

State Council Confirmed 35 GW by 2015

On July 4, 2013 the State Council of China officially confirmed that by the end of 2015 the total installed PV power generation capacity shall amount to a minimum of 35 GW. Furthermore, in the remaining years of the ongoing 12th Five-Year-Plan 2011-2015 (12 FYP) annual installations shall reach 10 GW. The latter, priority is given to distributed generation which shall make up a fairly substantial share of the planned annual installations. However, due to the fact that already today projects are subject to significant delays in terms of achieving grid connection, AECEA remains cautious whether indeed 10 GW will be additionally installed this year. Furthermore, because currently several governmental institutions are in the process to streamline corresponding administrative procedures designed to facilitate a less time consuming project implementation. In its official notification the State Council outlined a few important issues which were already raised by the then Chinese Premier Wen Jiabao in Dec 2012, concerning the current state of the Chinese PV industry.

Prevailing Production Overcapacities → Industry Consolidation

- * Phase out backward / uncompetitive production capacities through e.g. no further lending
- * Set a benchmark for approving new production facilities, i.e. manufacturing processes have to achieve a minimum cell efficiency rate for mono-crystalline of 20%, poly-crystalline of 18%, thin-film of 12%
- * Encourage M&A among existing companies through tax incentives
- * Support the creation of national champions with outstanding R&D capabilities & obvious competitiveness

Weak Domestic Technological Innovation Capabilities → Strengthen Indigenous R&D Capabilities

- * Accelerate technological innovation & industrial upgrading e.g. through international acquisitions, support relevant R&D activities
- * Focus on equipment manufacturing (polysilicon & cell)

Domestic Financing Constraints → Optimize Financial Framework Conditions

- * Confirmed Feed-in-Tariff (FIT) duration of 20 yrs [AECEA: First time ever stipulated in any official document]
- * Timely disbursement of FIT/subsidies foreseen [AECEA: Recently project developers faced significant delays until the FIT/subsidies were eventually allocated]

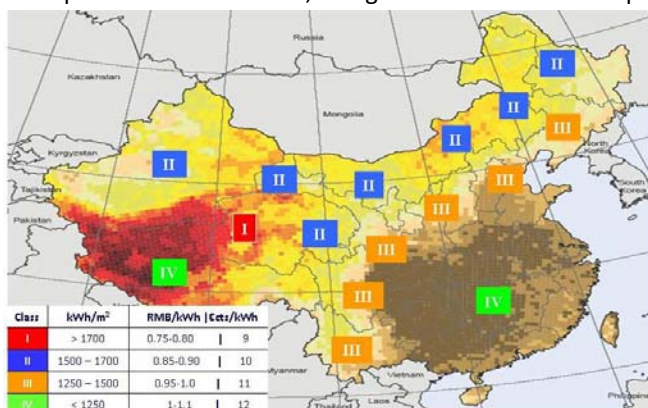
Grid Connection Constraints → Ensure Deployment Capacities

- * Ensure a smooth and timely grid connection
- * Focus on distributed generation instead of utility-scale ground-mounted systems

At this stage, it remains to be seen how the above briefly illustrated issues and respective possible measures designed to resolve them will pan out and whether the central government will achieve its aim in setting its domestic PV industry on a more sustainable track of development in the foreseeable future. Identified as a “national strategic industry”, AECEA is of the opinion that in particular the strengthening of its competitiveness, in particular in the technology/manufacturing area will be at the core of both central and provincial government support measures in the months and years to come.

National Feed-in-Tariff for Non-Distributed Generation PV Power Projects to be Amended

August 2011 China introduced a national Feed-in-Tariff (FIT) for photovoltaic systems, regardless of application type, capacity and location. A single universal FIT caused that to date approx. 70-80% of all projects were developed in Western China, a region known for its low population density and less industrial development,



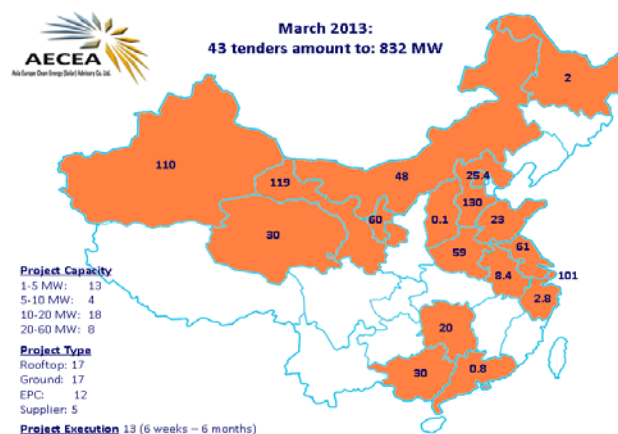
both leading to low power consumption and relatively developed grid infrastructure, thus causing problems in terms of obtaining timely grid connection, transmission and distribution constraints. In order to achieve a more even market development throughout the country and in an attempt to prevent further stress on the existing power grid the National Energy Administration (NEA) is considering to amend the existing FIT support scheme. In principle, the new level of FIT shall be determined by the level of solar irradiation in a given location.

Against this background, in total “4 Solar Regions” have been identified with a solar irradiation between <1250 and >1700 kWh/m²/a. To date, two proposals have been circulated (March and May 2013) and the tentative level of FIT is in a range from RMB 0.75-1.1/kWh (€cts 9-12). AECEA anticipates that the new set of FIT will become effective in Q3/2013.

Feed-in-Tariffs for “Distributed-Generation” types of projects are currently still under preparation. Between March and July 2013, the National Energy Administration (NEA) released information indicating a FIT in the range of RMB 0.35-0.45/kWh (€cts 4-5). The latest “unofficial” figure of RMB 0.42 could according to AECEA’s assessment most likely be the final figure, anticipated to be officially announced during August/September 2013. Details on how “self-generation & self-consumption of generated power and excess capacity sold to the grid” will be regulated, is still subject of internal governmental negotiations. It is assumed that the level of FIT for distributed generation will be determined by the type of user, i.e. small, medium and large-scale commercial/industrial users, residential, public buildings (e.g. schools, hospitals, govt. buildings) and users located in rural areas.

Domestic Market Development Snapshot March 2013

Ever since the central government introduced a national Feed-in-Tariff (FIT) for photovoltaic applications in July 2011 local developers via public tenders were seeking the best offer for their projects. Over the course of the last two years not only the amount of monthly tendered projects trying to take advantage of the FIT support increased, as well the quality and the nature of tenders became increasingly sophisticated. In March 2013 in total 43 projects spread across 18 provinces were publicly tendered. The geographical distribution of projects reflects the government’s intention to encourage developers to focus on distributed generation, i.e. mainly commercial and industrial rooftop systems with a single digit MW capacity, in particular throughout Eastern China. This trend is confirmed by the fact that a large proportion of projects indeed favour rooftop installations.



In comparison, out of 43 projects more than 60% will have a utility-scale capacity in the 10-60 MW range. Usually such projects are almost all exclusively ground-mounted systems. EPC contractors are being sought for both rooftop and ground-mounted systems alike, although there is a greater tendency towards rooftop systems. Drivers for an indicated project execution timeframe between 6 weeks and 6 months vary, regarding the former it was determined in some cases by the deadline of Golden Sun projects (June 30, 2013) and regarding the latter the approaching winter in Western region from October onwards.

Renewable Energy Promotion Law Implementation Supervision Tour Undertaken

Early June the Standing Committee of the 12th National People’s Congress (NPC) announced that representatives of the NPC will visit the following provinces (Beijing, Gansu, Guangdong, Hebei, Heilongjiang, Hubei, Inner Mongolia, Jiangsu, Jilin, Shandong, Sichuan, Xinjiang, Yunnan), in order to assess the so far implementation of the Renewable Energy Promotion Law, which was adopted by the Standing Committee of the 10th NPC in February 2005 (effective since Jan 1, 2006) and revised by the Standing Committee of the 11th NPC in December 2009 (effective since April 1, 2010) on site. Upon concluding this “supervision tour” it is the intention to draft supplementary/complementary regulations, laws and policies designed to further foster the healthy deployment of renewable energies in China. AECEA is of the opinion that this “supervision tour” might be part of preparatory activities designed for the next amendment of the RE Promotion Law perhaps due later 2013 or spring 2014.

Comprehensive PV Power Generation Standards in Final Stage of Elaboration

In order to ensure a long-term, healthy and sustainable deployment of photovoltaic applications in China, responsible governmental institutions have been fostering the drafting of related technical standards recently. Accordingly, over 40 standards which include 22 national and 19 industrial standards have been submitted to responsible authorities seeking official approval. The standards cover aspects like design, construction and inspection of PV power plants among others. AECEA is of the opinion, once a comprehensive set of mandatory technical standards has been introduced, it consequently may lead not only to higher prices for components and systems, but as well to higher quality, hence higher performing installed systems.

Renewable Energy Surcharge Requires a Further Increase

January 2006 the Chinese Renewable Energy Promotion Law (RE Law) came into effect. Along with the RE Law the central government established the “National Renewable Energy Development Fund”, in order to provide subsidies for the deployment of all types of renewable energies. This “fund” is funded through a power surcharge added to every rated user. During 2006 and 2012 this surcharge was increased three times, each



time in order to allow the government to meet its financial obligations. However, due to the rapid development of renewables in particular during 2011 and last year 2012 the financial deficit was so great that the disbursement of the subsidies to the project owner encountered significant delays. In an attempt to narrow the financial gap confronted by the “fund” recent official communication indicate a further 100% increase of the power surcharge from currently RMB 0.008 to RMB 0.016/kWh (€ 0.001-0.002) possibly before the end of this year. Moreover, in order to further increase administrative efficiency, in

future the Ministry of Finance (MOF) is expected to assume the entire authority to administer the fund.

Electricity Tariff Power Reform Aims at Distribution

On June 6th, the National Development and Reform Commission (NDRC) announced plans aiming to restructure end-user-tariffs for electricity which could have a significant negative impact on state-owned distribution monopolies. It is expected that amended electricity tariffs will become effective by the end of 2013. Overall, NDRC aims to progressively reduce formerly eight categories of retail electricity tariffs to eventually three. The restructuring, once completed, shall facilitate to establish a clear, reasonable and simplified regime promoting fair pricing and cutting cross-subsidisation. The original eight electricity tariff categories were: residential, non-residential lightning, commercial, non-commercial, normal industrial, major industrial, agricultural production, agricultural irrigation. The new proposed tariffs shall be: residential, agricultural, industrial, and others.

At this stage, the announced changes will only effect the distribution of power and not on-grid tariffs charged by power generators. However, due to falling coal prices current tariffs are considered as too high, therefore NDRC is supposed to review on-grid tariffs until the end of 2013, taking into consideration a pricing mechanism to be announced in December. Assuming that the average retail electricity tariff will be lowered, it consequently could impair the competitiveness of solar power, if the currently proposed level of FIT for PV would remain unchanged.

China’s Financial Problem – The Case of Jiangsu Province

Throughout the last two-three decades, China’s growth model relied heavily on credit and investment. A model believed “not sustainable and causing vulnerabilities”. In 2010, China declared that local governments amassed US\$ 1.7 trillion of debts, equal to approx. 25% of GDP, through borrowing, construction, infrastructure and debt services. To make matters worse, in recent years a substantial portion of credits were mobilized through the non-traditional or “shadow” banking system. Against this background, today, China aims to put an end to easy money and it took China’s central bank half a year, in order to inject money into the financial system in 2013. Late July 2013, the State Council ordered the National Audit Office to investigate the current level of debt from villages up to the central authorities throughout China.



Today, Jiangsu is believed to be the most indebted provincial government in China and at the same time is home to the majority of the Chinese PV industry. It’s provincial PV production capacity is facing massive overcapacity, profits are falling, so does the tax revenues. Additionally, earlier this year the China Development Bank (CDB) announced that in light of the prevailing overcapacity, sluggish global demand for PV and increasing trade frictions with major export destinations every request for further funding will be strictly scrutinized.

From AECEA’s perspective, at this stage it is too early to conclude on how these circumstances will affect the local Chinese PV industry based in Jiangsu in particular or in China in general. It certainly could add further pressure on already cash-stricken companies across the board and may cause an exodus of companies, stimulate/encourage merger & acquisitions, or initiate a first wave of asset-relocations to new markets across South-East Asia, Africa and Latin-America.

CPV Developments – More Production Capacities and More Projects Coming Online

Since earlier this year a number of companies announced to enter the CPC/HCPV business. In this context Anhui province is gradually evolving into the first choice of companies when it comes to setting up CPV production facilities. In May a development zone in Jiangbei announced to invest approx. € 185 Mio into the establishment of a HCPV production plant and R&D center over the course of the next 24 months. In Shandong province another company commissioned its production line for CPV components. Is Anhui setting its mark as a production center, Inner Mongolia appears to be home to future CPV projects. Early June the local government of Ordos released information that in three stages a CPV power plant with a total capacity of 1 GW shall be built. The first phase shall have a capacity of 100 MW.

AECEA – Internal Affairs

Recent Activities *****



On July 10, 2013 during the 6th Intersolar North-America in San Francisco, AECEA gave a presentation on “China’s Solar PV Market Prospects and Opportunities for Foreign Players”. Envirobeat, an environmental news service covering climate change and global energy developments posted a video this presentation, which can be viewed here: <http://envirobeat.com/?p=4995> or <http://www.youtube.com/watch?v=pqYIEIzkiK0#at=14>

Asia Europe Clean Energy (Solar) Advisory Co. Ltd. – 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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