BEFORE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION, MUMBAI

Objections/Comments/Suggestions on

ARR and Tariff Revision application by Tata Power Company for 2005-06 and 2006-07

By

Prayas Energy Group, Pune

10th June 2006

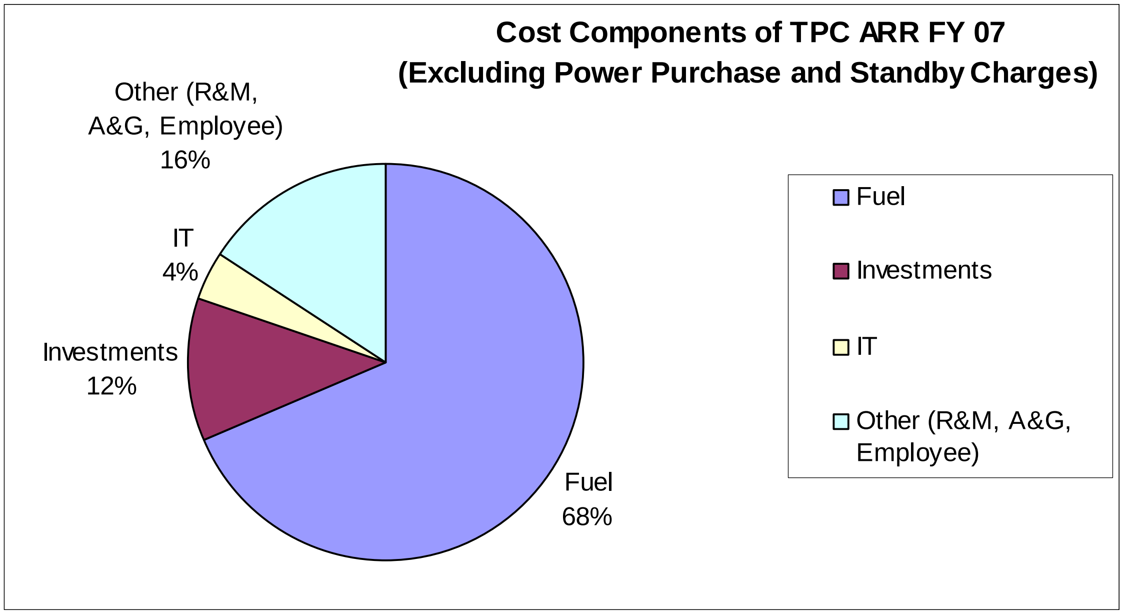
1. Background and Introduction

1.1. We consider ARR and tariff determination process for FY 2007 to be extremely critical for two reasons - (i) It puts MERC Tariff Regulations, 2005 on test for the very first time and (ii) this process would be a valuable input while going towards first Multi Year Tariff (MYT) framework in the state from FY 2007-08.

1.2. Tata Power Company (TPC) filed its Annual Revenue Requirement (ARR) and Tariff Revision application for 2006-07 on 16th May 2006. The Commission held two technical validation sessions on this issue on 5th April and 17th April 2006 for identifying critical data gaps in the ARR application. Prayas participated in both the sessions and requested additional data to facilitate further analysis of the ARR. In response to the public notice dated 22nd May 2006, we are submitting our comments on TPC's ARR application. Our comments mainly deal with the important techo-economic issues and some gaps and inconsistencies we observed in the ARR application.

2. Major cost components of TPC ARR 2006-07 and Effective Tariff Hike

2.1. Figure 1 shows the break up of TPC ARR (integrated of all functions) for 2006-07 into major components without the cost of external power purchase from Jindal and standby charges paid to MSEDCL, as their tariff is separately determined.



Investment related costs in the above figure include costs that depend on the capital investment done by the licensee. These include depreciation, interest on long-term debts and Return on Equity (RoE). Income tax, though shown separately, depends on the profits of the licensee and hence in turn is linked to investments.

It is clear from the figure that

(i) Fuel expenses alone constitute about 68% of TPC's ARR. Therefore, it is extremely important that we look into the fuel charges in detail and try as many possible avenues to reduce them.

(ii) Investment related expenses + Income Tax share about 16% of the ARR.

In short, fuel and investment related costs constitute to about 84% of TPC's ARR. Therefore, we request the Commission to carefully examine the Fuel and investment related costs of TPC.

2.2. TPC has projected a total ARR for FY 07 of Rs 3441 Cr for its generation function. Moreover, it also proposes to recover the uncovered FAC of Rs 288 Cr for FY 06 through tariff revision in FY 07. Considering this, the total ARR of TPC-G for FY 07 becomes 3729 Cr. In addition to this, ARR of transmission function of TPC (TPC-T) is 184 Cr for FY 07. Therefore, Mumbai licensees (REL, BEST and TPC-D) would have to compensate for the ARRs of TPC-G and TPC-T. Following table indicates the effective Bulk Supply Tariff (BST) for Mumbai licensees.

ARR of TPC-G Rs Cr	3441
Unrecovered FAC for FY 06 Rs Cr	288
Total ARR for TPC -G	3729
Sales to licensees (MU)	9269
Average Generation Tariff (Rs/kWh)	**4.02**
ARR of TPC-T Rs Cr	184
Average Transmission Charges (Rs/kWh)	0.17
Effective BST for licensees (Rs/kWh)	**4.19**

This requires the generation tariff for licensees to go as high as Rs 4.02/kWh. Adding approximate transmission charges of 17 paise/kWh corresponding to TPC-T ARR, the effective bulk supply tariff for power purchase from TPC becomes ***Rs 4.19/kWh***. This does not consider external power purchase cost (Jindal and MSEB), which would be imposed on top of this tariff. Considering such external power purchase at 5.01 Rs/kWh (1499 MU with total of 750 Cr), effective BST for licensees in FY 07 comes to ***Rs 4.89 /kWh***. As this translates to a tariff hike of more than **25%**, we have to be extremely careful while analyzing TPC's ARR, especially the fuel cost.

3. Fuel Charges

Total fuel costs projected by TPC for FY 07 are Rs 2362 Cr. Following table gives a quick glance over fuels used for generation by TPC, their total cost and share in net generation for FY 06-07.

Fuel Source	**Oil**	**Coal**	**Gas**	**Hydro**	**Total**
Net Generation Ex Bus (MU)	3073	3468	1398	1493	9432
Share in net generation (%)	33%	37%	15%	16%	100%
Fuel Cost (Rs Cr)	1712	540	109	-	2362
Share in fuel cost (%)	72%	23%	5%	-	100%
Average fuel Cost of Net Generation Ex Bus (Rs/kWh)	**5.6**	**1.6**	**0.8**	-	**3.0** (only thermal)

It is clear from the above table that total cost of oil in FY07 is as high as 1712 Cr, which is more than 70% of the total fuel cost. On the contrary, its contribution to the net generation of TPC is only 33%, making net ex bus cost of oil power as Rs 5.6 /kWh. Therefore, alternatives to oil based generation in Mumbai need to be considered on urgent basis and efforts need to be made to reduce dependence on oil based generation as soon as possible. Measures such as new coal based generation units / plants and / or power purchase need to be adopted.

3.1. Performance of TPC-G in FY 07

Considering extremely high cost of fuel and its overwhelming share in the total ARR, efficient operation of TPC's generating unit (especially oil) is of utmost importance to minimize fuel cost. While estimating the fuel charges, TPC-G has assumed certain performance parameters such as heat rate, auxiliary consumption etc and accordingly has worked out total fuel costs and energy availability. In annexure 4 of the ARR document, TPC has submitted monthly operational details (actual) of TPC-G units for FY 06. Surprisingly, TPC units show significant performance degradation during FY 07. Almost all plant parameters for FY 07 are significantly different than those actually achieved in FY06. For example, average heat rate for unit 6 in FY 06 was 2322 kCal/kWh, whereas its heat rate for FY 07 is 2450 kCal/kWh. This causes increase in fuel cost of about **73 Cr**. Moreover, auxiliary consumption of Unit 5 in FY06 was only 5.1%, which increases to 7% during FY 07 causing a further cost increase of 14 Cr. The following table indicates the actual performance levels of FY 06 for different units, their proposed performance in FY 07 and associated cost impact.

Unit of TPC- G	**Heat Rate (FY 06)**	**Heat Rate (FY 07)**	**Increase in Cost Rs Cr**
Unit 6	2322	2450	73
Unit 7	1971	2000	1
Unit 4	2564	2600	2
Increase in Cost due to higher heat rate Rs Cr			**76**

Unit 5 achieved marginally higher heat rate of 2458 kCal/kg on FY 06.

(There is divergence in performance figures for FY 06 as mentioned in annexure 4 and as mentioned in the main ARR document. We have used the figures given in annexure 4 as they indicate monthly performance figures.)

Actual auxiliary consumption of different units for FY06 and that projected for FY 07 are indicated in the following table.

Unit of TPC- G	Aux Cons % (FY 06)	Aux Cons % (FY 07)	Increase in Cost Rs Cr
Unit 5	5.1%	7.0%	14
Unit 6	3.3%	4.0%	10
Unit 7	2.3%	3.0%	1
Increase in Cost due to increased auxiliary consumption Rs Cr			**24**

Unit 4 achieved marginally higher auxiliary consumption of 8% in FY 06.

Total increase in fuel cost due to degraded generation performance in FY 07 Rs Cr	**100**

It is clear from the above tables that increased fuel cost of about **100 Cr** is only because of the degraded plant performance in FY07. Therefore, we request the Commission to assess the plant performance for FY07 in accordance with actuals for FY06 and reduce the ARR accordingly. In fact, TPC should be directed to explore avenues to further improve its plant performance (heat rate and auxiliary consumption).

3.2. It is mentioned in the fuel agreements with HPCL and BPCL that a discount of Rs 1160/MT on oil procurement would be given till the time final costs are mutually settled between the parties. Moreover, the agreement with BPCL also mentions an additional discount of Rs 600/MT for lower grade LSHS. MERC should ascertain whether such discounts are factored in while projecting oil costs for FY 07.

3.3. Coal cost

TPC has proposed total coal cost of about 540 Cr in FY07. It procures imported coal of calorific value 4802 kCal/kg at a delivered cost of 2840 Rs/MT. Break-up of the coal cost over years is provided in the following table.

Cost component	FY 05	FY 06	FY 07
Basic Cost Rs/MT	1303	1152	1162
Freight + Handling Charges Rs/MT	1133	1476	1476
Duty, Taxes and others Rs/MT	184	208	202

Total Coal Price Rs/MT	2621	2835	2840

It is clear from the table that freight and coal handling charges for FY07 are about Rs 1476 /MT, which is about 52% of total coal cost. TPC should explain why its freight and handling charges are so high and whether TPC has explored any measures to reduce them. Moreover, freight and handling charges for coal show a sharp increase of 30% in just one year (from FY 05 to FY 06). TPC should also explain reasons for such steep increase.

The table below compares the coal cost of TPC and cost of imported coal of REL[1] for FY06-07.

Parameter	**TPC**	**REL**
Basic Cost Rs/MT	1162	2533
Freight + Handling Charges Rs/MT	1476	175
Duty, Taxes and others Rs/MT	202	151
Total Coal Price Rs/MT	2840	2858
Calorific Value of coal kCal/kg	4802	5200
Rs/1000 kCal of coal delivered	**0.59**	**0.55**

(According to Coal purchase agreements for TPC, the cost of imported coal is FOBT. Cost of imported coal for REL may be CIF. However, this needs be confirmed, as we have not received REL's fuel purchase agreements)

It is clear from the above table that Rs/1000 kCal of coal delivered is much lower for REL than TPC (yearly impact of about **50 Cr** i.e. about **9 % of total coal cost**). Therefore, there is significant scope for improvement in the coal procurement process of TPC. We request the Commission to direct TPC to explore measures for efficient procurement of coal.

3.4. Limited coal availability at Unit 5

In table 6.23 (page 88) of the ARR document, TPC has worked out the possible generation from its units based on fuel constraints. It states that as against the coal requirement of 6061 MT/day for Unit 5, only 5800 MT/day coal is available. Due to limited availability of coal, TPC has to burn oil for generating from Unit 5, thereby significantly raising the cost of generation. TPC should explain why is there such shortage of coal at Unit 5 and what steps TPC has taken to overcome

[1] Source: ARR filings by REL for FY 06-07.

this shortage. MERC should carefully analyze this problem of limited coal availability, as this has a large tariff impact as high as 72 Cr/year.

4. **Capital Expenditure**

It is well known that under "Cost-plus" regime, utilities tend to over invest and maximize their profits, which are linked to capital investment. To maintain overall economy, minimize cost, and protect public interest, proper control on investment is key to regulate utilities under the cost-plus regulation. Hence, the Commission has to take very cautious approach while approving capital expenditure and passing on its costs to consumers - to be paid in future years. In this context we have following concerns about the capital investments proposed by TPC.

4.1. In line with the Guidelines for Capital Expenditure dated 9th February 2005, any capital investment scheme requiring expenditure above 10 Cr. should be approved only on the basis of detailed scrutiny of DPR and specific approval by the commission. We request the Commission to direct TPC to submit DPRs for all projects above Rs 10 Cr in the proposed 3 year rolling plan. Such an approach will enable the commission to have a long-term comprehensive view about the investments proposed by TPC.

4.2. For the CapEx already incurred by TPC, compliance to in-principle clearance issued by the Commission is essential. As stipulated in the in-principle clearance of CapEx schemes by MERC, before allowing tariff impact on account of CapEX schemes, it is essential to validate that said schemes have been completed within the scope and other parameters mentioned in the in-principle approval by MERC and that the said benefits are realized.

4.3. TPC has proposed to invest about 47 Cr (integrated for all functions) in "other minor works". These schemes mainly include replacement of valves, computers, office furniture etc. The amount of investment appears high for the stated objectives.

4.4. In the 3-year roll out plan (2008-10) for capital expenditure, TPC has listed a list of investments it intends to do over these 3 years. It mentions an investment of 1000 Cr for 250 MW coal based unit 9 at Trombay. As this unit is essentially a capacity expansion project, its cost should be significantly lower than that of a typical greenfield project, which hovers around 4 Cr/MW.

5. **True-up for FY 04-05**

Last tariff order for TPC passed by the Commission was for 2004-05. However TPC does not mention truing up for 2004-05 ARR in this tariff revision process.

Therefore, we request the Commission to evaluate the performance of TPC in 2004-05 and consider it for true up in this tariff process.

6. Prayers

In light of the analysis presented above, we request the Commission to:

6.1. To take serious actions for reducing fuel cost of TPC. The Commission should take a two-pronged approach – short term and medium term.

- (i) Short-term measures should include improvement in fuel procurement, efficient utilization of available discounts and improvement in plant efficiency etc. and
- (ii) Medium term measures should focus on shifting to non-oil based power procurement. This may be achieved through new non-oil based generation plants and /or economical power purchase.

6.2. To scrutinize the Capital Expenditure already incurred by TPC in detail and validate that said schemes have been completed within the scope and other parameters mentioned in the in-principle approval by MERC and that the said benefits are realized. Unless such validation is done, no cost relating to capital expenditure after FY 04-05 tariff order should be passed on to consumers.

6.3. To consider new capital investment projects proposed by TPC (especially new power projects) through a separate public process. The Commission should present the adequate background information and its preliminary analysis to the public.

6.4. Allow us to make a presentation during public hearing dated 12th June 2006, and to make additional comments/suggestions regarding TPC ARR FY06-07, if any.

6.5. In the interest of transparency, we urge MERC to provide detailed calculations and analysis carried out during this tariff revision process in the tariff order and to make soft copies of the same (spreadsheet version) available on its website (including formulae).

~ 0 ~