

## August 2013 – Briefing-Paper – China Solar Development

### China's 12<sup>th</sup> Five-Year-Plan (2011-2015) Stipulates Official National Target of 21 GW by 2015

On August 6, 2012 China's National Energy Administration (NEA) officially released the 12<sup>th</sup> Five-Year-Plan (2011-2015) for the Development of Renewable Energy Sources. Accordingly, by the end of 2015 the total installed solar power generation capacity shall amount to a minimum of 21 GW which includes 20 GW of Photovoltaic (PV) and 1 GW of Concentrating Solar Power (CSP). Already the number one country in terms of installed solarthermal applications, by 2015 China aims to cover 400 mio sqm. with largely solar water heater systems. By the end of 2010 approx. 168 mio sqm. of solarthermal applications were installed. In addition, up to 2 mio so-called "solar lantern" (Note: Usually these are street lanterns) shall be installed by 2015.

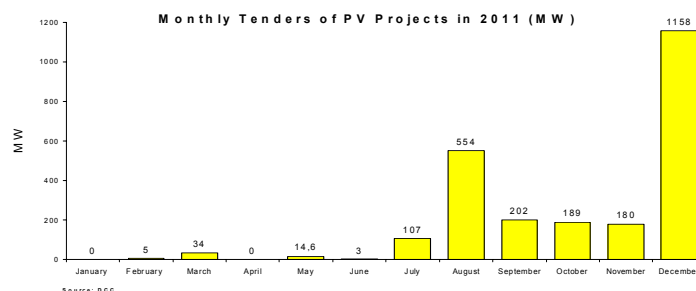
The "Plan" emphasizes further that 50% (10 GW) of the PV power generation capacity shall be large-scale ground mounted systems located in China's western provinces like Qinghai, Gansu, Inner Mongolia and Xinjiang among others, whereas the remaining 50% shall be rather "distributed systems" spread across eastern provinces like Shandong, Jiangsu, Zhejiang, Guangdong, and Shanghai. Furthermore, China plans to have "100 New Energy Demonstration Cities", "200 Green Energy Counties", and "1000 Solar Energy Villages" throughout the country, thus creating continued demand for both PV and solarthermal systems in the coming years until 2015. The estimated investment required allowing a realization of the above outlined solar targets shall amount to approx. EUR 31 bln (USD 40 bln) according to the "Plan". In the longer term, China aims at 50 GW of solar power and 800 mio sqm. of solarthermal installed by the end of 2020.

At the time of writing, information were circulated that the NEA is upon discussions with industry representatives considering a further doubling of its national PV target from 21 to 40 GW by 2015.

### Introduction of National Feed-in-Tariff (FIT) – Impact on Domestic Market Development

During 2011, largely due to the rather unexpected introduction of a national Feed-in-Tariff (FIT) support scheme, China's domestic market experienced a 5 fold increase in terms of installations amounting to approx. 2.7 GW compared with just approx. 560 MW in 2010. Prior to July 2011, an introduction of a national support scheme based on fixed feed-in-tariffs before 2013/2014 was widely considered rather unlikely, given National Development and Reform Commission's (NDRC) favour towards a tendering of national projects because it's based on competition, i.e. the level of FIT would have been determined by market stakeholders through a competitive bidding mechanism.

Effective as of July 24, 2011 China's national FIT caused an immediate surge of domestically tendered projects. Projects tendered between August and December last year increased 15-fold compared to the January-July period. In total, 2,446 MW of projects were put up for tender throughout the entire year.



As of writing, projects tendered since January until late August 2012 amounts to approx. 3,1 GW.

### **Jiangsu Province announced an extension of its provincial Feed-in-Tariff (FIT) through 2015**

The provincial Government of Jiangsu in south-eastern China announced early June that it will extend its provincial FIT support scheme through 2015.

Effective since June 19, 2009 Jiangsu govt. declared to support the construction of up to 400 MW of PV projects between 2009 and 2011 by means of a FIT, which back then made Jiangsu the first Chinese province announcing the introduction of a FIT scheme in China. The 2009-2011 on-grid purchasing price (including tax) and capacity targets for ground, roof-top and BIPV solar power plants are shown below:

<b>Jiangsu Feed-in-Tariff Scheme 2009-2011</b>			
<b>On Grid Purchase Price RMB / €-cents // kWh (incl. VAT)</b>			
<b>Year</b>	<b>Ground-Mounted</b>	<b>Roof-Top</b>	<b>BIPV</b>
2009	2.15 RMB / €-cts 27	3.7 RMB / €-cts 42	4.3 RMB / €-cts 54
2010	1.7 / RMB / €-cts 21	3.0 RMB / €-cts 37	3.5 RMB / €-cts 44
2011	1.4 RMB / €-cts 17	2.4 RMB / €-cts 30	2.9 RMB / €-cts 36
<b>Cap (MW)</b>	<b>130</b>	<b>260</b>	<b>10</b>
Note: RMB = Renminbi/national currency. Exchange Rate RMB / €-cents as of August 25 <sup>th</sup> , 2012. No compensation period were announced.			

In addition to the individual FIT corresponding to different types of solar systems, the provincial govt. set specific annual installation targets of 80, 150, 170 MW by 2009, 2010, and 2011 respectively. The official document stipulated further the allocation of specific quotas for roof-top installations for certain large provincial companies as well installation quotas for selected provincial cities.

On June 6, 2012 the provincial govt promulgated to continue the provincial FIT support scheme from 2012 through 2015. Effective from June 12, 2012 the table below illustrates the level of FIT granted in the respective years until 2015.

<b>Jiangsu Feed-in-Tariff Scheme 2012-2015</b>	
<b>On Grid Purchase Price RMB / €-cents // kWh (incl. VAT)</b>	
<b>Year</b>	<b>Ground-Mounted / Roof-Top / BIPV</b>
2012	1.30 RMB / €-cts 16,34
2013	1.25 RMB / €-cts 15,71
2014	1.20 RMB / €-cts 15,08
2015	1.15 RMB / €-cts 14,45
Note: RMB = Renminbi/national currency. Exchange rate RMB / €-cts as of August 25 <sup>th</sup> , 2012. The extension of the provincial FIT scheme does no longer distinguish between different types of applications. As well, no annual installation quotas have been set. As in the 2009-2011 timeframe, no indication is given for how many years companies will be entitled to receive the provincial FIT for each kWh. Today, the provincial FIT is 30% higher than the national FIT (RMB 1/kWh effective since January 1, 2012).	

The announcement stipulates as well that local power utilities have to take-up the electricity generated in full. Moreover local financial institutions are encouraged to provide loans with interest rates not higher than the national benchmark, in order to facilitate local project development.

### **Results of "National Rooftop and Golden Sun Program" published**

Early May the Ministry of Housing and Urban-Rural Development (MOHURD) together with the Ministry of Finance (MOF) jointly released the results of the latest round of rooftop and BIPV project

applications. Accordingly, in total 225 MW of project applications have received official approval and have to be completed within one year, i.e. by May 2013. Moreover, due to rapidly falling prices the financial support granted for rooftop installations were retroactively reduced from originally RMB 7.5/W to RMB 5.5/W (€ 0.69/W) and for BIPV systems from RMB 9/W to presently RMB 7/W (€ 0.88/W). Since the introduction of the “national rooftop program” in March 2009, to date in total approx. 520 MW of projects will be supported.

Late April 2012 the Ministry of Finance (MOF), the Ministry of Housing and Urban-Rural Development (MOHURD), and the National Energy Administration (NEA) jointly announced that in total 1709 MW of so-called "Golden Sun" projects received official approval and have to be executed by December 31, 2012. Initially, according to statements from government circles, only up to 1GW should have been approved this year, however most likely caused by a sluggish international demand an additional 709 MW of projects were accepted. Along with announcing the results, project applicants were informed that they are entitled to a 21% reduced financial support of now RMB 5.5/W (€ 0.69) [retroactively reduced from RMB 7/W], because of significant price reduction for components/systems experienced during January and April 2012. Due to the fact that the bulk of China's PV industry is concentrated in Jiangsu and Zhejiang Province, thus 273 MW (16%) and 140 MW (8.2%) will be realized in Jiangsu and Zhejiang respectively.

Last year in the course of the 3<sup>rd</sup> round of “Golden Sun” program in total 692 MW of projects were approved. Deadline to finalize construction and grid-connection was June 30, 2012. This year's 1709 MW have to be implemented by Dec 31, 2012, consequently in 2012 approx. 2.4 GW of only “Golden Sun” projects are bound to be installed.

#### **Beijing released its 12<sup>th</sup> Five-Year-Plan for Renewable Energy Development (2011-2015)**

By 2015 the share of renewable energies in Beijing's energy mix shall reach 6%. In 2010 the share was 3.2%. Against this background, the utilization of solar energy is expected to play a significant role and according to the plan 250 MW shall be installed by 2015. In order to realize this target the Beijing govt. plans to install e.g. 50 kW roof-top systems on 500 schools as part of the “Sunshine School Programme”. Additionally, Yanqing County has been selected as a “National Green Energy Demonstration County” where large-scale ground mounted PV power plants with capacities of up to 20 MW shall be constructed.

Already in January 2010 the Beijing Municipal Development and Reform Commission announced to support the deployment of PV within its jurisdiction. Accordingly, 70 MW and 300 MW shall be installed by 2012 and 2020 respectively. The local govt. is subsidizing such projects larger than 50 kW with 1 RMB/kWh for up to three years. At this stage it remains unclear whether these “separate announcements of support programs” are implemented separately or might be combined in future.

#### **Heilongjiang Province proposed to “nationalize” solar and wind labelling them “climate resources”**

On June 14, 2012 the north-eastern Province of Heilongjiang released a draft regulation stipulating that energy companies must get approval from the meteorology department prior exploiting wind and solar energy resources since the resources to be utilized are considered “state-owned”. It's the first local regulation stipulating the “potential” nationalization of both solar and wind resources and understandably created concern among stakeholders, if in future wind and solar would be charged. According to the Central People's Govt. of China the regulation is effective as of August 1, 2012. The overriding goal is to facilitate a greater planning and coordination in the context of utilizing locally prevailing “climate resources”. Whether other provinces will follow the example set by Heilongjiang remains to be seen at this stage.



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**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. In this capacity since early 2010 he works for the organizer of Intersolar as their Head of Conference Development.

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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