

Indian Solar Industry: Attractiveness, Issues and Challenges

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Who we are

- Started as a pharmaceuticals manufacturer in 1976 and branched into solar power in 2009
- Mainstay was small off-grid solar rooftop systems and installation of solar water heaters
- Pioneering work in solar water pumps backed by in house R&D
- Installation of grid tie roof top and ground mounted systems, more than 100 projects commissioned
- PMC for various solar projects between 1 MW and 30 mw

Global large scale funding deals on a upswing

Solar Top 5 Announced Large-Scale Projects Funded By Dollar Amount in Q2 2016

Company/ Project Developer	Project Name	Country	Funding Type	Amount (\$M)	Investors
	Kathu CSP Solar Project (100 MW)	South Africa	Debt	588	Rand Merchant Bank, Nedbank Capital, ABSA Capital, Investec, Development Bank of South Africa
	Grand Renewable Solar Project (100 MW)	Canada	Bond Issue	482	Undisclosed
	North Star Solar Project (100 MW)	USA	Syndicated Loan	226	Santander, HSBC, Siemens Financial, Banco Sabadell
	Hubei Jiangling Sanhu Solar Project, Hefei Changfeng Mingcheng Reservoir (3*20 MW) Solar Projects	China	Loan	200	Dongfu Jueqi, Nanjing GCL New Energy, Dongfu Investment
	Indian Solar Projects (na)	India	Loan	175	Asian Development Bank

Source: Mercom Capital Group

Top VC funded companies in 2016

Sr. no.	Receiver	Amount in Million (USD)	Giver
1	Sunnova Energy	300 M (USD)	Energy Capital Partner
2	TenKsolar	25 M (USD)	Golman Sachs Alternative Energy Investment Group
3	Posigen	20 M (USD)	NewWorld Capital Group
4	Mercatus	11.7 M (USD)	6 different funds
5	NexWafe	6.7 M (USD)	Lynwood

Q1 2016 VC Funding by Technology

Sr. no.	Technology	Deal size
1	Solar Downstream:	333 M (USD) 7 in deals
2	PV:	44 M (USD) in 6 delas
3	Service Providers:	15.7 M (USD) IN 2 deals
4	Thin Flim:	7 M (USD) in 3 deals
5	BOS:	3.4 M (USD) in 3 deals
	CSP:	2.3 M (USD) in 1 deal

Renewable energy sector expected to continue buzzing with M & A's, VC funding and investment activity

- M&A activity in the renewable energy sector has grown 22% in Asia Pacific to be 6 billion USD in the last 2 years
- PwC terms JSW's acquisition of Jaypee Group's hydro power assets at 1.6 billion USD as the second largest renewable energy deal globally
- VC funding started with 40 million USD funding raised by Indian off-grid solar energy provider, based in Noida, NCR

- Many other medium size VC fundings have happened such as kWatt Solutions (incubated at IIT-Bombay) and Sun Terrace Energy
- Tata Power Company has said its renewables arm has signed an agreement with Welspun Energy Pvt. Ltd. to acquire its green energy portfolio for an estimated at Rs 10,000 crore (\$1.4 billion).
- Tata Power Renewable Energy said it has signed share purchase agreement to buy

- Tata Power Renewable Energy said it has signed share purchase agreement to buy Welspun Renewable Energy's 1.1 GW renewable portfolio in what would be the largest solar M&A in the country and also among the largest such renewable buyout in the whole of Asia.

- The sale process will help Welspun Group free up capital to focus on its core businesses which includes large diameter pipes, home textiles and infrastructure.
- The average sale price per MW works out to 7 crores (INR) / 1 million USD approx

- French Power PSU announces 2B USD investment in green energy in India
- Renew Power raised 250 M USD in senior debt financing to construct up to 400 MW of new solar projects in India from Overseas Private Investment Corporation

Innovations In Financing

Co-Development model

- Instead of buying land for their projects, developers prefer lease rental agreement with landowners.
- As part of the agreement landowners are receiving a lump-sum amount
- This is a co-development model where landowners are made part of the project.

- Ideal solution for both land owner and project developer. The land owner earns a stable annuity income plus retains the right to future capital.
- Social angst caused by poor farmers losing their livelihood is eased to a great deal.

New Role of PFC and REC

- PFC will have to sanction Rs 1.5 lakh crore loans and REC Rs 1 lakh crore by 2019
- The two companies have recently reduced their interest rates to renewable projects. REC lends to renewable energy projects at between 10.5 per cent and 11.5 per cent depending on factors like project viability and promoter's strength.

Cash flow statement on projection of investment Rs 11 cr. For 1.8 Mw

Estimated Financials (Unlevered) - First 10 Yrs (Rs lacs)	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
Net Billable Generation	12.7	26.7	26.5	26.4	26.3	26.1	26	25.9	25.7	25.6
Avg tariff	5.3	5.35	5.46	5.57	5.68	5.79	5.91	6.03	6.15	6.27
Revenue from Power Sales	67.31	142.85	144.69	147.05	149.38	151.12	153.66	156.18	158.06	161
Net Revenue from Generation	67	142	144	146	148	151	153	155	157	160
O&M Expense	7	14	14	15	16	16	17	18	19	20
Insurance	1	2	2	1	1	1	1	1	1	1
Total Operating Expenses	8	16	16	16	17	17	18	19	20	21
EBITDA	59	126	128	130	131	134	135	136	137	139
% Margin	88.40%	88.80%	88.60%	88.40%	88.20%	87.90%	87.70%	87.40%	87.10%	86.80%
Interest	0	0	0	0	0	0	0	0	0	0
Depreciation (Companies Act)	62	117	104	92	82	72	64	57	51	45
EBT	-3	9	24	37	49	60	70	79	87	94
Tax	0	2	5	7	10	12	14	16	17	19
PAT	-3	7	19	30	39	48	56	63	69	75
Free Cash Flow to Investor (Post Tax)										
Yearly Free Cashflow after repayment	59	124	123	122	121	120	120	120	120	120
Simple Annual Yield (% of net investment)	16.10%	16.80%	16.60%	16.50%	16.40%	16.30%	16.30%	16.20%	16.20%	16.20%

Challenges and the way forward

WTO Rules in Favor of US Govt.

- The World Trade Organization (WTO) had ruled against India's policy of "protecting" its domestic solar cell manufacturing industry by imposing a "domestic content requirement" for solar cells and modules for the Jawaharlal Nehru Solar Mission.

Challenges faced by solar industry

- Price versus conventional power
- RPO enforcement
- Financial position of key utility customers
- Financing
- Grid issues and charges
- Grid availability
- Open access and wheeling charges
- Project implementation challenges
- Land
- Permitting

Way forward

- NSM Phase II
- State Policies
- RPO enforcement
- Open access facilitation
- Drive cost down
 - Scale
 - Reliable pipeline of projects
 - Open markets/ competition
 - Innovative financial modeling
 - Central Govt. support in lowering interest rates

Questions.....

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