

Dawn of a New Era: The Gansu Solar Concession and Landmark Solar Roofs Program

Its been a HUGE week for solar. Bidding details on the first solar farm concession were announced, while a new solar roofs program to popularize photovoltaics (PV) in rural and urban areas has been launched. The Green Leap Forward discusses the details both developments and their implications to China's domestic solar market.

Over the past weekend, some important news has emerged from China's first ever solar concession bidding project in the deserts of Dunhuang, Gansu province (pictured, right). Previously, we erroneously reported that there were 50 bidders for the 10 megawatt solar photovoltaic project (shame on you *Xinhua News!* It seems that 50 more likely refers to the number of bidding packages that were initially requested from the authorities by potential bidders, not the number of bids actually submitted). In fact, it was officially announced



that only 18 bids were submitted, and even then, five of those submitted (all from private companies, including three solar manufacturers) were disqualified for not meeting technical requirements. Of the remaining 13 bids, 12 are state-backed and active wind developers and only one is a private company based in Hong Kong. Still, 13 bids provides some healthy competition, as reflected in the surprisingly low range of tariff rates proposed by the bidders. According to a note by the Beijing office of New Energy Finance (NEF):

The prices disclosed were way below the perceived CNY 2/kWh (USD 0.29/kWh) feasible price. The highest price was offered by China Guangdong Nuclear Wind Power, at CNY 1.92/kWh (USD 0.28/kWh), and the lowest by SDIC Huajing Power, at CNY 0.69/kWh (USD 0.10/kWh), followed by the second lowest at CNY 1.09/kWh (USD 0.16/kWh) from China Guangdong Nuclear Energy. The prices from others were within the range of CNY 1.1/kWh to CNY 1.6/kWh (USD 0.16kWh to 0.23/kWh). Prices from consortium bidders were generally lower than others.

Though the winning bid has yet to be officially announced, NEF expects the bidders with the lowest proposed tariff rate to win the concession. Indeed, employees from SDIC Huajing and its bidding partner, NYSE-listed Yingli Green Energy, are already claiming to be the winners.

What can be made of these proposed tariff rates? They are fast approaching the retail rate of electricity of CNY 0.3 to 0.5/kWh (depending on where in China you are) and when compared to electricity rates in western markets, clearly competitive. But do these rates make any sense? It seems more likely that these state-owned enterprises are willing take a hair-cut on profitability just for the prestige of winning the first ever solar concession and to start securing market share in this new industry. According to the NEF report:

The extraordinarily low prices disclosed clearly indicate that some participants were willing to bid just for the prestige of the project, just like they did for China's wind concession projects. Therefore, whether or not the bidding price can be regarded as the benchmark PV power cost in China is still an unanswered question. However, New Energy Finance learnt from some bidders that generally they believe they can run the project profitably at a price of CNY 1.7/kWh (USD 0.25/kWh) under current module price level.

More importantly, we need to be clear what CNY 0.69/kWh really means for Huajing-Yingli, or whichever developer (and at whatever tariff) wins the concession. In all likelihood, the developer's costs will entail the purchase of the solar PV panels and construction of the farm and basic interconnection costs. What about the expensive transmission and distribution (T&D) costs of piping electrons generated from the remote desert region of Dunhuang, Gansu to points of end use? I am guessing that these costs are probably footed by the State Grid instead. As a result, one is inclined to conclude that the true costs of project development is not reflected in the bid prices, and that the promised land of grid parity is still a ways away.

That all 13 valid bids were from Greater China, and 12 of which are state-owned, suggests that like the wind market, there will be little room for foreign solar developers to get into the (low-margin) action. The low bidding tariff rates are enough to scare away any profit-oriented foreign private company. Another significance of the bidding results is that it gives the National Development and Reform Commission (NDRC) some sort of pricing guidance (albeit imperfect given the distortion discussed above) to move forward on tariff setting in other solar projects.

Solar Roofs Program

Speaking of other solar projects, the China Energy Conservation Investment Corporation (CECIC) is establishing its solar ambitions in a proposed mega 500-MW solar farm in Wuzhong, Ningxia. But are such remote, large-scale solar projects really the way to go?

The bogeyman of T&D costs is one reason making distributed solar a compelling alternative to far-flung utility scale solar projects, as I have argued in "Getting Out of the Shade: Solar Energy as a National Security Strategy," a policy paper I recently published and that I have previously summarized in this blog. The Ministry of Finance and the Ministry of Housing and Urban-Rural Development agrees, and almost as if they read the recommendations to my paper, just launched the "Solar Roofs Program" under new regulations 《太阳能光电建筑应用财政补助资金管理暂行办法》 or "Application of Building-mounted Solar Photovoltaic Financial Assistance Fund Management Interim Measures" (available here in Chinese or Google-translated English; see also the accompanying Implementation Opinion in Chinese and Google-translation) to jump start the domestic solar market that has been hiterto virtually non-existent.



The crux of the *Interim Measures* are financial incentives of up to CNY 20/w (USD 2.93/w), depending on the complexity of technology used (e.g. degree of intergration with building materials) and other factors, of installed PV capacity (第六条 2009年补助

标准原则上定为20元/Wp, 具体标准将根据与建筑结合程度、光电产品技术先进程度等因素分类确定。。。) for projects that meet the following criteria:

1. A single engineering application of solar PV installed capacity that is not less than 50kWp;
2. The solar applications should achieve advanced efficiency standards, over 16% for monocrystalline, 14% for multicrystalline and 6% for amorphous silicon (thin-film) applications;
3. Priority will be given to building-integrated PV applications;*
4. Priority will be given to grid-connected building PV applications;
5. Priority will be given to schools, hospitals, government agencies and other public building PV projects.

** An article in the Wall Street Journal discusses the ambiguity in the original Chinese text on whether this requirement refers to BIPV in the western sense, i.e. solar panel forms part of the building facade, or merely solar panels mounted on building rooftops. The confusions arises because the term “BIPV” has been used loosely in China to refer to any sort of roof-top mounted solar applications rather than PV panels that are truly integrated with building materials such as roof tiles or curtain wall. However, the proper reading of #3 is probably that BIPV (in the “western sense”) applications are simply given priority over roof-top mounted projects, and not that roof-top mounted projects are completely disqualified from the subsidy.*

This seems like a substantial subsidy. In fact, CNY 20/w corresponds to projected average retail costs of roof-top mounted solar PV panels for this year, meaning that the solar developer of a roof-top system would essentially just have to pay for the price of installation (which probably amounts to 60-100% of the price of the solar panels), and get the solar panels effectively free. In other words, the price of installed roof-top solar would more than halved as a result of receiving the full the subsidy. However, because the subsidy amount is dependent on the complexity of the technology, BIPV applications (which are more suitable for implementation in the construction phase of new buildings rather than retrofitting of existing buildings) are more likely to get a subsidy amount closer to the CNY 20/w limit over simpler applications such as roof-top mounted PV system. The key question then becomes how much subsidies these roof-top systems are eligible for, given that the stock of existing buildings are vast and ripe for such systems. Furthermore, the *Interim Measures* make clear that this CNY 20/w incentive level is valid only for this year and that the rate is subject to revision for future years (see Article 6: 。。。以后年度补助标准将根据产业发展状况予以适当调整。)。 Presumably, this allows the government to reduce the subsidy over time as the costs of solar declines with further technological improvement.

Also, a 50 kw system is not a small system for a distributed roof top system (it would require roughly 353 170-watt Suntech solar panels covering 4,500 square feet) so it is unclear how strictly the requirement of having the project as a “single engineering application” will have to be adhered to—I’m not sure how many 4,500 square feet rooftop spaces will be found in rural areas, for instance. The intent of such a requirement, though, is clear—to promote projects of reasonable scale.

The goal of promoting technological advancement is evidenced in requirement #2 of meeting minimum efficiencies (an important question: Do existing Chinese-produced modules meet these efficiency requirements?). The preference for grid-connected systems not only enhances grid reliability by supplementing grid power with these new renewable energy sources, but taps into any excess solar power that is not used on-site that would otherwise be wasted if not stored in a portable battery.

According to Article 11 (财政部将项目补贴总额预算的70%下达到省级财政部门。省级财政部门在收到补助资金后, 会同建设部门及时将资金落实到具体项目。) of the *Interim*

Measures, the Ministry of Finance will provide 70% of the applicable financial incentives (to be drawn from the Renewable Energy Surcharge Fund, a pool of money formed by contributions by all electricity end-users at CNY 0.001/kwh for residential consumers and CNY 0.002/kwh for commercial and industrial consumers) while the relevant province must top up the remaining 30% for a qualifying project. One has to ask to what extent the provinces have the financial capacity to support such a program. **[UPDATE Apr 1: Turns out that the MOF is footing the remaining 30% as well, but will only do so as a second step to ensure all project requirements are met before the second disbursement. See clarification [here](#).]**

Furthermore, the applicability of this subsidies is subject to governmental discretion. While there is no explicit mention of a total cap to these subsidies **[UPDATE Apr 2: Some analysts speculate there is a 180 MW cap, but GLF is unable to verify this]**, Article 10 (第十条: 财政部会同住房和城乡建设部对各地上报的资金申请材料进行审查与评估, 确定示范项目及补助资金的额度) makes clear that the Ministries maintain approval authority over the projects that qualify for the subsidy. This allows the government to proceed with caution and on a demonstration project basis, at least initially, before it gains the necessary comfort to ramp up the scale of the program. Repeated references to “promoting demonstration projects” in the *Implementation Opinion* back up this notion.

Aside from financial incentives, the *Interim Measures* and *Implementation Opinion* contains other good stuff such as capacity building, promotion of supportive solar policies at the provincial levels (including feed-in tariff programs, the most effective renewable energy promotion policy tool as proven by its success in Europe), and promotion of technical standards. All in all, this is a remarkable policy (at least on paper) which touches on many of the recommendations I put forth in my policy paper. Questions still remain, but if solar was at a crossroads two months ago when this blog pondered the question, this policy announcement is at least a very positive step forward and could provide a much needed lift to domestic solar companies, as long as the government can quickly gain the comfort it needs to proceed beyond the demonstration stage and reduce the amount of approval discretion involved. The stock prices of Suntech Power (NYSE: STP) and Yingle Green (NYSE: YGE), for instance, are both already up more than 40% today (March 26, Thursday, in New York) after the policy announcement.



March 27th, 2009 | Tags: China, distributed energy, energy, environment, Gansu, grid parity, photovoltaic, solar | Category: solar

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April 1st, 2009 at 5:29 pm

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April 1st, 2009 at 5:37 pm

[...] last week by the Ministry of Finance and the Ministry of Housing and Urban-Rural Development (see previous post), a report (Chinese only) yesterday says that Jiangsu province will be enacting aggressive [...]



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April 2nd, 2009 at 11:57 am

[...] the wording of the measures in no ways suggests a cap. Rather, as Julian Wong from China eco-blog Green Leap Forward has astutely suggested, mandatory (and historically cautious) ministerial approval of all projects, [...]



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April 2nd, 2009 at 2:39 pm

[...] is on everyone's lips following the announcement of the Gansu solar project concession results, national Solar Roofs Program and Jiangsu province incentives, so lets keep the buzz—this time to Inner Mongolia, where the [...]

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