

RIA of Solar Power Generation in Gujarat

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Outline

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Overview

- Gujarat: Solar irradiation- 5.6 – 6.0 kWh/ m sq/day
Potential of 750 GW solar capacity
Potential of 30 lakh units of clean energy production/day.
- All India: 2517 MW solar installed capacity → Gujarat: 859 MW
 - 847 MW has been developed under Gujarat State Solar Policy, 2009.
- Gujarat remains as a favourite destination for the solar IPPs, even after Jawaharlal Nehru National Solar Mission (JNNSM), 2010.
- JNNSM had limited success: 66% of envisaged capacity (661.3 MW out of 1000 MW) got commissioned under Phase I.
- What makes Gujarat a hotspot for solar energy investments? Is there anything wrong with JNNSM? Is there any scope of improvement in current national policy regime for solar power?

Policies Identified

- An IPP can bid for solar projects in Gujarat under any one of the following regimes:
 - Gujarat State Solar Policy, 2009.
 - Jawaharlal Nehru National Solar Mission, 2010.
- Projects allocated under JNNSM may operate within the territories of Gujarat, however, incentives guaranteed under the State Solar Policy will not be applicable.

Issues in the Sector

- Financing
- Land Acquisition
- Grid Connectivity & Evacuation
- Domestic Content Requirement (DCR)
- Renewable Purchase Obligation (RPO)

- The solar industry in India has been facing several challenges when raising finances. This has been primarily because of:
 - High capital costs
 - Low plant load factor
 - Intermittency or inform nature of the power generated
 - Policy and regulatory issues
 - Knowledge barriers among financing institutions on renewable energy technologies
- Power off-takers (State DISCOMs) are in better financial health in Gujarat- still challenging to secure financing for solar projects.
- Therefore the Gujarat State Solar Policy 2009 and JNNSM 2010 are compared keeping in mind the following indicators:
 - Nature & Scope of the Policy
 - Investment Incentives
 - Revenue Incentives
 - Financial Externalities
 - Costs of Operation

Comparison of Policies

Indicators		Gujarat Solar Policy (2009-2014)	JNNISM (2010-2022)
Nature & Scope	Capacity limit per project	Max. to be 5 MW	1 MW
	Type of Use	For self-use or sale of power to grid/sale to third party. Captive use is not allowed.	-
	Bank Guarantee (BG)	- Rs 50Lakhs/MW at the time of PPA signing with Distribution Licensee. - BG to be refunded if the developer commissions the project in time as per PPA.	- Earnest Money Deposit of Rs. 20 Lakh/MW along with RfS. - Bid Bond as per Clause 2.7 (d) along with RfP bid (if applicable) - Performance BG of Rs. 30 Lakh/MW at the time of signing of PPA.
Investment Incentives	Viability Gap Funding (VGF)	None.	Based on reverse bidding. 20% of the total project cost.
	Capital Subsidy	None	30% of the project cost for captive power plants upto 100 kW upto 500 kW.

Indicators		Gujarat State Solar Policy	JNNSM
Investment Incentives	Support to Off-grid Solar PV applications	None	Rs. 90/Wp (With battery storage) Rs. 70/Wp (Without battery storage) Soft loan @ 5% p.a.
	Tax Holiday	None	10 years with MAT of 18.5% which can be set off with income tax after ten years.
	Depreciation	Developer free to choose between Accelerated or Custom Depreciation Method- Feed-in-Tariff for those using accelerated depreciation lower.	Can claim 80% accelerated depreciation in the first year of installation.
Revenue Incentives	Feed-in-Tariffs (FiTs)	8.97 (Without AD) and 8.03 (With AD)-MW scale plant 10.76 (Without AD) and 9.63 (With AD)- For kW scale plant.	FiTs in Phase I.
	Solar Purchase Obligation (SPO)	SPO target is 3%, by 2022. Progressively raised from 0.25% in 2010-11 to 1.5% in 2013-14.	National target: 3% by 2022. No restriction on fixing higher SPO at state level.
	Sharing of CDM benefits	IPPs will pass on 50% of the gross benefits of CDM to the Distribution licensee with whom PPA is signed.	-

Indicators		Gujarat State Solar Policy	JNNSM
Financial Externalities	DCR	Not required.	375 MW out of the 750 MW allocated for DCR. (50%)
	Grid Connectivity	Interconnection STU @ voltage level of 33 kV or above- Construction the transmission line from power plant upto 132/33 kV by STU.	Power by the SPG to be injected at 66 kV. Evacuation facility from the solar substation/switch yard to GETCO substation to be approved & laid by GETCO.
	Land Acquisition	Solar Parks created for policy allocation.	None
	Net Metering	Available. Tariff- 11.21/kWh and 11.78/kWh.	
Operating Costs	Wheeling Charges	As determined by GERC from time to time.	No provision
	Electricity Duty	Exemptions.	No provision
	Cross-Subsidy Charge	Not applicable for open access obtained for third party sale within the state	No provision
	Excise & Custom Duties	Prerogative of Central Government	Exemptions on all solar and micro/mini grid power plants.

Stakeholder Feedback

- Policy uncertainty in most states has a huge cost for IPPs.
- Reverse bidding is complicated and damaging for Solar IPPs. Preferential tariff, based in accelerated depreciation, is more suitable and preferable.
- Domestic Content Requirement is a hurdle for commercial feasibility and bankability of projects.
 - High cost of Indian content: ↑Capital Cost
 - Lower quality of content (high risk): ↑Interest rate
- Better irradiation, Solar Parks, preferential tariff, no DCR & better grid connection makes Gujrat the favourite destination for IPPs
- Limited availability of Indian financing for solar projects.
- International financing institutions are more accessible for project in Gujarat, due to low risk and faster implementation.

Preliminary Findings

- State solar policies have attracted more private investments than JNNSM.
- Investment framework is dependent upon the political stability, along with other externalities.
- DCR is a hurdle for accessing private finance and also raises the capital cost. VGF is not adequate to meet the raise in capital cost.
- VGF may be better utilised to promote R&D at manufacturer end and thus bring down the cost of panels.
- Externalities affect investment climate- Increases rate of interest, amount for security and creation of debt fund.
- National & private banks' investment portfolio for renewables, especially solar, is not clear.

Issues for Discussion

- How to make solar energy financially viable and attractive for the private producers?
 - Preferential tariff vs. Reverse bidding
 - Capital subsidy vs. Interest subsidy
 - Implementation of RPOs
- How to address the externalities that affect investment climate?
 - Political economy
 - Land acquisition
- Is DCR a necessity?
 - Industrial aspirations vs. energy security
- Localised state solar policies vs. a coherent national solar policy: What serves best India's energy policy goals?

THANK YOU