made between domestic Chinese and foreign companies, however the latter are subject to the "Foreign Investment

Catalogue". In this context, on November 4th, the NDRC published a call for comments on an amended version of the Foreign Investment Catalogue which is one of China's main tools for administering foreign direct investment. The last version of this "Catalogues" was published 2011. Related to solar PV this "Catalogue" covers both upstream and downstream engagement of foreign companies.

China's Power Sector Reform Is Gaining Momentum

China's last major power sector reform took place in 2002 when the State Council released a roadmap on how to break up the power monopoly enjoyed by the former National Power Co. Ever since, China is home to just two grid operators the State Grid Corporation and China Southern Grid. Does the former control approx. 80% whereas the latter the remaining 20%. Additionally, in total five power generators, commonly known as the "Big 5" were established in an attempt to separate transmission from generation business. Although back then in 2002 that "roadmap" called for a separation of transmission and distribution as well, however to date the intended separation never materialized. As a result, today's power sector is dominated by just a handful of players leading to distorted electricity prices, e.g. although prices per ton of coal dropped from RMB 635 to as low as RMB 475 in August 2014, however such a dramatic price reduction did not translate into cheaper electricity, in particular for commercial and industrial use undermining their profitability.



According to common opinions the intended power sector reform progress was rather slow during the last decade and calls to resume corresponding efforts gained new momentum during the 3rd plenum of the Communist Party 18th Central Committee meeting in November 2013. The objective of the power sector reform

is to gradually break-up the monopoly in the transaction of electricity and introducing a scheme where large users can purchase electricity directly from the power utilities.

China’s Power Sector Reform

13th Five-Year-Plan (2016-2020) may trigger greater efforts

- ◆ So far, five pilot provinces selected
- ◆ Direct electricity purchase btw. user and utilities
- ◆ Objective to break-up the monopoly of electricity transaction enjoyed by the two grid operators
- ◆ Shenzhen selected for a two year pilot project starting January 1, 2015 for a two year trial period
- ◆ Approaching 13th Five-Year-Plan (2016-2020) may trigger a greater momentum to advance the intended power sector reform



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Over the past couple of years several provinces like Sichuan, Hunan, Gansu, Shandong and Shanxi have already begun on a trial basis allowing large power consumer the purchase of electricity directly from the local power utilities. However, the results achieved so far are considered very limited.

In this context, according to a notice published by NDRC/NEA early Nov, a two year power pricing pilot project shall be

launched in the city of Shenzhen on January 1, 2015. Overall, the aim of this pilot project is to establish a market-oriented pricing system for transmission and distribution.

AECEA – Internal Affairs

Upcoming Activities *****

AECEA will be speaking during the upcoming Intersolar India in Mumbai on Nov 18th in the session on Global PV Markets: Europe/MENA/Asia on “Asian PV Market Prospects”.



AECEA will be speaking at the approaching 6th World Conference on Photovoltaic Energy Conversion in Kyoto / Japan on Nov 26th.

AECEA – Internal Affairs

Recent Activities *****



Bank of America / Merrill Lynch (BAML) commissioned AECEA, in order to advise Singapore (SG), Hong Kong (HK) and Mainland China (PRC) based institutional & private equity investors, all clients of BAML, on the recent China solar PV market developments during BAML’s annual China flagship conference in Beijing on Nov 5-7. Greatest interest were the anticipated impact of the amended distributed solar policy effective since September 2014, the pending RPS policy announcement, the last year of the ongoing 12th Five-Year-Plan (2011-2015) and the approaching 13th Five-Year-Plan (2016-2020).



AECEA was invited by the Hong Kong based HQ of Credit Lyonnais Securities Asia (CLSA), in order to do conduct a conference call concerning “China’s Domestic Solar PV Market Prospects until 2015 and Beyond” on Oct 30th.

Nov 2014 – Briefing-Paper – China Solar PV Development



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). 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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