

The Indian Solar Market: Updates, Constraints and the Road Ahead

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By Nalin Deshpande, Siddhartha Priyadarshi & Vishal Pandya^[1]

With its subtropical climatic conditions and abundant solar insolation, accelerating solar capacity addition can tangibly impact India's exponentially growing energy needs and energy security concerns. While the Indian solar market has grown significantly after the launch of the National Solar Mission and large state-level programs, it is important that India remains committed to a stable path for fostering solar power generation. This piece will provide recent updates, examine key issues and look at the road ahead for the solar market in India.

India's Prime Minister Calls for a 'Saffron Revolution'

India's new Central Government under the leadership of Prime Minister, Narendra Modi is committed to expanding the role of all forms of renewable energy in meeting the country's energy needs. Mr. Modi, who, in his earlier role as the Chief Minister of the state of Gujarat, pioneered India's largest state-level solar capacity addition program, called for what he termed a "saffron revolution" soon after taking over as the Prime Minister. Envisioning "saffron" (one of the three colors on the Indian Flag) as a symbol of energy, Mr. Modi articulated his keen interest in seeing a radical change in the energy industry propelled by a push in renewable energy generation. Solar energy specifically, was called out as having a key role to play in meeting India's diverse and rapidly growing energy needs.

International Trade Disputes – Domestic Content

India and the United States have been engaging over the issue of 'domestic content requirements' (DCRs) as mandated in 'Phase 2, Batches 1 and 2' of the Jawaharlal Nehru National Solar Mission (JNNSM). U.S. concerns over the impact on its solar manufacturers, who enjoyed a significant market share in the earlier phases of capacity growth, has suggested that the DCR clause runs counter to multilateral trade arrangements, as prescribed by the World Trade Organization (WTO). A dispute settlement panel under the WTO has been set-up now to look into this matter. India, in its defence, argues that, since the power being produced from solar projects where DCRs apply is being procured by government agencies, it is outside the purview of WTO trade rules.

A final decision on the DCR matter is being watched closely around the globe. A decision in favour of the U.S. will also be a huge gain for China, whose solar PV manufacturing industry will benefit as well.

Anti-dumping duties to safeguard National Solar Manufacturing Interests

In a May 22nd, 2014 notification, India's Directorate General of Anti-dumping & Allied duties (DGAD) under the Ministry of Commerce and Industry, has recommended the imposition of anti-dumping duties on the import of solar cells and modules from the U.S., China, Malaysia and Taiwan. By imposing such duties, DGAD seeks to set right an imbalance in market conditions for India's domestic solar manufacturing industry. The DGAD has recognized that domestic manufacturing capacity utilization drastically fell, despite increased demand, in the face of increased imports from the countries subject to the investigation.

Although the DGAD ruling paid heed to the complaint raised by Indian solar manufacturers, concerns have been voiced that imposing such stringent duties will adversely affect the growth and momentum

of the solar sector in India. Opinion is clearly divided between manufacturers and solar power developers, with India's Ministry of New and Renewable Energy (MNRE) also taking a position against the imposition of anti-dumping duties.

Solar Roof-tops and Net Metering

Small scale solar projects, mainly roof-top projects, are expected to receive a significant push as more states across India are framing relevant policies and regulations for their promotion. Currently, 13 states have notified their solar policies that include promotion of rooftop PV installations. Solar rooftop projects also provide an opportunity for smaller states like Delhi, to step up their solar power production. Net-metering, that enables a conventional consumer of power to inject surplus power generated from their solar roof-top installations back into the grid, opens up opportunities for residential/commercial consumers. Power distribution companies (Discoms) can claim Renewable Purchase Obligation (RPO) credit on power procured from roof-top solar projects. The southern Indian state of Kerala has been the latest state to announce a final version of regulations for roof-top solar power generation and has identified that the usage of expensive (unviable due to cost and lower efficiencies) batteries for power backup can be reduced if grid connected roof-top projects are made operational. Several states including Tamil Nadu, Andhra Pradesh, Punjab, Uttarakhand and Kerala have also issued final regulations for net-metering of small solar projects.

Solar Renewable Purchase Obligation (RPO) Enforcement

Solar project capacity developed under the Renewable Energy Certificates (REC) mechanism achieved a new milestone recently and crossed the 500 MW mark. In the financial year (April to March) 2013-14, the number of projects accredited went up to 173 from only 26 in financial year 2012-13. This growth is in contrast to a dip in the number of non-solar REC projects that were accredited.

The solar REC market in India is today severely constrained because of a lack of enforcement of solar RPO targets by the State Energy Regulatory Commissions (SERCs). While the solar REC inventory stands at over 300,000, redeemed RECs (as of 31st July 2014) are only 92,087. The major defaulters have been the distribution licensees and large captive consumers of electricity, who have avoided purchasing RECs and meeting state specified solar RPO targets. Prices of solar RECs have therefore remained at 'floor value' for almost a year. Strong RPO enforcement is essential to revive the solar REC market and increase investor confidence.

The "Forum of Regulators" (a collective forum of central and state electricity regulators) held its 41st meeting on 27th June, 2014 focused on RPOs. At the meeting, the MNRE stressed the following needs:

- Extending the validity of REC's by 6 months, as unsold Solar REC's stood close to 0.24 million by end of June, 2014
- Need for strong RPO enforcement in all states
- Allowing inclusion of RPO compliance cost under ARR (Average Revenue Requirement).

With sustained pressure from Central government authorities and the enforcement of RPOs, it is likely that the REC market will improve.

The National Solar Mission – Its Current State and Progress so far

The Jawaharlal Nehru National Solar Mission, named after independent India's first Prime Minister, provided a strong start to solar deployment in India. The mission called out a target capacity addition of 20,000 MW by 2022 in 3 phases –

- Phase 1 – up to FY13
- Phase 2 – 2013-2017

- Phase 3 – 2017-2022

Here is how India has fared so far:

Status under Phase 1 – Target of 1000 MW

- 950 MW of solar power projects were selected in 2 batches through reverse bidding.
- Average tariff solar PV projects (in Batch 1) – Rs. 12.12 per unit.
- Average tariff for solar thermal projects (in Batch 1) – Rs. 11.48 per unit.
- Average tariff for solar PV projects (in Batch 2) – Rs. 8.77 per unit.
- Total capacity commissioned during Phase 1 – 580.8 MW

Status under Phase 2 - Target of 3000 MW

- Phase 2 Batch 1 status – bidding conducted by Solar Energy Corporation of India with results declared in February 2014.
- 68 bids were received from 58 developers covering 122 projects of 2170 MW capacity
- Out of 2170 MW – 700 MW of project bids were under the ‘domestic content’ quota and 1470 MW were under the ‘open’ or non-DCR category.

While an aggressive decline in solar power tariffs has been evident across phases and batches of the JNNSM there has been much variation in selection and pricing approaches so far.

State Solar Policy Developments

a.

Tamil Nadu: The Case of the Appellate Tribunal setting aside State’s ambitious solar policy

b. In January 2014, the Appellate Tribunal of Electricity (APTEL) set aside Tamil Nadu’s ambitious solar power policy which had a target capacity addition of 3000 MW by 2015. The introduction of additional Solar Purchase Obligations (SPOs) over the existing Renewable Energy Obligations (RPOs) induced APTEL to review the state’s solar policy. The APTEL ruled that the introduction of SPOs was based on directives of the state government and that the State’s Energy Regulator had no power to impose SPOs while RPO obligations were already in force. It also ruled that the imposition of SPOs on specific types of consumers only and not on the state distribution entity, TANGEDCO, was illegal. By the time of the APTEL ruling, TANGEDCO had already floated tenders for 700 MW capacity, that were awaiting Power Purchase Agreement (PPA) execution which had to be retracted.

The state of Tamil Nadu has however remained committed to expanding solar generation in the state by amending relevant RPO regulations (these are still in draft phase), and fixing a solar RPO target of 2% (the highest in India) for financial years 2014 and 2015.

c. Karnataka Solar Policy

The new Karnataka Solar policy notified on 22nd May 2014, addresses a 7-year time frame. Karnataka was the first southern state to notify a solar policy in 2011 and also the first to commission a utility scale solar project in India.

The policy covering the period 2014 to 2021 will aim to see the state reach 2000 MW of total installed solar power generation capacity, across both utility scale and rooftop solar PV projects, in a phased manner by 2021 and meet 3% of total projected power consumption.

Accelerated Depreciation (AD) and impact on investments in renewables

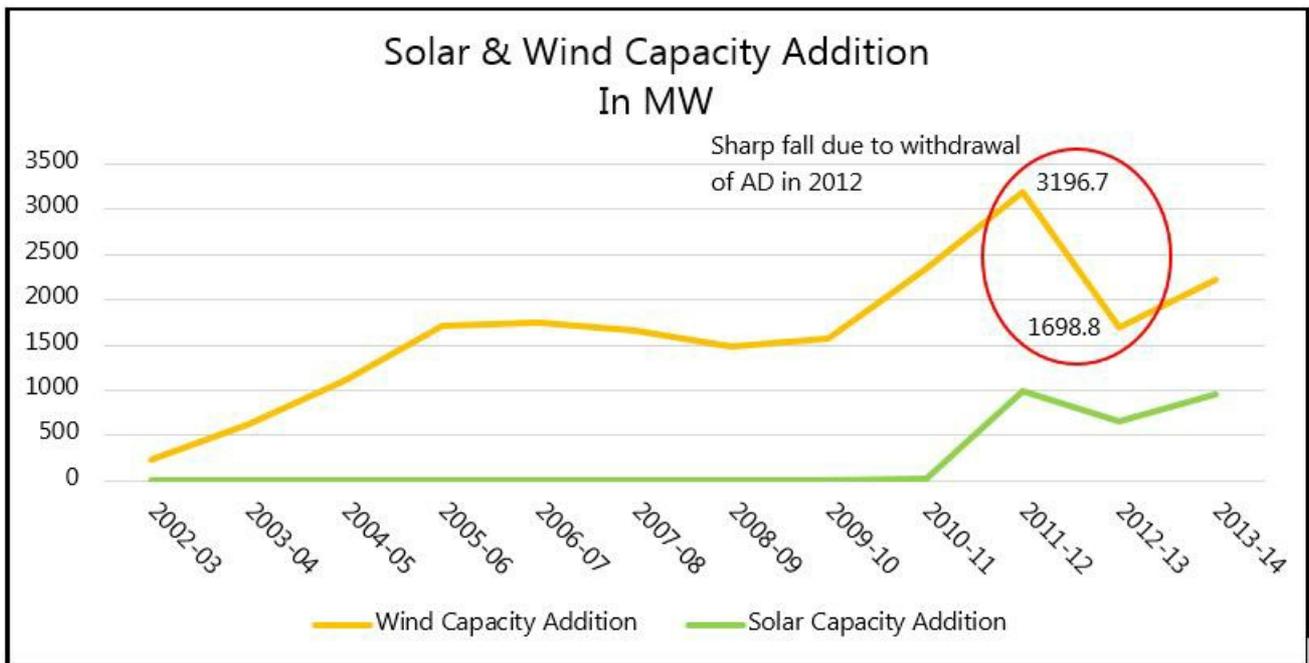
Wind Power development in India started in the early 1990s. Under a provision of India’s Income Tax

Act, industries were allowed accelerated depreciation on capital invested in wind power generation. Until 2012 (when this AD benefit was removed), Wind Power development and growth was driven primarily by Accelerated Depreciation (AD) benefits.

New wind capacity additional peaked in 2011-12 at about 3,200 MW, falling sharply to 1,700 MW the next year as AD benefits were removed. The decline in wind investments due to the withdrawal of AD coincided with a growth of close to 60% in Solar Power installations in 2012-13 and 2013-14. The market momentum had shifted in favour of Solar.

Our analysis suggests that Wind AD market had an investing capital of close to 7300 crores. This shifted to Solar AD market which saw increase in investments worth Rs 7500 crores during 2012-13.

The new Government of India announced recently that it was reintroducing AD in 2014 for wind investors. We believe that the investment momentum will shift again to wind as a result of a mature policy regime and attractive tariffs in the days ahead.



Conclusion:

While there is a clear push to promote solar power generation in India, issues like DCR and ADD will call for a creative trade-off between securing the national manufacturing interest and rapid solar power deployment. Net-metering policies could be a gamechanger for decentralized power generation, and state policies could drive a roof-top solar revolution in the country. RPO enforcement will provide an edge to solar power producers and help them compete with other renewable energy sources. This edge could be critical for the solar sector, as the re-instatement of AD for wind will lead to tougher investment competition between wind and solar.

About REConnect Energy

REConnect is India's largest renewable energy certificates (REC) trading company. REConnect provides end-to-end services, from contract structuring, policy and regulatory advisory, to monetization of RECs. Areas of services include REC trading, Electricity Portfolio Management, Renewable Purchase Obligation management and Wind Power Forecasting & Scheduling. REConnect is a knowledge focused company that prides itself in providing premium services to clients backed by in-depth research and analysis of markets, regulations and policies in the Indian power sector.

[1] *Authors work with REConnect Energy*