Deployment of New Solar Capacity in India- Legal and Policy Challenges

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Electricity Scenario in India (31.07.2009)

- Installed Capacity 1,51,073MW
  (64.1%Thermal,24.4%Hydro,8.8%RE and 2.71%NE)
- GDP Growth Rate 8 %
  (Electricity demand increasing at 5%,Supply demand gap increasing , 11 % during 2006-09)
- Only 83.1% villages are electrified
  (56% households do not have excess to electricity)
- Per capita consumption is 704 kWh/year
- Committed to provide electricity both for the development & improving living standards of its people
- Renewable Energy could play a major role

Electricity Act 2003

- "An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein,
- protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies,
- **promotion of efficient and environmentally benign policies,**
- **constitution of** Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto." motion of etc.

Provisions for Renewable Energy

- **Section 86(1)(e): The State Commission shall 'promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for** connectivity with the grid and sale of electricity to any person, and also specify, for **purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee.'**
- **Section 61(h): The Appropriate Commission shall, subject to the provisions of the** Act, specify the terms and conditions for **the determination of tariff, and in doing** so, shall be **guided by the promotion of co-generation and generation of electricity from renewable sources of energy**

Solar Energy Programme in India

Decentralized Power had been the focus with 2 million different systems with 250 MWp aggregate capacity in field . New Initiatives are:

4 MW capacity to demonstrate benefits of PV power for tail-end grid connection

4 MW capacity to encourage diesel replacement through rooftop PV
1 million solar lights for un-electrified rural homes in 10,000 villages/hamlets

2 million solar lights through micro financing to replace kerosene lamps

50 MW capacity for demonstration of grid interactive solar power generation

Renewable Purchase Obligations & Solar Power Tariff

Sr.No.	State	%(09-10)	Tariff Solar PV	Tariff Solar Thermal
1.	Gujrat	1	13 (12),3(13-25)	10(12) ,3(13-25)
2.	Haryana	3	15.96 (10)	15.96(10)
3.	Karnataka	5	3.40(+12)	3.40(+10)
4.	Kerala	5	3.18(+12)	-----
5.	Maharastra	6	3(+12)	3(+10)
6.	Punjab	2	7.0	7.0
7.	Rajasthan	6	15.78	13.78
8.	Tamil Nadu	10	3.15(+12)	3.15 (+10)
9.	Uttar Pradesh	7.5	15.60	13.60
10.	West Bengal	4	11.0	11.0

National Action Plan on Climate Change

- Setting up of eight national missions to mitigate carbon emission including one on solar energy
- Minimum RPO of 5% (2009-10) . Thereafter increase by 1% every year till 2020 .
- Central and States to set up verification mechanism as per the minimum national standards
- Introduction of Tradable Renewable Energy Certificates

National Solar Mission

- Make India a global leader in Solar Energy :

- Deployment of 20,000 MW in three phases1000 – 1500 MW in the first phase (till 2012), 5-7000MW in the second phase (2012-17) and rest in the third phase (2017-22) when solar power is expected to be competitive.

- 100,000 MW by 2032

- Solar power cost reduction to achieve grid tariff parity by 2020. (2009 as base year)

- Achieve parity with coal based thermal power generation by 2030.

- 4-5 GW of installed solar manufacturing capacity by 2020

How to Achieve the Mission Targets

- Provide better proper tariff to the developers and incentives to the manufacturers
- Phase those in a time bound manner to put pressure for use better and cost effective technologies
- Put emphasis on research and development
- Arrange for funds

Tariff regulations on Solar Power

Central Electricity Regulatory Commission has issued the following guidelines to State Commission on deciding the tariff:

- Life of the plant to be considered as 25 years
- Levellised tariff for the life of the plant
- Loan Tenure 10 years
- Capital Cost of 1 MW of PV Plant Rs.17 crores and Thermal Rs.13 crores
- Debt equity ratio 70 :30
- Return on equity 19% for repayment period and there after 24% till the life of the plant
- CDM benefits to shared by the developer & consumers
- Capital cost to be reviewed every year

Incentives for Solar Industry

- 100% Foreign Direct Investment is allowed
- Customs & Excise Duties
  - Zero or low Customs and Excise duty on most items presently used in commercial production of solar cells/modules
  - Concessional custom duty and no excise duty on solar thermal concentrators, Stirling engines etc.
- 80% accelerated depreciation in first year(This after issue of preferential tariff will be available to companies with core solar business only)
- Tax - holiday for setting up units in backward and specified areas and power generation projects
- Grant / Loan Support

  - R&D
  - Manufacturing
  - Demonstration
  - Applications

Challenges being faced

- Making Rs. 800-900,000 million available of for creating 20,000 MW capacity by 2022 , is a challenge. Soft funding for supporting the targets set for at least for the first phase is another challenge.

- Creating indigenous manufacturing capacities of Solar Thermal Power Technologies and creating additional capacities for manufacturing PV modules particularly of second and third generation PV technologies are the challenges.

- The cost of technologies are to be reviewed every year for deciding tariff . There would be challenge to make those cost competitive year after year.

- International cooperation in pre competitive research and support contracted research in thrust areas are the challenges

Thank you

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