



Wind Power: Regulatory Framework and Emerging Issues

Mahesh Vipradas
Senergy Global Ltd.

Wind Power: Background

- **Initiated by Government of India in mid-80's**
 - Private sector investments started in mid '90s
 - Resource potential of 65,000 MW +
- **Installed capacity: 10,242.3 MW as on March, 2009**
 - Fourth in the world
 - 1400 MW + in the FY 2008-09
 - High growth in the past 5 years

Wind Power: Early Developments

- **Ministry of New and Renewable Energy Sources Guidelines in 1993**
 - Sale of power from renewables at 2.25 Rs/unit, with 5% annual escalation.
 - Other guidance on wheeling and banking of power
- **These guidelines were adopted with variation by utilities in different states**

Beginning of Regulatory Regime

- **Post 1998, after enactment of Electricity Regulatory Commissions Act and subsequently the Electricity Act 2003, the state electricity regulator became a key player**
 - Regulator is independent body from government as well as utility/electricity board
 - Promote transparency and competition is main objective
 - All the issues related to wind power are handled by the regulator
 - Tariff, Evacuation, Wheeling, Banking and related charges

Electricity Act 2003

■ Electricity Act 2003

- Repealed all the earlier electricity acts
 - 1910, 1948 & 1998 Act
- Further defined the role of regulatory commissions
- Open access, competition and transparency are main principles
- Distribution, Transmission and Trading are licensed activities and closely regulated

Electricity Act 2003

- **Specific provisions for renewable energy**
 - Section 61(h) : The Appropriate Commission while determining tariff, shall be guided by-
‘the promotion of co-generation and generation of electricity from renewable sources of energy’
 - Other sections
 - cross subsidy surcharge , open access, connectivity, metering etc. – critical for wind captive use and third party sale of power

Electricity Act 2003

- **Section 86(1)e: The State Commission shall discharge the following functions, namely:**
 - promote co-generation 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;

Tariff and Electricity Policy

■ The national electricity policy

‘..there is an urgent need to promote generation of electricity based on such sources of energy’ – 5.12.1

‘...Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions’ – 5.12.2

Tariff and Electricity Policy

■ The national electricity policy

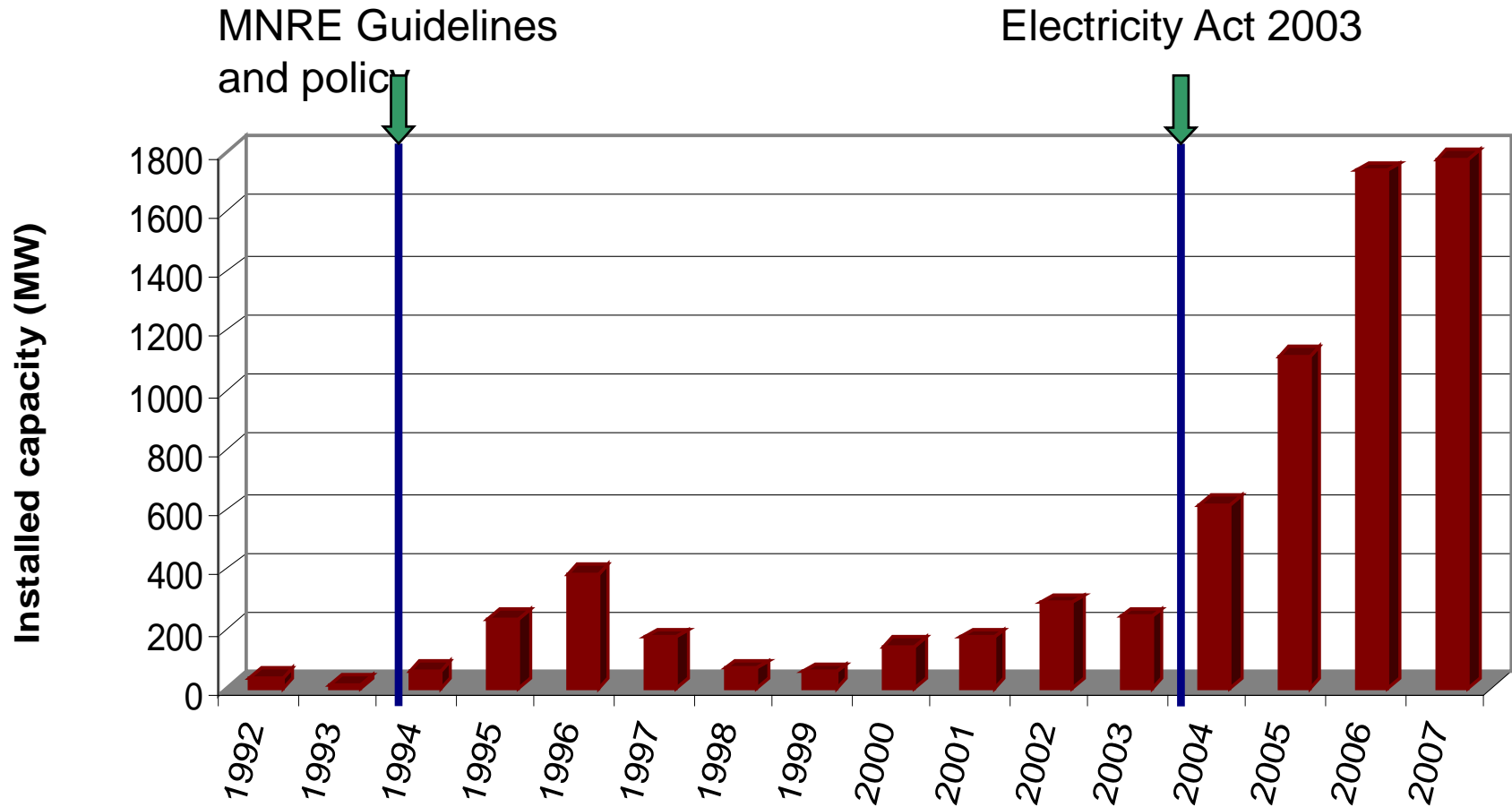
- ‘...Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies’ – 5.12.3

Tariff and Electricity Policy

- **National tariff policy**
 - Step by step introduction of competition
 - Preferential tariff
 - Competition within same technology
 - Competition within renewables
 - Competition with other sources

- 6.4

Electricity Act 2003: Impact



Present Status

State	RPS % specified	Tariff fixed by commissions in INR per kWh			
Tamil Nadu	13%	3.39 (fixed)			
Maharashtra	3-6%	3.50 + escalation of 0.15 on an annual basis			
Karnataka	10%	3.40 (fixed)			
Andhra Pradesh	5%	3.50 (fixed)			
Gujarat	2%	3.37 (fixed)			
Rajasthan	7.5%	Jaisalmer, Barmer, Jodhpur Distts. (EHV evacuation)	Jaisalmer, Barmer, Jodhpur Distts. (evacuation at 11/33kV)	Other Distts. (EHV evacuation)	Other Distts. (evacuation at 11/33kV)
		3.59	3.48	3.67	3.56
		escalation of 0.02 /0.04Rs for the first 12 years + escalation of 0.01 for the balance 8 years			
Madhya Pradesh	10%	4.03 reducing at 0.17 subsequently fixed at 3.36 till the 20th year			
West Bengal	3.8%	4.00 (fixed, to be used as a cap)			

CERC Regulation

- **Regulation on Tariff for Renewable Energy Projects**
 - Covers the inter state projects
 - Covers projects by Central Sector
 - Acts as guideline for state regulators
 - Tariff indexation with steel and cement
 - Wind project PLF linked to the wind resource

Emerging Issues

- **Tariff methodologies**
 - Cost plus
 - Competitive bidding for tariff
 - Availability Based Tariffs (ABT) through Unscheduled Interchange (UI) mechanism

- **Determination of Renewable Portfolio Standard (RPS)**
 - Potential in the state, cost implications
 - Pure short term financial cost comparisons
 - Applicability for Open access and Captive consumers
 - Monitoring and Enforcement of RPS
 - Energy and commercial accounting



Emerging Issues

- **Evacuation arrangements**
 - Providing evacuation is responsibility of state transmission utility
 - Transmission planning at state level as well as at regional level
- **Grid integration issues**
 - Becoming critical with increasing wind capacity
 - Wind generation forecasting
- **Open access regulations**



Emerging Issues

■ Renewable energy certificates

- To enable the interstate 'notional' transfer of renewable electricity
- Compliance mechanism for RPS
 - Distribution licensee and open access consumers
- Would need strong national RPS

■ Production tax credits

- To attract investments
- The present Generation Based Incentive scheme – move in right direction



New Developments

- **National Coordination committee on Energy**
 - Evolution of renewable energy certificates
 - The new Generation Based Incentives scheme of MNRE

- **National Action Plan on Climate Change**
 - National RPS
 - 5% by 2010, to be increased to 15% by 2020
 - Renewable energy trade across states
 - Renewable energy certificates
 - Development of monitoring mechanism at central level



3rd November 2009

India - Sri Lanka Wind Energy Exchange
program