



World Wind Energy Conference

RPO to RPS - Maharashtra Experience

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Agenda

- **Evolution of Regulation**
- **Renewable Purchase Obligation in Maharashtra**
- **RPO to RPS Regulations**
- **Regulatory Framework for RPS**



Evolution of Independent Regulation in India & Maharashtra



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Power Scenario in 1996

- Government of India (GoI) invited private sector participation in the generation business in 1991.
- Though several international and domestic developers evinced interest, very few projects were set up.
- Primary reason for the same being financially un-viability distribution business.
- In this background, the Conference of Chief Ministers of all States was held in 1996, to identify possible solutions to this problem.



Need for Regulatory Commissions

- Conference of Chief Ministers of States adopted Common Minimum National Action Plan for Power in 1996.
- Conference identified need for viable State Electricity Boards and improvement in their operational performance.
- Conference also identified the creation of a Central Electricity Regulatory Commission and State Electricity Regulatory Commissions as a step in this direction.



Electricity Regulatory Commissions' Act, 1998

- **The Electricity Regulatory Commissions' Act, 1998 was enacted in 1998, with the following Objects & Reasons:**
 - *"India's power sector is beset by problems that impede its capacity to respond to the rapidly growing demand for energy brought about by economic liberalization.*
 - *It is essential that the Government implement significant reforms by focusing on the fundamental issues facing the power sector, namely the lack of rational retail tariffs, the high level of cross-subsidies, poor planning and operation, inadequate capacity, the neglect of the consumer.*
 - *Limited involvement of private sector skills & resources.*
 - *Absence of an independent Regulatory Authority."*



Role of MERC under ERC Act, 1998

- Prior to enactment of EA 2003, MERC was primarily a tariff Commission, with the following main functions:
 - (a) determine the tariff for electricity, wholesale, bulk, grid or retail
 - (b) determine the tariff payable for use of transmission facilities
 - (c) regulate power purchase and procurement process of transmission and distribution utilities, including the price at which the power will be purchased
 - (d) promote competition, efficiency and economy in the activities of the electricity industry to achieve the objects and purposes of the Act



ERC Act from renewable perspective

- Regulators were primarily tariff commissions.
- No specific provisions for:
 - Preferential tariffs
 - Interconnectivity with the grid
 - Requirement to purchase by distribution business
 - Third party sales, captive sales

MERC Initiated process for determination of tariff for wind energy projects under ERC Act in 2001.



Tariff orders issued by MERC

Renewable Energy Source	Tariff Order date	Target Capacity Addition	Validity period under earlier Orders
Non-fossil fuel (bagasse) based co-generation	16 th August 2002	300 MW	31 st March 2007 or target capacity addition, whichever is earlier
Non-fossil fuel (bagasse) based Non-Qualifying Co-generation	25 th May 2005	Incl. above	31 st March 2007 or review linked to review of Qualifying co-generation project cases
Wind Energy	24 th November 2003	750 MW	31 st March 2007 or target capacity addition, whichever is earlier
Biomass	8 th August 2005	250 MW	31 st March 2010 or target capacity addition, whichever is earlier
Small Hydel	9 th November 2005	200 MW	9 th Nov 2010 or target capacity addition, whichever is earlier
Municipal Waste Solid	6 th April 2004	Not specified	31 st March 2007



Renewable Purchase Obligation (RPO) in Maharashtra



RPO Order : (Sep 2004)

- MERC issued an Order dated 3rd September 2004 for “Determination of Renewable Purchase Obligation (RPO) for Distribution Licensees in Maharashtra”
- Immediate intention of the MERC order was that total renewable energy generation in the State and purchase obligation thereof is shared on a pro-rata basis by Licensees in their area of supply.
- Utility/Licensees to
 - work together and work out the detailed modalities, including accounting of energy;
 - formulate a mechanism for operationalising RPO by consensus and
 - to submit within 2 months i.e by 3rd November 2004
 - RPO target for each licensee for 2004-05
 - Details of RPO operating system
 - Details of arrangement made by each licensee to meet its target RPO
- MEDA to co-ordinate and facilitate the above



RPO Pool settlement for FY2004-05

Distribution Licensees	Energy Input		RPO units (MU)	Actual RE Purchase (MU)	RPO Pool	
	(MU)	% RPO			Increment	Decrement
MSEDCL	66875	0.778%	520	612	92	
TPC	3361	0.778%	26	28	2	
REL	7457	0.778%	58			(58)
BEST	3962	0.778%	31			(31)
MPECS	552	0.778%	4			(4)
TOTAL	82207	0.778%	640	640	93	(93)

- Energy Accounting - RE generation and licensee consumption
- Settlement mechanism amongst licensees
- Administration



Achievement by July 2006

Sr. No.	Types of RE Sources	Potential as per MNES (MW)	Plausible Potential as per MEDA (MW)	Achievement as on Jul 2006 (MW)
1	Wind	4138	6500	1001
2	Small Hydel	599	599	206
3	Co-generation	1250	1250	74
4	Biomass	781	781	14
5	MSW & Liquid Waste	287	400	0
6	Industrial Waste	350	500	6
	TOTAL	7405	10,030	1301



RPO to RPS :

Salient Features of MERC RPS Regulations



RPO to RPS . . .

- Approach Paper for RPS published in May 2006 and Public Hearing conducted in June 2006 and RPS Order issued in August 2006
- Key Issues addressed:
 - Eligibility of RE sources
 - Applicable Tariff for RE sources
 - Impact on power purchase cost of Utilities
 - Operating Period
 - Percentage Specification
 - Balanced growth of all types of RE sources/technologies
 - Entities to be covered under RPS regime
 - RPS Operating Mechanism
 - Enforcement



Salient Features of RPS Order... 1/2

- **RPS Percentage Specification**
 - 'Eligible Persons' to procure Minimum Quantum from 'Eligible RE Sources' as percentage of their total consumption as per following:
 - Year 2006-07 : 3.0%
 - Year 2007-08 : 4.0%
 - Year 2008-09 : 5.0%
 - Year 2009-10 : 6.0%
- **Eligible RE Sources**
 - All types of RE Sources approved by MNES.
 - Only Grid-connected RE generation projects would qualify
- **Eligible Persons**
 - All existing and future Distribution Licensees in Maharashtra
 - Open Access Users in Maharashtra
 - Captive Consumers in Maharashtra
- **Operating Period**
 - Commencement : 2006-07
 - Co-terminus with : First Control Period of MYT I.e 2009-10
 - Review : One year prior to End of existing Policy



RPS Salient Features... 2/2

- **RPS Operating Mechanism**
 - **MEDA to be responsible for administering RPS framework in State.**
 - **In this regard Commission directs MEDA :**
 - **To assess feasibility of extending the existing RPO Operating Mechanism to RPS Framework.**
 - **To put in place the RPS Operating Framework within period of six months.**
- **Enforcement**
 - **Shortfall in meeting RPS target to be treated as Non-Compliance with Commission Directives.**
 - **Eligible person to pay following charges per unit for shortfall in procurement**
 - **2006-07(I Year) : No Charge**
 - **2007-08 : Rs. 5 per unit**
 - **2008-09 : Rs 6 per unit**
 - **2009-10 : Rs 7 per unit**
 - **'Enforcement' costs for non-compliance by Licensees will not be 'pass through' expenses.**



Implementation Challenges

- State nodal agency need to put in place processes and systems for energy accounting and settlement.
- Existing databases are grossly inadequate.
- Institutional framework for market operation is still evolving.
- Processes and systems for coordination between system operator, market operator and State Nodal Agency are required.



Implementation of RPS

Few Issues



Section 86 (1) (e) – Driver for RPO

- Section 86(1): The State Commission shall discharge the following functions, namely:
 - *(e) 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;*
- *Various State Commissions have put significant emphasis on the last part of this important clause while developing regulations for Distribution Licensees under their jurisdiction*



Ambiguity in application of S 86(1)(e)

- What is meant by a percentage of the total consumption of electricity in the *area of a distribution licensee*?
- Whether total consumption includes technical and commercial losses in the area?
- Whether total consumption include captive and open access consumption in the area?
- Currently regulators have used either total energy input or energy sales as criteria while determining the percentage.
- This has necessarily resulted in exempting captive and open access consumption from renewable obligation.



RPS Regulations : Section 86(1)(e)

State	Status of RPS Regulation	Minimum Quantum
MP	Final Regulation	0.5% Wind
Karnataka	Final Regulation	5-10%
Orissa	Final Regulation	3% (Wind+Hydro)
Gujarat	Final Regulation	2%
Rajasthan	Order issued	2% to 5%(wind) 0.5% to 1% (biomass)
UP	Order issued	7.5%
AP	Final Regulation	5% (0.5% wind)
Tamil Nadu	Order issued	10%
Kerala	Regulations	5%
Maharashtra	Order issued	3% (2% wind)



RPS already established – Key features

- Specify % of renewable energy every utility need to purchase:
 - **Single target for overall renewable energy purchase**
 - **Usually close to existing purchase levels,**
 - **In some cases Y-o-Y targets,**
 - **technology or resource specific targets in few States**
- Period from three to five years,
- Purchase of RE from outside the State has not been permitted,
- Silent on mode of procurement, competitive or cost based
- Implementation mechanisms need further refinement
- Weak on enforcement methodology



RPS - what further is required?

- Specific targets for RE sources which are not commercial
- Application of RPS to OA/Captive/trading transactions
- Efficient mechanism for purchase of RE by OA consumers
- OA consumers be allowed to procure RE from other States
- RE sources not spread evenly across various states making implementation of single RPS target difficult
- Higher RPS for RE-rich regions may result in distorted tariffs
- Enabling mechanism for inter-state sale is required.
- Stronger enforcement and penalty mechanism
- Clarity on wheeling/ banking facilities



Thank You for your attention

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