

Concept Paper on Multi Year Tariff Process for MSPGCL (Maha GENCO) & MSEDCL (Maha DISCOM)

Submitted to
**MAHARASHTRA ELECTRICITY REGULATORY
COMMISSION**

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1 Background on Multi Year Tariff Filings of the Generating Companies & Licensees in Maharashtra

Introduction of Multi-Year tariff principles is mandated by Section 61 of the Electricity Act 2003 (EA 2003), the National Tariff Policy, and Regulations 12.1 and 14.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005.

The Commission, considering the requests made by the Utilities, vide its Order dated December 20, 2005 in the matter of Applicability of Multi Year Tariff Framework stated that the Commission would determine the tariff under a multi year tariff framework with effect from April 1, 2007 instead of April 1, 2006 as stipulated in MERC (Terms and Conditions of Tariff) Regulations, 2005 and accordingly, the first Control Period for MYT framework shall be the three financial years from April 1, 2007 to March 31, 2010.

In view of the above the Generating Companies and Licensees have filed the Multi Year Tariff Petition as per the MERC (Terms & Conditions of Tariff) Regulations, 2005 for the first Control Period of three years, i.e., from FY 2007-08 to FY 2009-10.

2 Various Regulations for Determination of Tariff

The primary objective of any Regulation for tariff determination is to improve efficiency by rewarding good performance, where the actual performance is measured relative to some pre-defined benchmark. Internationally, regulators have adopted a variety of benchmarking methods and techniques in incentive regulation. Some of the common approaches to incentive regulation are as follows :

- a. Rate of Return Regulation (ROR)
- b. Price Cap Regulation
- c. Revenue Cap Regulation
- d. Sliding Scale (ROR Bandwidth)
- e. Yardstick Regulation
- f. Targeted Incentive Regulation

The details of these various approaches to incentive based Regulations are available at "BENCHMARKING AND REGULATION OF ELECTRICITY TRANSMISSION AND DISTRIBUTION UTILITIES: LESSONS FROM INTERNATIONAL EXPERIENCE" by Tooraj Jamasb, Department of Applied Economics, University of

Cambridge, Michael Pollitt, Judge Institute of Management, University of Cambridge, December 2000”

2.1 Commission’s Approach

The Commission in its Regulations has adopted the Rate of Return (ROR) Regulation approach for determining the Revenue Requirement of Generating Companies and Licensees with performance trajectory for certain variables with the objective of improving the performance and reducing the costs during the Control Period in a phased manner.

3 Process of Tariff Determination followed by MERC in the past

The process of tariff determination in the State of Maharashtra followed by the Maharashtra Electricity Regulatory Commission (Commission) in the past is an annual exercise that is based on the Cost-plus principles, subjected to efficiency parameters. According to this system of tariff determination, the Generating Company or Licensee (Distribution or Transmission) is required to submit an annual filing of expected revenues from various charges, and the Commission either approves the tariff proposed by the licensee or approves a different tariff. It has often been discussed by policymakers and regulators that the present system of annual tariff determination is too unpredictable.

Accordingly, an incentive based Multi-Year Tariff (MYT) determination process has been designed with the intention to make the tariff setting exercise more predictable, and impart greater regulatory certainty to the process of tariff determination.

4 Concept of Multi Year Tariff

A Multi Year Tariff (MYT) framework is defined as a framework for regulating the Generating Company or licensees over a period of time wherein the principles of regulating the returns/profits of licensees and the trajectory of individual cost and revenue elements of the Utility are determined in advance. The concept of MYT gives an element of certainty to all stakeholders. The basic premise is that tariffs would not fluctuate beyond a certain bandwidth unless there are force majeure conditions. The consumer would have a fair idea of what to expect in the next three to five years and the Utility would also be able to plan its business having known the principles for tariff determination for the control period. Multi-Year Tariff does not imply that the

Regulatory Commissions need to fix an identical tariff, year after year, throughout the control period though, of course, there is no bar if the Regulatory Commission chooses to do so. It is more likely -that the Regulatory Commission would fix the guidelines which would determine the retail tariffs and having fixed the guidelines, it is expected that the tariffs would operate within a certain band.

The concept of MYT can therefore be divided into two kinds of regimes - one that seeks to specify the input costs and another that seeks to specify the output prices. In both cases, this can be done either by specifying the precise costs/prices numbers or the mechanism by which these would be adjusted based on certain principles approved by the Commission.

5 Benefits of MYT

The shift from an annual tariff determination exercise to such a multi year system is expected to bring the following benefits:

- i) Reduction in regulatory effort on the part of the Commission, utilities and other stakeholders.
- ii) Reduction in regulatory uncertainty and
- iii) Provision of a transparent and stable system of incentives and disincentives. This is because of the absence of any "claw-back" or sharing of gains over the pre-specified efficiency norms within the Control Period

MYT provides clarity on the rules to be applied over a pre-defined future time period in advance. It seeks to eliminate the control aspects of regulation and replace them with a system of incentives and penalties. In this way, all stakeholders are made aware of the outcome of various actions/events for the pre-defined future time period, and are able to plan accordingly.

For Generating Company or Licensees, firstly, MYT principles provide clarity on the rules of regulation that are applied over a long term, and help finance growth and operations better, and facilitate improvement in supply quality and customer service. Secondly, the design of incentives as a part of the MYT exercise will help promote efficiency. Since some of the efficiency improvements will require time to take effect, these incentives should be applicable for a reasonably long period of time. Thirdly, these principles can help licensees mitigate risks in electricity supply.

For consumers, an improvement in efficiency gets translated into greater cost-effective supply. The MYT principles are expected to result in reduction in tariffs in the long-term, as the performance benchmarks will be restated at improved levels at the beginning of every Control Period.

6 Multi Year Tariff Framework in Maharashtra

As per the MERC (Terms & Conditions of Tariff) Regulations, 2005 the multi-year tariff framework is to be based on the following elements, for calculation of aggregate revenue requirement and expected revenue from tariff and charges:

1. Control Period;
2. Applicant's forecast of aggregate revenue requirement and expected revenue from tariffs and charges during the control period;
3. Improvement trajectory for specific variables;
4. Annual review of performance vis-à-vis the approved forecast and categorization of variations in performance into controllable factors and uncontrollable factors;
5. Mechanism for pass-through of approved gains or losses on account of uncontrollable factors;
6. Mechanism for sharing of approved gains or losses arising out of controllable factors;
7. Annual determination of tariff for each financial year within the control period, based on the approved forecast and results of the annual performance review

6.1 Period for MYT

The Commission has defined the periodicity that will apply for a number of years for MYT Framework called the **Control Period**. The first Control Period is of three financial years starting from FY 2007-08 to FY 2009-10, and subsequent Control Period of five financial years. All Utilities and Licensees have submitted the MYT petition for the First Control Period of FY 2007-08, 2008-09 and 2009-10.

6.2 Tariffs applicable for the Control Period in MYT Regime

Uniform tariffs may not be applicable for the entire Control Period. In MYT, the tariffs for every year of the Control period will be determined at the start of each

year of the Control Period based on the approved forecast of aggregate revenue requirement and expected revenue from tariff

6.3 Identification of Controllable & Uncontrollable Factors

While considering regulated nature of power industry, it is useful to consider the split of costs into those that the management of the company can control and those it cannot. The Regulations seeks to provide the owners and management of a company with incentives to cut costs that are under their control and to insulate them from abnormal profits and losses arising from costs that are outside their control.

6.3.1 Un-Controllable Factors

Regulation 17.6.1 stipulates the following factors as Un-controllable factors:

- Force Majeure Events
- Changes in law, judicial pronouncements and Orders of the Central Government, State Government or Commission
- Economy-wide influences, such as unforeseen changes in inflation rate, market-interest rates, taxes and statutory levies
- Cost of power generation and/or power purchase due to the circumstances specified in Regulation 25 (i.e. matters related to short term power purchase)

MSEDCL in its MYT filing for the first Control Period has requested the Commission to include following additional factors as Un-controllable factors

- Interest Rate Variations
- Return on Equity and Capitalisation
- Effect of Transfer Scheme finalisation

6.3.2 Controllable Factors

Regulation 17.6.2 stipulates the following factors as controllable factors:

- Capital Expenditure on account of time and/or cost overruns/efficiencies in the implementation
- Technical & Commercial Losses including bad debts
- Consumer Mix in case of presence of more than one Distribution licensee within a area and availing open access by existing consumer
- Working Capital Requirements
- Standards specified under SOP Regulations

- Labour Productivity

6.4 Mechanism for Sharing of Gains or Losses on account of Controllable Factors

MERC (Terms and Conditions of Tariff) Regulations, 2005 provides for the mechanism for sharing of gains or losses on account of controllable factors as follows:

Any approved aggregate gain to the Generating Company or Licensee on account of controllable factors to be dealt with in the following manner:

- **One-third** of the amount of such gain shall be passed on as a **rebate in tariffs** over such period as may be specified in the Order;
- In case of a Licensee, one-third of the amount of such gain shall be retained in a **special reserve** for the purpose of absorbing the impact of any future losses;
- The balance amount of gain may be utilized at the **discretion** of the Generating Company or Licensee.

Any approved aggregate loss to the Generating Company or Licensee on account of controllable factors shall be dealt with in the following manner:

- **One-third** of the amount of such loss may be **passed on as an additional charge in tariffs** over such period as may be specified in the Order of the Commission under Regulation 17.10; and
- The balance amount of **loss** shall be **absorbed** by the Generating Company or Licensee.

This mechanism of sharing of gains or losses on account of controllable factors is illustrated with the following example.

Sharing of Gains due to over-achievement of Performance Targets

Particulars	Units	Approved	Actual
Distribution Loss	%	32.97	31.97
Profit	Rs Crore		120

In case the distribution loss reduction achieved is more than the target approved by the Commission and Utility earns a profit of Rs 120 Crore on this account, then the sharing of such profit would be done as follows:

- One third i.e. Rs 40 Crore to be passed on as rebate in tariffs
- One third i.e. Rs 40 Crore to be retained by the Utility as special reserve

- Balance amount i.e. Rs 40 Crore to be utilized by Utility at its discretion

Sharing of Losses due to under-achievement of Performance Targets

Particulars	Units	Approved	Actual
Distribution Loss	%	32.97	33.97
Profit	Rs Crore		120

In case the distribution loss reduction achieved is less than target approved by the Commission and Utility incurs a loss of Rs 120 Crore on this account, then the sharing of losses would be done as follows:

- One third i.e. Rs 40 Crore may be passed on to consumers through tariffs
- Balance loss i.e. Rs 80 Crore to be absorbed by the Licensee

6.5 Mechanism for Sharing of Gains or Losses on account of Un-Controllable Factors

Any approved **aggregate gain or loss** to the Generating Company or Licensee on account of **uncontrollable factors** shall be **passed through as an adjustment** in the tariff of the Generating Company or Licensee over such period as may be specified in the Order ;

The Regulations also stipulates that the gain or loss arising out of variations in the price of fuel shall be dealt with separately.

6.6 Specific Trajectory of Certain Variable as Projected by Generation Company and Licensees

A. MSPGCL

MSPGCL, in its MYT Petition, has projected the trajectory for the following performance parameters for the first Control Period:

- Station Heat Rate
- Auxiliary Consumption
- Availability
- O&M Expenses
- Transit Losses

The summary of operational performance parameters projected by MSPGCL for each year of the first Control Period are summarized in following Tables:

Trajectory of Operational Parameters (Availability and PLF)

Sl.	Generation Station	Availability (%)					PLF (%)				
		FY06	FY 07	FY08	FY09	FY 10	FY06	FY 07	FY08	FY09	FY 10
		Actual	Projected				Actual	Projected			
1	Bhusawal	85.10	88.48	86.44	74.90	86.41	80.75	76.35	77.50	66.91	79.18
2	Chandrapur	76.12	72.25	85.97	86.16	85.81	68.24	62.75	80.00	80.00	80.00
3	Nasik	82.12	88.77	85.39	79.13	86.41	72.17	77.36	75.55	70.24	76.56
4	Koradi	78.76	84.82	85.61	85.87	81.31	68.28	71.01	75.43	74.54	71.00
5	Paras	98.91	87.89	83.70	86.41	86.41	94.39	80.70	71.50	73.45	73.45
6	Parli	91.63	87.34	86.34	86.41	77.43	85.40	79.73	77.60	77.45	69.37
7	Uran	50.63	53.22	53.22	53.22	53.22	50.61	50.91	52.77	52.77	52.77
8	Khaperkheda	85.38	91.07	86.44	85.73	85.04	77.52	84.35	82.34	81.44	80.79
9	Paras Expansion Unit-1	-	-	-	86.44	86.44	-	-	86.44	86.44	86.44
10	Parli Expansion Unit-1			80	80	80	-	-	80	80	80

Trajectory of Operational Parameters (Station Heat Rate and Aux Consumption)

Sl.	Generation Station	Station Heat Rate (kCal/kWh)					Aux. Consumption (%)				
		FY06	FY 07	FY08	FY09	FY 10	FY06	FY 07	FY08	FY09	FY 10
		Actual	Projected				Actual	Projected			
1	Bhusawal	2656	2657	2663	2663	2652	9.29	9.75	9.75	9.75	9.75
2	Chandrapur	2611	2600	2600	2600	2600	7.79	8.36	8.50	8.50	8.50
3	Nasik	2651	2655	2663	2663	2652	9.07	9.00	9.00	9.00	9.00
4	Koradi	2977	2977	2977	2977	2977	9.64	10.28	10.28	10.28	10.28
5	Paras	3196	3232	3200	3200	3200	9.58	10.39	10.00	10.00	10.00
6	Parli	2661	2660	2660	2660	2660	9.20	9.40	9.40	9.40	9.40
7	Uran	2026	2004	2000	1980	1980	2.27	2.20	2.30	2.30	2.30
8	Khaperkheda	2597	2614	2644	2644	2644	9.58	9.00	9.00	9.00	9.00
9	Paras Exp. Unit-1			2500	2500	2500			9.00	9.00	9.00
10	Parli Exp. Unit-1			2500	2500	2500			9.00	9.00	9.00

Trajectory of Operational Parameters (Secondary Fuel Consumption and Transit Loss)

Sl.	Generation Station	Secondary fuel consumption (ml/kWh)					Transit Losses (%)				
		FY06	FY 07	FY08	FY09	FY 10	FY06	FY 07	FY08	FY09	FY 10
		Actual	Projected				Actual	Projected			
1	Bhusawal	2.90	3.77	3.02	3.02	2.90	1.77	2.04	2.04	2.04	2.04
2	Chandrapur	1.04	1.15	1.19	1.20	1.20	1.00	0.98	0.98	0.98	0.98
3	Nasik	2.35	2.85	3.34	3.36	3.31	1.00	1.74	1.74	1.74	1.74
4	Koradi	2.67	3.42	3.42	3.41	3.35	0.80	1.00	1.00	1.00	1.00
5	Paras	1.54	2.93	2.90	2.83	2.83	2.11	2.34	2.34	2.34	2.34
6	Parli	3.65	2.50	2.49	2.49	2.49	3.91	2.50	2.50	2.50	2.50
7	Uran	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00
8	Khaperkheda	2.86	1.28	1.94	1.96	1.96	1.50	1.40	1.40	1.40	1.40

Sl.	Generation Station	Secondary fuel consumption (ml/kWh)					Transit Losses (%)				
		FY06	FY 07	FY08	FY09	FY 10	FY06	FY 07	FY08	FY09	FY 10
		Actual	Projected				Actual	Projected			
9	Paras Expansion Unit-1			2.00	2.00	2.00	-	2.34	2.34	2.34	2.34
10	Parli Expansion Unit-1			2.06	2.00	2.00	-	2.50	2.50	2.50	2.50

It is observed from above trajectory that MSPGCL has not proposed any improvement for most of the operational performance parameters during the First Control Period.

As per the Regulations, the trajectory of Performance Parameters is to be specified based on the past performance. The Commission intends to specify the trajectory of performance parameters considering the past performance, investments proposed, age of the stations and benchmarking of MSPGCL Stations performance with performance of similar vintage Generating Stations in other States.

B. MSEDCL

MSEDCL, in its MYT Petition, has proposed the trajectory for reduction of Distribution Loss and improvement of, Collection Efficiency -is given in following Table:

MSEDCL Trajectory for Distribution Loss and Collection Efficiency

Particulars	2006-07 (Est)	2007-08	2008-09	2009-10
Distribution Loss Trajectory	32.97%	30.97%	28.97%	26.97%
Collection Efficiency (%)	91% *	92%	93%	94%