

### India Solar Quarterly Market Update – With Antidumping Case Behind it, Indian Solar Industry Looks to Refocus on Growth

August 2014

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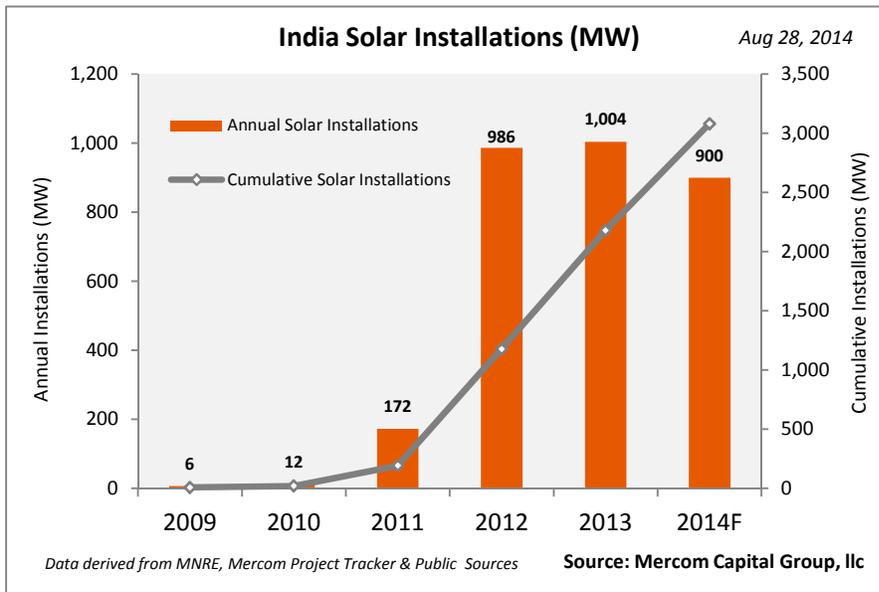
#### KEY FINDINGS

- We are revising our 2014 forecast to approximately 900 MW as - delays caused by the elections and uncertainty that surrounded the anti-dumping case has slowed installations
- The Indian government let the August 22<sup>nd</sup> deadline lapse on the proposed imposition of anti-dumping duties on cells and modules manufactured in China, Taiwan, Malaysia and the United States, indicating that there will be no anti-dumping tariffs placed on components imported from these nations
- India's solar industry collectively breathes a sigh of relief that a potential disaster has been averted and projects that were stalled can now re-start
- The new administration has assured us that there will be a more robust 'revised' draft in the coming months, from the solar-friendly NDA administration
- Exports are up for Indian manufacturers

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Major developments in the Indian solar market over the last three months have been dominated by general elections, the anti-dumping case and the recent release of draft guidelines for Phase II, Batch 2 of the Jawaharlal Nehru National Solar Mission (JNNSM). Approximately 500 MW of solar have been installed so far this year. We are lowering our 2014 forecast slightly - to approximately 900 MW - as delays caused by elections and the uncertainty that surrounded the anti-dumping case have slowed installations. It appears 2014 will be the third consecutive year solar installations have been stuck around the 1 GW mark.



The Indian government let the August 22, 2014 deadline lapse on the proposed imposition of anti-dumping duties on cells and modules manufactured in China, Taiwan, Malaysia and the United States, indicating that there will be no anti-dumping tariffs placed on components imported from these nations. India's solar industry is collectively breathing a sigh of relief that a potential disaster has been averted and projects that were stalled can now re-start. However, the drama surrounding the anti-dumping case, which was entirely avoidable, brought project development in the country to a standstill with developers essentially stopping the procurement process due to uncertainty surrounding the case. The optics were less than ideal - the Trade and Commerce Ministry, lobbied by manufacturers, pushed for duties while the Renewable Energy Ministry opposed them, giving the perception that the government and solar industry are "out of touch" with the daily suffering of the citizens and businesses dealing with regular power shortages. Although this affected the short-term outlook on installation growth, the end result was good and the new NDA administration was able to take decisive action, making a pragmatic, 'big picture' decision that will remove uncertainty and help put the solar industry back on track for sustainable, long-term growth.

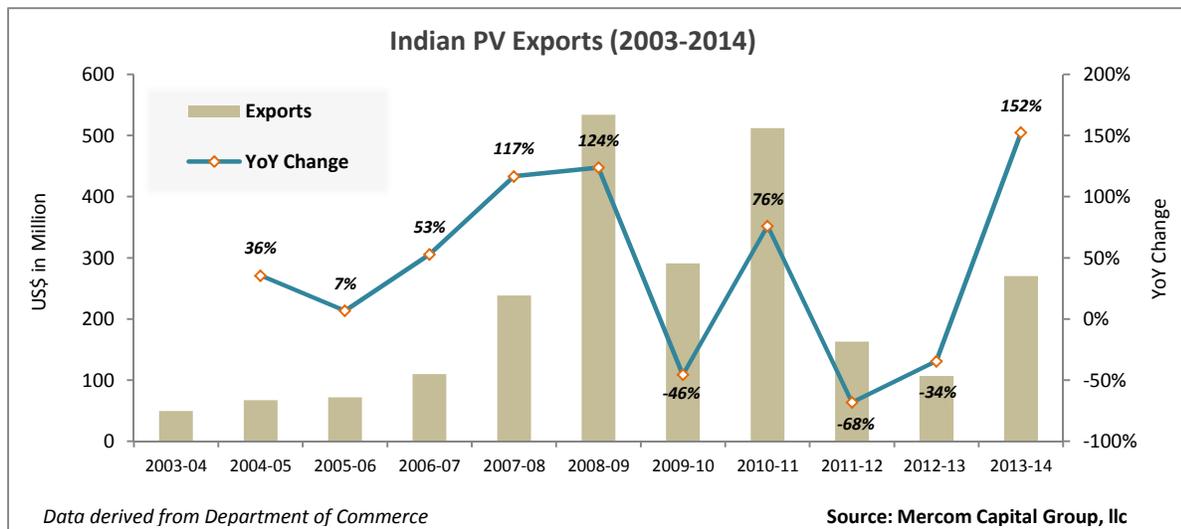
Utility-Scale Solar Projects in India	
Operational and Under Development	
Updated on Aug 28, 2014	
	Capacity (MW)
In-Operations	
Solar PV	2,697.5
Solar Thermal	55.5
Total	2,753.0
Under Development	
Solar PV	3,714.3
Solar Thermal	445
Total	4,159.3

Source: Mercom Capital Group, llc

According to Mercom sources, to make up for antidumping case, the government has assured domestic manufacturers a guaranteed market by providing 'adequate offtake' through government programs, which will employ domestic content requirements.

A draft policy guideline for Phase II, Batch 2 projects was recently announced, which continues the status quo, with policies developed under the UPA (former) government. However, the new administration has assured us that there will be a 'revised' draft in the coming months, which will have the "stamp of approval" of the solar-friendly NDA administration.

There is some good news for Indian manufacturers - they are exporting more. Almost \$270 million (~₹1,620 crore) in solar exports were registered in FY 2013-14, a 152 percent year-over-year growth, and another reason to avoid trade disputes and retaliation. Most of the Indian exports were to the European market taking advantage of the EU-China trade dispute which set a price band for sale of Chinese modules in Europe.



<b>Top Indian PV Export Destinations</b> [Values in US\$ Million]			
Mercom Capital Group, llc	<b>Country</b>	<b>2013-2014</b>	<b>2012-2013</b>
	GERMANY	83.88	19.07
	UK	66.54	0.23
	NETHERLANDS	58.69	25.37
	JAPAN	16.98	14.67
	BELGIUM	6.41	0.3
	MOZAMBIQUE	4.62	0
	SPAIN	4.52	0.08
	ITALY	4.17	7.62
	SINGAPORE	3.67	2.37
	CHINA	3.22	2.05

**Source: Department of Commerce**

Some big possible changes in the upcoming revised draft may include:

- an overhaul of the pricing mechanism, away from CERC tariff base, to a more market-based tariff mechanism
- an increase in the size of the batches from a current 1,500 MW, and
- state-specific auctions where NTPC Vidyut Vyapar Nigam (NVVN) will handle the bidding process for states while states with an NVVN payment guarantee will purchase power, provide land and infrastructure. According to our checks, Andhra Pradesh may be the first state to take on this program with 1,000 MW, while other states are showing interest.
- The Ministry of New and Renewable Energy (MNRE) will also be working on the development of solar parks of 500 MW or more by providing support of ₹20,00,000/MW (~\$33,333/MW) and an NVVN payment guarantee, for states that provide land and infrastructure. Andhra Pradesh, Telangana, Madhya Pradesh, Gujarat and Karnataka could be first in line as they have supposedly already identified lands for solar parks.

If the upcoming policy is laid out with long-term visibility and a focus on healthy yearly installation growth, which appears to be the direction of the next draft policy, it could effectively shift the Indian solar market into the next gear. Most of our sources indicated that the new Power Minister is extremely engaged and wants to 'go big' on solar.

### Industry Perspective

In our conversations with developers, manufacturers and investors, there were divergent views on the current state of the market. Developers are optimistic that there is a new policy in development that is expected to be much more robust in terms of installation targets, and a more sustainable tariff structure which they see as a game changer. Developers are relieved by the anti-dumping decision and welcomed a new level of certainty in the market. One developer mentioned that there is a significant difference between quoted and delivered pricing under the DCR category in the previous Batch which may result in cancelled projects, while aggressive bidding in the open category may lead to projects being sold due to unviable project economics.

Of the manufacturers we spoke to, some were positive about the increase in exports. Module manufacturers indicated that cell availability is low, with high prices and onerous payment terms, and lamented that profits are elusive if they buy cells domestically. Instead of protectionist measures, some manufacturers indicated that removal of duties on imports of raw materials like glass, copper interconnect, encapsulant film and backsheet, along with a 5.5 percent value added tax in Karnataka state and 5 percent central sales tax in other states, can cut their overall cost of production by about 8-10 percent. Without these, they could compete with imported modules. Manufacturers were optimistic that the new administration will bring about much-needed change as they see government officers working with a renewed sense of responsibility indicative of the new administration's priorities.

Investors were also more positive, with many confirming that they are becoming increasingly comfortable investing in India's solar market. Banks, on the other hand, continue to express concerns about state policies due to both low tariffs and the more important concern of off-taker risk, with several states behind in payments and continuing to maintain poor credit ratings. Some investors mentioned that they are lending to projects with tariffs above ₹6 (~\$0.1) as long as developers were experienced and off-takers were credible without evacuation issues. Imported modules from well known brands were preferred by investors. Other risks cited were land acquisition issues, aggressive bidding, with several developers bidding for state projects and then dropping them for higher tariff projects (such as the JNNSM projects), and lack of RPO enforcement. All investors we spoke with viewed anti-dumping and DCR unfavorably, as they see project IRRs significantly affected, making most projects unviable. Investors had a positive view of the new Energy Minister who they see as knowledgeable and hands-on. When asked about financing commercial rooftop projects, investors indicated they would look to provide financing on these projects as long as they were bundled into portfolios of 8 MW and larger.

### Policy Updates

#### MNRE: Phase I Batch 1

PPAs for Batch 1 projects were signed for 610 MW (140 MW-PV, 470 MW-CSP). All 140 MW of PV projects have been commissioned, but only one 50 MW CSP project (of the original 470 MW due to be commissioned by May 2013) has been completed.

The CSP developers, who had earlier received an extension until June 30, 2014, filed a petition before the Central Electricity Regulatory Commission (CERC) in March asking for a further extension, along with a tariff revision. The CERC referred the case to MNRE, which sent a technical team to inspect the project sites. The MNRE expert committee has submitted its report and a decision on the extension will be made by the end of August.

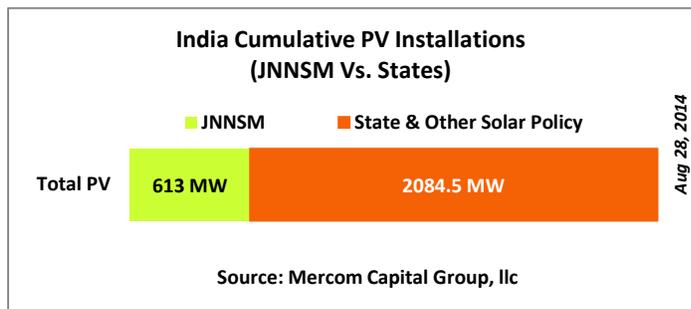
**Phase I Batch 2** - 310 MW of the 340 MW Batch II projects have been commissioned to date, with the remaining 30 MW delayed.

#### JNNSM - Phase II Batch 1

Solar Energy Corporation of India (SECI) opened bids for the allocation under Batch 1, Phase 2 of JNNSM. Under the DCR category, power purchase agreements (PPAs) were signed for 22 projects totaling 375 MW. Under the non-DCR category, PPAs were signed for 25 projects totaling 375 MW. Of the signed PPAs, developers canceled 20 MW under the DCR category and 30 MW under the non-DCR category. The deadline for completion of the remaining projects is May 2015.

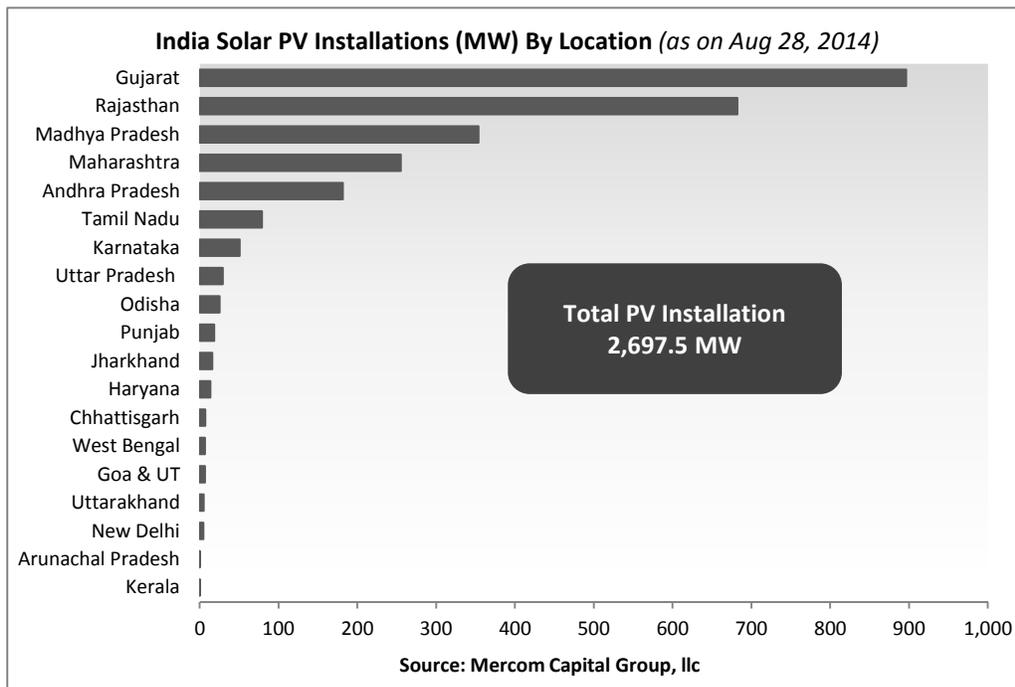
#### JNNSM - Phase II Batch 2

The MNRE recently released draft guidelines for the implementation of 1,500 MW grid-connected solar PV projects under Phase II, Batch 2, of JNNSM. The selection of these projects is to be carried out by NVVN, through a tariff-based reverse bidding process (the bidding process was changed from tariff-based to viability gap funding VGF in the previous batch, and has subsequently been brought back again).



**Rajasthan:** 60 MW of solar projects have been installed so far under the Rajasthan state policy, including the 20 MW that was commissioned in April 2014 out of the 75 MW solar projects that bid in March 2013. Of the remaining 55 MW, only 30 MW is expected to be commissioned in 2014.

The state recently released the draft Rajasthan Solar Energy Policy, 2014. It aims to achieve 25,000 MW capacity in the next seven to eight years through grid and off-grid projects and the development of solar parks by private developers. The state wants to promote solar parks by investing up to 26 percent equity (including cost of land) in joint ventures formed for the development of parks with a capacity of 1,000 MW or more. The government plans to offer special customized incentive packages for plants above 500 MW on a case-to-case basis.



**Uttar Pradesh:** The Uttar Pradesh Power Corporation Limited (UPPCL) signed PPAs for 110 MW solar projects in December 2013; 50 MW of these projects are expected to be commissioned by December 2014. A Request for Proposal (RfP) was announced this month to set up 300 MW of solar PV projects. The projects will be allotted through a reverse bidding process. The successful bidders with project capacities of less than 25 MW will have to commission projects within 13 months, and those with capacities of more than 25 MW will have 18 months to commission projects.

**Andhra Pradesh:** The government of Andhra Pradesh decided to allow any company to set up a solar project in the state at a tariff of ₹6.49 (~\$0.11) per kWh, including those who did not participate in competitive bidding for 1,000 MW. PPAs have been signed for only 147 MW of PV projects under competitive bidding, according to Transmission Corporation of Andhra Pradesh Limited (APTRANSCO). Out of this, only 25 MW have been commissioned this year.

The DISCOMs i.e. Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL) and Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL) are intending to procure 500 MW of solar power through a competitive bidding route.

The state has also allotted a 500-acre site in Anantapur district to set up a 100 MW solar project. The land will be allocated to the firms interested in setting up solar power units through the New Renewable Energy Development Corporation of Andhra Pradesh lease, not extending beyond 33 years, with the rent fixed at 10 percent of the market value of land assessed at ₹2,00,000 (~\$3,333) an acre every year.

**Punjab:** Punjab opened bidding for about 250 MW of PV projects last year. With average tariffs ranging between ₹8.20-8.40 (~\$0.13-0.14)/kWh, PPAs were signed in December 2013 after a delay due to land acquisition problems during the election period. According to our sources, only a small number of these projects will be commissioned within the year and the rest will be commissioned by the first quarter of 2015.

The government of Punjab also recently approved a policy on net metering for grid interactive rooftop solar projects.

**Kerala:** Under the 10,000 Rooftop Solar Power Plants Program, approximately 7,000 installations have been completed so far. The remaining 3,000 installations may take another year to be commissioned. These projects are up to 1 kWp in size and for captive use.

**Madhya Pradesh:** To date, 175 MW of solar projects have been installed under Madhya Pradesh's state policy.

**Haryana:** A 5 MW solar project developed under the state policy is expected to be commissioned during 2014. A tender inviting bidding for 50 MW solar projects was issued in April this year.

The state has approved the Haryana Solar Power Policy 2014. The policy aims to achieve megawatt-scale grid-connected solar power projects, rooftop grid interactive SPV system, small capacity grid solar power projects and devices, promotion of solar thermal collectors and provision to install metering equipment among other things.

**Maharashtra:** There are 170 MW of solar projects installed under Maharashtra's state policy.

**Gujarat:** Gujarat has over 890 MW of solar projects installed under its state policy. Recently, 30 MW were commissioned out of a 50 MW project developed by a power company to meet its RPO obligation. The remaining 20 MW is expected to be commissioned by the end of this year.

India's Appellate Tribunal for Electricity dismissed an appeal by Gujarat Urja Vikas Nigam Ltd. (GUVNL) to reduce the solar-power tariff as "devoid of merits", according to a copy of the judgment. GUVNL, the bulk buyer of power in the state, had signed 88 contracts for a total of 971.5 megawatts of solar capacity with the developers starting in 2010. Last year, it filed a petition seeking to lower the rates, citing the excessive profits of plant owners who benefited when solar equipment prices plunged after contracts were signed. GUVNL's attempts to revise tariffs agreed to under 25-year contracts threatened to stall investments.

**Chhattisgarh:** Chhattisgarh State Power Distribution Company Limited (CSPDCL) announced bid results for solar projects totaling 100 MW. The lowest bid price was ₹5.54 (~\$0.09)/kWh, and the highest ₹7.81 (~\$0.13)/kWh. CSPDCL will sign 20-year PPAs with the successful bidders.

**Karnataka:** The state has 51 MW solar projects installed to date, including the 30 MW already commissioned of the 60 MW solar projects announced in Batch I. Of the remaining 30 MW, 10 MW is expected to be commissioned this month and 20 MW in early 2015. A 10 MW CSP project, under Batch I, is expected to be commissioned in 2015. There were 130 MW of solar projects announced in Batch II for which the PPAs are signed and the projects are to be commissioned within 12 months of the date of signing.

Recently, the state also announced financial bids for solar projects totaling 50 MW in Batch III, with ₹7.74 (~\$0.13)/kWh the highest bid price and ₹6.66 (~\$0.11)/kWh the lowest bid price and ₹7.34 (~\$0.12)/kWh as average bid price.

The state also revised its solar policy on May 22, 2014, (renamed Karnataka Solar Policy 2014-2021) with the main objective of adding a minimum of 2,000 MW of solar power generation by 2021, in a phased approach. It is targeting 1,600 MW of grid-connected, utility-scale projects and at least 400 MW of grid-connected rooftop projects.

Based on this new policy, Karnataka Renewable Energy Development Limited (KREDL) invited RfPs for solar projects totaling 500 MW with bid submissions due by August 20, 2014.

**Uttarakhand:** The government of Uttarakhand has issued a request for selection for procurement of solar power from grid-connected solar PV power projects for aggregate capacity of up to 30 MW through a tariff-based competitive bidding process under its Solar Power Policy 2013.

**Tamil Nadu:** Tamil Nadu has petitioned the Supreme Court against last year's order of the Appellate Tribunal for Electricity, which stated that the state government could not order specified consumers to buy solar power.

**Note:** Dollar-rupee conversions were calculated at \$1 = ₹60.

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