REENERGIZING THE GRID CONNECTED SOLAR: CHALLENGES AND ISSUES

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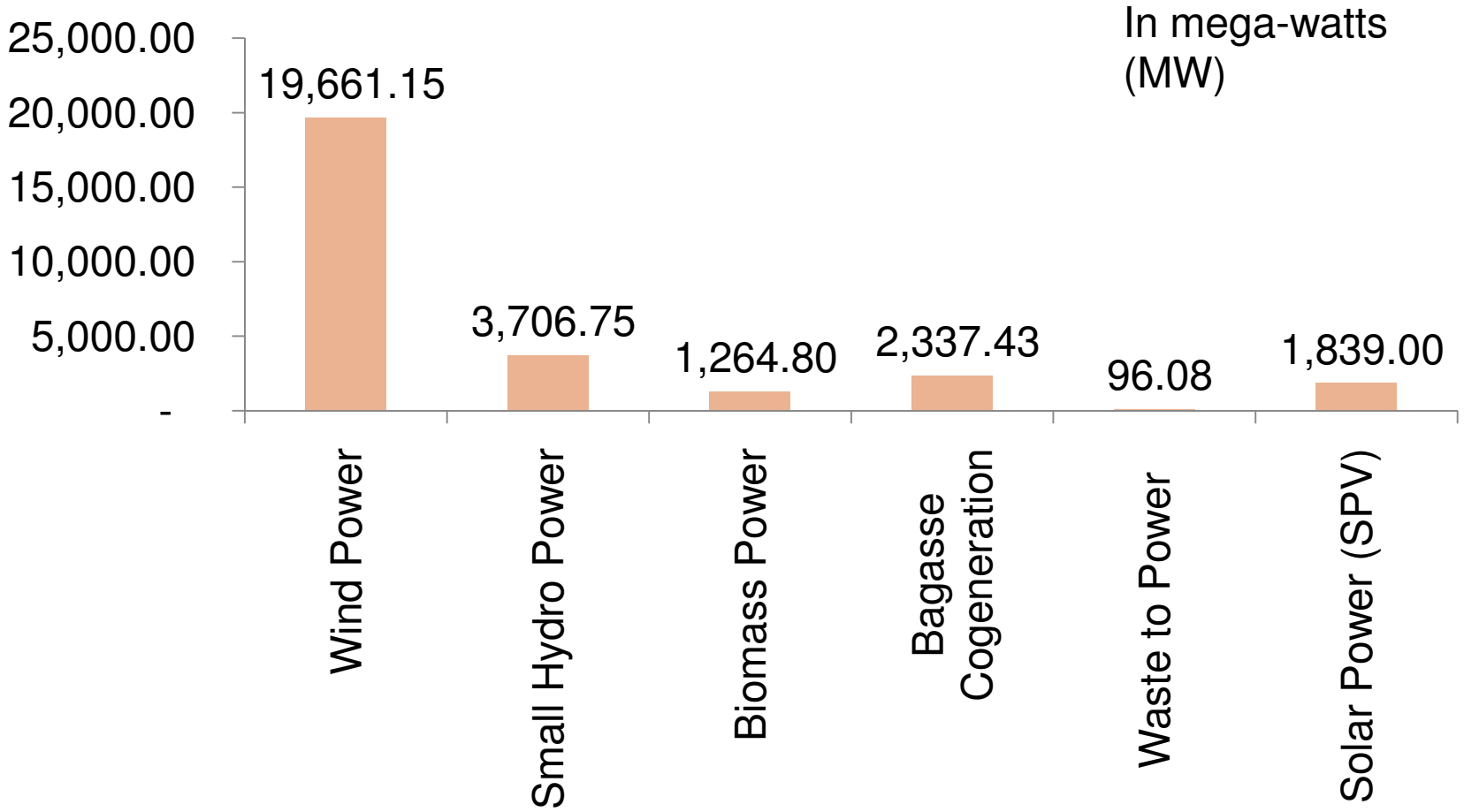
India's Renewable Energy Installed Capacity (As of July 31, 2013)



Achievements in Solar

Projects	Capacity (MW)
Projects Under RPSSGP/GBI Scheme	91.80
Projects under the State Policy	852.31
Projects Under JNNSM	472.50
Projects Under REC Scheme	174.68
Other projects	247.71
Total	**1839.00**

Jawaharlal Nehru Solar Mission

S. No.	Application segment	Target for Phase I (2010-13)	Target for Phase 2 (2013-17)	Target for Phase 3 (2017-22)
1.	Solar collectors	7 million sq meters	15 million sq meters	20 million sq meters
2.	Off grid solar applications	200 MW	1000 MW	2000 MW
3.	Utility grid power, including roof top	1,000-2000 MW	4000-10,000 MW	20000 MW

- To reach 20 GW target by 2022, grid connected solar need to grow at 30% annually.

JNNSM PHASE II: Delayed

- Targets 10 GW of cumulative solar capacity by 2017 - 3,600 MW of grid-connected solar capacity by the centre while leaving 5,400 MW to be fulfilled through state programmes (RPOs)

Technology	Total		Centre		State	
	Ratio	MW	Ratio	MW	Ratio	MW
Solar PV	70%	6300	40%	2520	60%	3780
Solar Thermal	30%	2700	40%	1080	60%	1620

- MNRE released draft guidelines on April 18 to set up 750 MW of solar photovoltaic projects through VGF – not yet approved by the Union Cabinet

State solar policies: No money

State	Introduced In	Target (In MW)	Tariff	Indigenization Policy	Current Scenarios	Completed (In MW)	JNNSM	Central	State
Gujarat	2009	500-3000 by 2014	Tariff fixed by GERC	No	Further expansion has been stopped stating that the States cannot afford to pay any more to Solar developers	852.31	-	-	852.31
Rajasthan	2011	600 by 2017	Reverse bidding process	No	No projects have been installed under the state solar policy.	608.50	395.00	213.50	-
Odisha	2011	25	Reverse bidding process	No	Alex Green, who was awarded the project of 25 MW SPV has to complete the project by August 2013	13.00	5.00	8.00	-
Andhra Pradesh	2012	No specific target	Reverse bidding process	No	Invited bids with a benchmark tariff of Rs. 6.49/unit in April 2013. 35 bidders with a total capacity of about 418 MW accepted the quoted tariff	32.00	11.40	20.60	-

State solar policies: No money

State	Introduced In	Target (In MW)	Tariff	Indigenization Policy	Current Scenarios	Completed (In MW)	JNNSM	Central	State
Tamil Nadu	2012	3000 by 2015	Reverse bidding process	No	Invited bids in January 2013. 226 MW of capacity awarded to 29 firms	17.06	5.00	12.06	-
Madhya Pradesh	2012	200	Reverse bidding process	No	Welspun was awarded 130 MW of SPV installation highest capacity ever awarded to any Indian company	11.75	-	11.75	-
Karnataka	2011	200 by 2016	Reverse bidding process	No	135 MW have been sanctioned with a lowest tariff of Rs 5.51/unit	14.00	5.00		9.00
Chhattisgarh	2012	500-1000 by 2017	No allocation process announced	No	No process started as of yet	4.00	4.00	-	-
Uttar Pradesh	2013	500	Reverse bidding process	No	Released its request for selection for installation of 200MW	12.38	5.00	7.38	-

Issues & Challenges

Finance

Funding 20 GW

- Source of funds – Cess, NCEF, Budgetary
- Centre or State – enforcing RPOs
- Modalities of funding – Capital vs. FiT
- Lending to solar sector – issues with Banks

Issues & Challenges

DOMESTIC MANUFACTURING

Tariff quoted in JNNSM Phase I

Technology		Total	Thin Film	Crystalline
Batch I	**Average Tariff Quoted at the time of bidding (Rs/kWh)**	12.13	12.33	11.95
Batch II	**Average Tariff Quoted at the time of bidding (Rs/kWh)**	8.77	8.8	8.65

Developers using crystalline silicon modules quoted lower tariff as compared to the thin-film users

Comparison – Plant load factor in JNNSM Phase I

Technology		Total	Thin Film	Crystalline
Batch I	Average Plant Load Factor (July 2012)	19.08%	19.38%	19.28%
	Average Plant Load Factor (Oct 2012)	19.60%	18.85%	19.80%
	Average Plant Load Factor (Jan 2013)	18.94%	20.19%	17.87%
	Average Plant Load Factor (May 2013)	22.73%	23.07%	24.06%
	Average Plant Load Factor (July 2013)	19.04%	18.98%	19.11%
Batch II	Average Plant Load Factor (Jan 2013)	22.73%	Not enough data available	
	Average Plant Load Factor (May 2013)	22.48%	23.49%	19.77%

Plant Load Factor (in turn generation) is marginally higher in thin-film than crystalline silicon module.

How do we promote domestic manufacturing?

- DCR for all technologies?
- Financial incentives for using domestic content?
- Subsidy manufacturers?
- Investments in R&D?

Issues & Challenges

1. Development of Auxiliary industry
2. Human resource development
3. Innovation
4. Global cooperation

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