

Electricity Reforms in Maharashtra: An Analytical Overview

Prayas Energy Group

1. History of Power Sector in Maharashtra

1.1. A mix of ownership structures and retail competition since four decades

Maharashtra State Electricity Board (MSEB) was established in 1961. It soon acquired (after expiry of licenses) many small private power companies in the state. Since then, MSEB has monopoly over the generation, transmission, and distribution of electricity in the state except the Mumbai metropolitan region. Mumbai is served by three utilities, viz., Bombay Electricity Supply and Transport (BEST), Bombay Suburban Electricity Supply (BSES) Ltd., and Tata Electric Companies Ltd. (TEC). BEST is Mumbai Municipal Corporation's undertaking and has a license to distribute power to a part of the city of Mumbai. BSES is a public limited company in which Reliance group has a shareholding of around 30% while financial institutions such as LIC, UTI, and General Insurance Corporation hold around 37% equity. BSES distributes power to suburban area of Mumbai and also owns and operates a 500 MW coal thermal power plant. TEC is a TATA group company supplying power to BEST and BSES from its 1774 MW power plants. TEC also purchases power from MSEB to supplement its own generation for meeting Mumbai's demand. Apart from this, TEC's license also allows it to sell power directly to consumers in the areas licensed to BEST and BSES, provided the demand is above 1 MW. Before BSES's plant at Dahanu came online in 1995, TEC's capacity was being fully utilized. TEC has only recently started actively seeking consumers from service areas of BEST and BSES. "Mula Pravara Electric Co-operative Society" is the only co-operative electricity distribution utility in the state. "Mula Pravara" serves nearly 200 villages in Ahmadnagar district. Thus, it can be seen that Maharashtra has a mix of different patterns of utility ownership and retail competition in the Mumbai area since four decades. Table 1 lists some salient features of these five utilities to indicate the relative scale of operation.

Table 1: Salient Features of Power Utilities in Maharashtra

<i>Sr. No.</i>	<i>Parameter</i>	<i>MSEB</i>	<i>TEC</i>	<i>BSES</i>	<i>BEST</i>	<i>Mula-Pravara</i>
1.	Installed Generation Capacity (MW)	9,096 #	1,774	500	Nil	Nil
2.	No. of consumers	1.3 Cr.	300 lakh	20.6 lakh	8.4 lakh	1.3 lakh
3.	Sales (MU)	42,000	9,000	5,415	3,000	480
3.	Annual revenue (Cr.)	14,500	~ 2500	2,158	1,400	45
4.	Service area (sq. km.)	3,08,000	438	384	78	1,880

Notes:

1. Cr.=crores=10 million & lakh = 100,000
2. Numbers given above are approximate.
3. TEC sales includes sales to BSES and BEST

4. # Apart from this MSEB, also has a share of around 1800 MW from central sector generation such as NTPC and Nuclear Power Corporation. Additionally, Dabhol Power Company has commissioned Phase I of 728 MW and Phase II of 1444 MW.

1.2 Remarkable growth in physical infrastructure

Since its creation in 1961, MSEB has made remarkable progress in terms of expanding the physical infrastructure. In terms of installed capacity and revenue, it is the largest electricity board in the country. MSEB achieved 100% village electrification (~ 40,000 villages) in 1989¹ and serves nearly 22 lakh agricultural consumers. In domestic, commercial, and industrial categories of consumers, around 65% consumption is from urban areas. Commensurate with the national-level power policies and like many other states, this growth in physical infrastructure was facilitated by four major policy choices, which are briefly described below.

i.) Self-reliance and import substitution: In order to build national capability and to avoid dependence on imported equipment and fuel, emphasis was given on development of coal-thermal and hydro power stations.

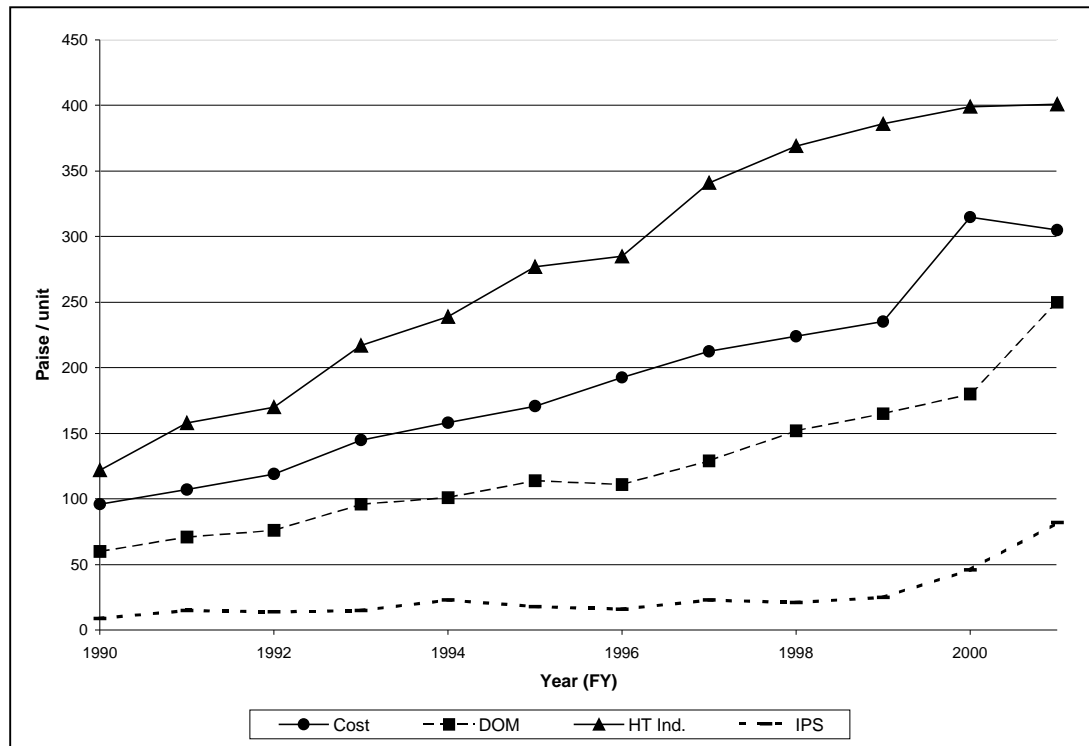
ii.) Budgetary Support: The power sector is a highly capital-intensive sector, requiring huge investment with very long repayment horizons of around 10-15 years. To address such needs of the power sector, both central and state governments allocated significant portions of the plan expenditure for development of the power sector. For example, in 1980-81 annual plan, nearly 34% of the plan outlay was earmarked for power sector. The governments provided this capital to the SEBs on concessional interest rate with long repayment period².

iii.) Centralized supply and grid expansion: Power sector relied almost exclusively on expansion of centralized grid system for village electrification and on large centralized generation schemes such as Chandrapur (2340 MW), Koradi (1110 MW), and Koyna (1920 MW).

iv.) Cross-subsidy: Realizing that many poor households and farmers cannot afford to pay full cost of electricity and remaining in line with the mainstream political thinking at that time, the government adopted a policy of cross-subsidy. This involved charging industrial and commercial consumers more than the cost of supply and charging domestic and agricultural consumers lower than the cost of supply. Figure 1 shows the tariff of three major categories as well as the average cost of supply, i.e., total revenue (amounts billed) divided by total sales.

¹ Similar to the other states, MSEB also declares a village "electrified" even if it manages to supply power to just one household or one street light in the village. Some of these villages are considered electrified even if there are few solar PV based streetlights. As a result, even though Maharashtra has achieved 100% village electrification, actual household electrification is just about one-third.

² Since 1991, budgetary support is also becoming as expensive as commercial loans with high interest rates.

Figure 1: MSEB's Cost of Supply and Tariff

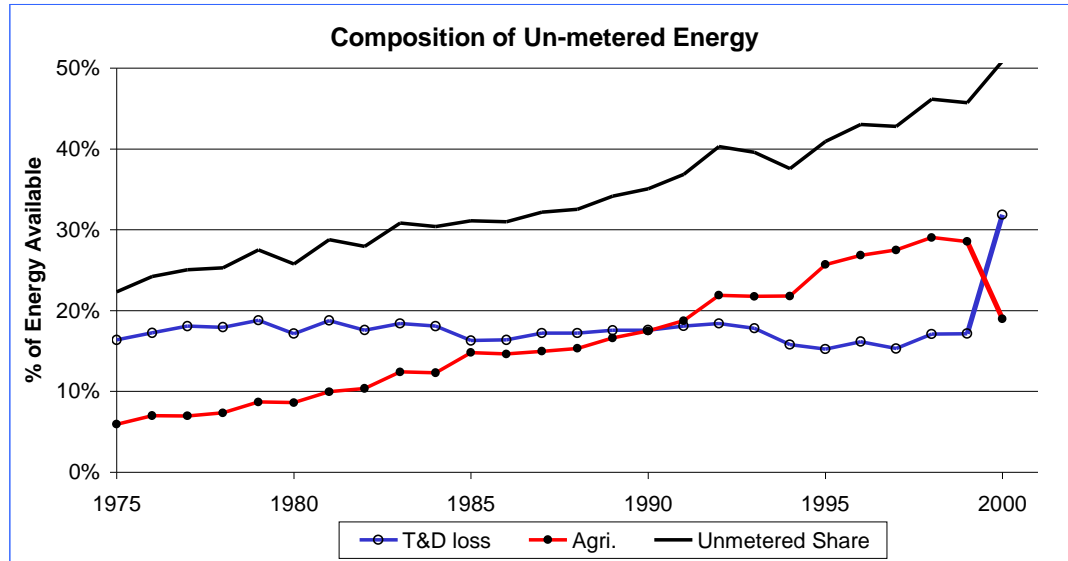
Note: Sudden increase in the average cost of supply in 2000 is on account of more realistic estimation of T & D losses (of 31% instead of ~18%), resulting in reduction in units sold as well as due to substantial increase in power purchase cost due to purchase of power from Dabhol Power Company (DPC). Reduction in cost in 2001 is due to Maharashtra Electricity Regulatory Commission's (MERC's) directive of reducing (and hence disallowing) T & D losses by 5%. Data upto 2000 is from MSEB's Financial Reports, while data for FY 2001 is based on MERC's order dated May 5, 2000.

1.3 Crisis of governance leading to performance and financial crisis

Though MSEB was successful in expanding physical infrastructure and access to electricity, this success was not free from blemishes. Like many other SEB's, MSEB also adopted a policy of flat rate tariff (based on connected load and not on actual consumption) to agricultural consumers in the late 1970s. In the initial period, the flat rate tariff was nearly equal to the average cost of supply, considering average hours of operation of the agricultural pumps. But, over the years, the flat rate tariff failed to keep up with both increasing cost of supply as well as increasing hours of operation of the agricultural pumps. This resulted in agricultural consumption being highly cross-subsidized as shown in figure 1. This necessitated substantially high industrial tariff. Another major drawback of this policy was that it allowed an easy route for MSEB to hide excessive T & D losses and caused increasing lack of accountability. Since agricultural consumption was unmetered, it had to be estimated, without adequate base data, in order to estimate the T & D losses. Over a period of time, like many other SEB's, MSEB also started overestimating the agricultural consumption to show "reasonable" figures for T & D losses. Figure 2 shows how, in spite of substantial

growth in T & D network and rural electrification, MSEB managed to show nearly same percentage of T & D losses, year after year, while showing rapid increase in agricultural consumption.

Figure 2: Increasing Un-metered Energy and Inflated Agricultural Consumption



This route of hiding excessive T & D losses helped many quarters. MSEB officials could, on one hand, absolve their responsibility of preventing theft and excessive T & D losses and, on the other hand, could brag about growing agricultural consumption as a symbol of its "social commitment", politicians could patronize constituencies by claiming highly subsidized agricultural tariff and growing agricultural consumption, agricultural consumers also benefited from this policy as they had become used to a pre-defined power tariff not linked to consumption. As a result of this "arrangement of convenience" for a array of influential actors, increase in theft of power and technical (T & D) losses was ignored and continued to be camouflaged under the agricultural consumption. As indicated by the last year's data in Figure 2, the real agricultural consumption was far lower than claimed³. Speaking in the gross terms, these excessive T & D losses and theft of power amounted to nearly Rs. 2500 Cr. This loss was partially funded by higher tariff to industrial and commercial consumers and partly by way of government subsidy to MSEB.

Though excessive T & D losses and theft of power form the most significant parts of overall inefficiency in MSEB, they are not the only ones. There are several other areas where MSEB's performance could be improved. For example, during the first tariff revision case before MERC, MSEB claimed that, though the availability of its thermal power plants was about 85%, it could not generate full power due to poor quality of coal and claimed that the loss of generation capacity on this account was about 670 MW. Similarly, nearly 500 MW (out of 920 MW) of MSEB's gas station at Uran could not be effectively utilized due to unavailability of gas. MSEB's performance in terms of billing and metering is equally dismal. During the tariff revision process, it

³ As explained in section on regulatory process the real level of T & D losses and agricultural consumption was exposed during the first tariff revision process for the year 1999-2000.

was revealed that even for consumers from domestic, commercial, and industrial categories (which have been metered), around 50% bills issued are not based on the actual consumption due to reasons such as faulty meters and average billing or minimum consumption bills. The other areas where MSEB's performance needs to be improved substantially are quality of electricity supplied and service to consumers. However, in the absence of adequate studies and proper data, these aspects cannot be elaborated. Table 2 shows MSEB's performance for the last decade.

Table 2: MSEB's Sales and Revenue

Year	< ----- Sales (MU) ----- >				< - Revenue (Rs. Cr.)- >			Rate of Return %
	Domestic	HT Industry	Agriculture	Total	Sale of Power	Government Subsidy	Total	
1990	2594	9050	5950	26973	2249	272	2587	
1991	2839	9706	6404	27958	2923	0	2995	2.6
1992	3148	9746	8177	30472	3336	199	3626	3.0
1993	3549	10083	7839	30962	4343	0	4484	5.2
1994	3772	10771	8703	34562	5244	0.01	5464	4.8
1995	3962	11671	11453	37763	6151	0.03	6444	4.7
1996	4424	12776	13332	41619	7115	630	8016	4.5
1997	4897	12856	13867	42698	8573	258	9074	4.5
1998	5341	12635	15382	43894	9242	305	9829	4.5
1999	5915	12622	15968	46327	10121	355	10891	4.5
2000	6454	12756	10293	41981	10625	2084	13215	4.5

Note: Rate of return is the return on net fixed assets in use.

2. Status of Independent Power Producers (IPPs) in Maharashtra

2.1 Reliance's Patalganga Project

In the mid 1990s, MSEB signed Power Purchase Agreements (PPAs) with three major independent (private) power producers (or IPPs). In 1990, MSEB had invited competitive bids for two power stations, viz., Khaperkheda Coal-Thermal (420 MW) and Nagothane Gas-Thermal (820 MW). After several changes in the locations and capacity of the plants and deliberations by committees, MSEB finally signed a PPA with Reliance Patalganga Power Ltd. in 1996 for a power station at Patalganga with capacity of 447 MW. Though the process of inviting bids was initiated before the Government of India (GoI) opened up the power generation sector for private investments, tariff of this project is on the lines of GoI tariff guidelines announced in 1991. The project will use natural gas (to be diverted from MSEB's share of natural gas from Bombay High) and naphtha as fuels. Subsequently, the PPA was amended in February 2000. This was done after the establishment of MERC, but without MERC's prior approval. The Government of Maharashtra (GoM) approved allocation of "escrow cover" for the project in early 2001. Prayas filed a petition before MERC, raising this issue and requesting MERC to declare this amendment in the agreement as null and void. Mr. Prakash Hogade of Janata Dal (Secular) had also filed a petition regarding this issue apart from the other issues such as load shedding. In response to

this petition, MERC directed that MSEB need to take a prior approval for any PPA or for amendments to the same and declared that the said agreement was of "doubtful legal validity". As a result of this order by MERC (dated 17th May 2001), Reliance Patalganga Power and MSEB will have to approach MERC and get its approval for the PPA amendments. As per the techno-economic clearance (dated 22nd January 1998) from Central Electricity Authority (CEA), the approved capital cost of the project is US \$ 320 million plus Rs. 246 Cr.. Apart from a small controversy regarding diverting of MSEB's share of gas for this project, there is no major controversy or litigation surrounding this project as yet, mainly due to relatively (compared to Enron project) small size of the project and very initial stage of development.

2.2 Bhadrawati Project

MSEB signed with M/S Central India Power Company (an IPP promoted by the Ispat group) a MoU in 1993 and a PPA in 1998. This is a coal-based project with a capacity of 1082 MW and located near Bhadrawati in Chandrapur district. This is one of the eight power projects that were granted the 'fast-track' status as well as the counter-guarantees' by the central government. Though the project secured CEA's techno-economic clearance in 1994 (with a capital cost of Rs. 5187 Cr.), it has not moved much beyond the planning stage. This project is marred by several controversies mainly relating to fuel supply and cost. The project will use coal mined from a nearby captive mine to be owned and operated by a sister company. There were several allegations and court cases on the issue of coal cost. Similarly, it was suggested that the proposed project would pose threat to national security as the proposed captive mine was close to one ordnance depot. Last year, Electricite de France (EDF) withdrew from the project due to delays and due to the unresolved issues relating to coal supply, cost, and the escrow cover. After the report of Energy Review Committee (Godbole Committee), considering the changed demand-supply situation as well as learning from the Enron episode, the GoM has decided to keep the project on hold. Also, due to several changes and delays in finalizing various contracts, it is expected that the PPA will have to be amended, which would require approval of MERC.

2.3 Enron's DPC project

The power project of Dabhol Power Company promoted by Enron Corporation is one of the most controversial IPP projects in the country. In response to GoI's decision to open power generation for foreign private companies and following a visit by a high-level GoI delegation to Houston, USA, Enron Corporation decided to set up a power project based on imported LNG of capacity of around 2000 MW. In 1993, it signed a PPA with MSEB. As per the PPA, the project was to come up in two phases, the first phase was of 695 MW and second phase was of 1255 MW. As envisaged in the PPA signed in 1993, the first phase would run on liquid fuel (either distillate or naphtha) and the second phase (to be run on imported LNG) was optional, i.e., was not binding on MSEB and a Go / No-Go decision could be taken in future without any liability. Since the beginning, the project has been shrouded in many controversies on aspects such as lack of competitive bidding, high capital cost and tariff, and larger than needed capacity. In 1995, the state government led by two part coalition of BJP and Shiv-Sena, which had opposed the project as one of the main election plank, came to power in the state assembly. Immediately after forming the government, it appointed a

committee under the chairmanship of then Deputy Chief Minister Mr. Gopinath Mundhe to review the project and, based on recommendations of the committee, cancelled the project that had purportedly attained financial closure in February 1995. In response to GoM's decision to repudiate the contract, Enron filed an arbitration claim in London following the provisions in the PPA. The state government also filed a suit in the Bombay High Court and alleged that the PPA was null and void on account of alleged corruption involved. But, subsequently the Sena-BJP government did a somersault and appointed an "expert committee" to renegotiate the project. The terms of reference of the committee required it to negotiate both the phases of the project. The committee worked with lightning speed and submitted its report within just 11 days, few days ahead of its term. Based on the report of the committee, the project was revived, making both phases as well as purchase of large quantity of LNG (take-or-pay contract equivalent to 90% PLF of the 2184 MW plant) binding on MSEB and state government. The revised PPA was signed in 1996, which was again amended in 1998. The project being one of the eight 'fast-track' projects enjoys counter-guarantee from the central government (for Phase I) as well as the guarantee from the state government and "escrow cover". The first phase of the project started production in May 1999 and opened eyes of the politicians and MSEB alike when bills started coming in. The cost of Dabhol power is around Rs. 5 / kWh, with intermittent peak tariff of as much as Rs. 7.80 / kWh in July 2000 due to the limited off-take by MSEB and high naphtha prices.

By this time, it had become clear that neither MSEB nor even the Maharashtra State could afford the Enron project. MSEB earns around Rs. 12,000 Cr. from its consumers. As against this, when Phase 2 of the project was scheduled to be commissioned in early 2002, annual payments to DPC from MSEB would shoot to over Rs. 6,500 Cr., making it simply impossible for MSEB to bear the burden. In this event, it was evident that even the GoM, which has guaranteed the payments to DPC, would also not be able to bear such a large burden, year after year, due to the more precarious financial situation of the state.

This stark financial reality, on one hand, and the aggressive stand taken by some constituents of the ruling coalition, viz., Democratic Front, the state government decided to appoint a review committee under the chairmanship of Dr. Madhav Godbole. The committee submitted its report in April 2000. The report is highly critical of the manner in which the project was negotiated and approved in 1993 as well as in 1995. The committee also concluded that the project was not desirable for the state of Maharashtra right from initial design in 1993. The committee concluded that the DPC project would be unsustainable even if MSEB were to function in an efficient manner. The committee recommended several structural changes in the project such as: separating LNG facility and harbor from the project, drastic reduction in the profitability of the promoters as well as in the interest rates of the loans extended by financial institutions supporting the project so as to reduce the tariff and make the project viable.

The report of the committee revealed that, apart from the losses due to fundamental factors such as the need for project and reasonability of capital cost, MSEB could have saved Rs. 930 Cr. per year only by negotiating in a better manner, the provisions related to sharing of harbor and regasification costs, O & M costs, and heat rate. The committee also pointed out several lacuna and shortcomings in the decision-making

process that led to the present state of affairs and observed that *"This failure of governance has been broad, across different governments at different points of time, at both the state and the central level and across different agencies associated with examining the project, and at both the administrative and political levels"*.

Two members of the committee, viz., Dr. Godbole and Dr. E.A.S. Sarma, also recommended institution of a judicial commission of inquiry to investigate the issue and to make those responsible for such "governance failure" accountable. Subsequently, the GOM has asked the same committee to conduct negotiations with the DPC on the lines of its own recommendations. Several rounds of negotiations between the committee and DPC took place but the issue could not be resolved. The committee has submitted its report on these negotiations to the state government, which is yet to be made public. As per press reports, the committee has concluded that the DPC tariff should not be more than Rs. 2.40 /unit. Considering that the tariff as per current PPA works out to around Rs. 3.6 / unit, effectively the committee has concluded that a reduction of around Rs. 2000 Cr./ yr. in payments to DPC is required and feasible. At the time of writing of this report, the Government of Maharashtra has announced that it will institute such a Commission of Inquiry.

Alongside these developments, the MSEB also adopted aggressive legal stand to wriggle out of this unsustainable liability. MSEB realized that the DPC plant was unable to supply full power within three hours of start-up as promised in the project report submitted to CEA as well as in the PPA. MSEB, as per the provisions of the PPA, charged DPC a penalty of nearly Rs. 400 Cr. for one such instance. As expected, DPC rejected this claim and chose to invoke the international arbitration process as per the provisions in the PPA. MSEB responded to this by filing a petition before the MERC claiming that MERC has the exclusive jurisdiction on resolving disputes between utilities following endorsement of the Electricity Regulatory Commission's Act 1998 in October 2000 by GoM, which delegated powers of dispute resolution to MERC. In the meanwhile, MSEB also rescinded PPA by citing the issue of misdeclaration of plant's capabilities and has stopped purchasing power from DPC. DPC has obviously not accepted this claim. On MSEB's petition, MERC gave an interim order and stopped DPC from proceeding further in the international arbitration case filed by DPC. DPC refused to accept MERC's jurisdiction on "dispute resolution" and filed an appeal in the Bombay High Court. The Bombay High Court ordered that the MERC should first hear the matter and decide on its jurisdiction. DPC appealed on this order of the high court in the Supreme Court. The Supreme Court then directed the Bombay High Court to decide on the issue of MERC's jurisdiction. During the hearing in the Supreme Court, apart from other legal issues, DPC also alleged that one member of the MERC, viz., Mr. Jayant Deo had been biased against DPC. In support of these allegations, DPC quoted extensively from Mr. Deo's writings on DPC project in 1995-96 in his capacity as the Research Director of a consumer organization, 'Mumbai Grahak Panchayat'. As things stand at the time of writing this report, the case is pending before the Bombay High Court on the issue of MERC's jurisdiction to arbitrate and resolve dispute between MSEB and DPC.

The Enron episode has highlighted the ruinous financial impact on MSEB because of the wrong contracts with IPPs. The Godbole committee also pointed out similar flaws in the design of other two IPPs in the state, viz., Reliance and Bhadrawati. As a result of these developments, MSEB has decided not to pursue these projects at this stage.

Also, both Reliance and Bhadrawati projects will have to approach MERC for seeking its approval for their PPAs before they can attain financial closure, which is a key pre-condition and a milestone for any IPP to start construction. It is expected that crucial issues such as need for power, the least-cost nature of these projects, and tariff of power from the same will be debated in a transparent manner during the proceedings before the MERC.

Apart from these major IPPs, GoM / MSEB had initiated the process of contracting with seven small IPPs (liquid fuel based) through competitive bidding in the mid 1990's. Though promoters were selected, due to several constraints relating to fuel supply and escrow agreements, the PPAs have not been signed and these projects are also shelved in the current situation.

3. The Regulatory Process

In 1995-96, the financial situation of MSEB worsened and the government was forced to provide a subsidy of Rs. 630 Cr. so as to enable MSEB to achieve the mandated rate of return of 4.5% of net fixed assets. Also the World Bank, which was providing a loan to MSEB under its "Second Maharashtra Power Project" threatened and later actually pulled out of the project and declined to disburse the remaining amount. This was done in response to failure of MSEB and GoM to adhere to certain loan covenants such as achievement of a minimum of 4.5% return on net fixed assets, reduction in receivables to the level of 2.5 months, and increasing agricultural tariff. These developments prompted the GoM to appoint an expert committee under the Chairmanship of Shri. V.G. Rajadhyaksha. Apart from several recommendations to improve the functioning of the MSEB, the committee also suggested an establishment of the state regulatory commission. Like many other recommendations of the committee, this recommendation was also not followed by the government.

In September 1998, MSEB effected substantial tariff hike mainly for industrial and commercial consumers. Some industrial associations filed a petition in the Mumbai High Court against this tariff increase. By the time this petition came up for hearing, the GoI had enacted the Electricity Regulatory Commissions Act 1998. This Act provided for establishment of state regulatory commissions and articulated procedures for selection of the regulatory commissioners as well as functions and authorities of the commissions. The decision of whether to establish the regulatory commission was left to the discretion of the respective state governments. During the hearing on the petition filed by the industry associations, the High Court directed the GoM to establish the Maharashtra Electricity Regulatory Commission, however, the MERC was constituted in August 1999. MERC is a three-member body consisting of two retired senior government officers (from the Indian Administrative Service or IAS) and one private sector consultant.

3.1 First Tariff Revision Process before the MERC

Soon after MERC was established, MSEB filed a tariff revision application before it in November 1999 (Case 1 of 1999) based on the revenue requirement for the financial year 1999-2000. In response to this, MERC issued a public notice inviting comments and made available copies of MSEB's tariff proposal (at the price of Rs. 200/-) in the offices of all Executive Engineers of MSEB across the state. The

proposal submitted by MSEB was sketchy and lacked adequate data and information. In response, Prayas filed a separate petition before the MERC (Case 2 of 99) demanding that MERC should direct MSEB to make available to public substantial quantity of more data and information on matters such as details of fuel cost, power purchase cost, and estimation of T & D loss and agricultural consumption. This petition also demonstrated that how, in the absence of this data, it was not possible for public or the MERC to justify and evaluate reasonableness of costs claimed by MSEB to the tune of Rs. 1900 Cr. This was much more than the tariff increase of Rs. 1219 Cr. demanded by MSEB. After hearing the petition, MERC directed MSEB to make all data requested by Prayas to be made public. MERC also directed MSEB to reply individually to each objection received on the proposal. MERC held public hearings at the headquarters of all the six revenue divisions in the state. During the hearing, in addition to those who had filed affidavits, other interested persons were also allowed to comment on the proposal after administering proper oath. After the public hearings were over, the Commission decided to hold "technical sessions" on MSEB's proposal. Citing MERC's conduct of business regulations, which stipulated that all proceedings before the commission would be public, Prayas requested the commission to allow consumer groups to participate in such sessions. The MERC accepted this suggestion and invited consumer groups to participate in these sessions. During the technical sessions, the proposal and additional data submitted by MSEB, was scrutinized in detail. In this process, several inconsistencies and shortcomings in the proposal were exposed and MSEB was forced to modify the proposal as well as affidavits several times. At the end of this process, it became clear that the revenue shortfall claimed by MSEB (based on existing tariff) was far less than reality and in order to bridge the revenue gap far higher tariff increase would be required. Apart from this, the original proposal had undergone substantial changes on many other accounts, such as T & D losses, agricultural consumption, and sales to industrial consumers. Table 3 summarizes these changes.

Also, by this time, the financial year 1999-2000 was nearly over, as technical sessions extended upto February 2000. Considering these aspects, the commission directed MSEB to submit revised proposal based on revenue requirement for the year 2000-01. The commission also directed the MSEB to take note of findings during the technical sessions, which had indicated far higher T & D losses. Using the analysis of data obtained from MSEB in Case 2 of 99 and its own previous work on agricultural consumption, during the technical sessions, Prayas was able to conclusively prove that T & D loss figure of about 18 % as claimed by MSEB in its original proposal was highly understated and that the real T & D losses would be in the range of 28 to 33%. On suggestion from Prayas, MERC also directed MSEB to send revised proposal to all those who had commented on the earlier proposal, i.e., to over 100 groups and individuals. The rationale was that this was the same case and the need for revised proposal had arisen mainly due to inconsistencies and shortcomings in the MSEB's original proposal. MSEB submitted its revised tariff proposal for the FY 2000-01 and admitted that T & D losses were 27%. In the new proposal, MSEB estimated that, at existing tariff, the revenue shortfall would be Rs. 2018 Cr. and proposed an equivalent tariff increase. Considering that the process had extended over a long time, the commission decided to hold public hearing only at Bombay. The commission finally came out with the tariff order on 5th May 2000.

Table 3: Changes in the MSEB's Tariff Proposal During Technical Sessions

<i>Item</i>	<i>October 99</i>	<i>10th Feb 2000</i>	<i>16th Feb 2000</i>	<i>28th Feb 2000</i>
Total revenue requirement	13,859	13,592	13,011	12,995
Revenue at present tariff	12,640	12,486	10,912	11,206
Revenue gap at present tariff	1,219	1,106	2,099	1,789
Revenue at proposed tariff	13,859	13,592	11,972	12,344
Revenue gap at proposed tariff	0	0	1,039	651
Connected load of Agri. pumps (LT Unmetered) HP	9,175,803	7,291,464	8,619,475	8,464,420
Connected load of Agri. pumps (HT Unmetered) HP	579,088	326,950	307,647	522,788
Number of power looms	373,718	631,108	631,108	631,108
Assumed hours of operation of flat rate looms	2,598	3,650	3,650	3,650
Net power generation by MSEB plants	~ 42000	43,297	40,793	42,073
Power purchase MU	19,469	19,470	18,470	17,610
HT industrial consumption	15,333	15,191	12,436	12,920

Notes:

HT industrial consumption = HTP I + HTP II + HTP BP + HTP X (mines)

This order concluded that the T&D losses of MSEB (including theft) were 31%. The order gave a tariff hike amounting to revenue increase of about Rs 600 Cr. against the demanded increase of Rs 2018 Cr.. It asked MSEB to generate additional revenue of Rs. 600 Cr. through reduction in T&D losses by 5%. It also asked MSEB to reduce expenses by Rs. 256 Cr. for power purchase, and Rs. 69 Cr. for power generation.

There were many positive features in the order. The order asked MSEB to strictly follow “merit order dispatch”⁴. It ordered that all the new connections would have to be metered and asked MSEB to evolve a master plan for metering in order to complete metering of all consumers within the next three years. MERC has plans to review performance of MSEB on the key operational parameters, like metering plan. This was a welcome step. The order also directed MSEB to introduce Time of the Day (TOD) tariff for industrial consumers giving incentive for load shift to off-peak period, it also included incentive for power factor improvement. The order gave a very stiff tariff hike to agricultural consumers (60% immediately, followed by another 200% for the large agricultural consumers, considering metered tariff and compulsory metering). The Commission also expressed its intent to remove cross-subsidy within five years.

After the tariff order by MERC, MSEB as well as some consumers (mainly agricultural) groups filed review petitions before the MERC. MSEB's main points for review petition were plea for not to disallow transit loss of coal (around Rs. 150 Cr.),

⁴ Merit order dispatch implies generating power from lowest variable cost plants first and to use plants with highest variable cost minimal (after all low variable cost generation is exhausted).

nearly halve the targets for T & D loss reduction, increase in thermal PLF and reduction in thermal heat rate. The main pleas from consumers were to reduce tariff, especially of large irrigation pumps owned by co-operative lift irrigation schemes. After similar process including public hearings, the commission virtually rejected all these review applications and maintained earlier decisions.

3.2 Other major cases before the MERC

Apart from the tariff revision case, MERC has addressed several other major issues / cases. Table 4 shows the nature of cases filed before the MERC and petitioners.

Table 4: Petitions before the MERC

<u>Party</u>	No. of Cases	<u>Name of the Party</u>	<u>Details</u>
Utility	8		
Tariff	4		MSEB 1998, 00-01 *, FOCA *, Mula Coop
Dispute	2		Tata-BSES, MSEB-DPC *
PPAs	2		MSEB-Cogen PPAs *
Govt	1		About Subsidy
Industry	12		
Own Tariff	7		Bulk discount, billing demand
NTPC direct Supply	4		Steel export industry
Supply conditions	1		With AGP
NGOs	6		
Transparency	2	Prayas	MSEB data, PPA documents
PPA invalidity	1	Prayas	Reliance PPA being void
Government role	1	MGP	Restraining government
Supply conditions	1	AGP	Challenging MSEB comm. Circulars
MSEB efficiency	1	Individual	Challenging MSEB plant dispatch
Political Party	1		
PPA invalidity	1	JD (s)	Reliance PPA being void

Note: Review petitions not included

Soon after the tariff order, the GoM announced concession in tariff for agricultural and power-loom consumers without assuring adequate compensation to MSEB for this loss of revenue. After consumer groups raised this issue in the Commission Advisory Committee, the GoM approached MERC with a request to allow reduction in tariff and filed an affidavit to provide MSEB around Rs. 800 Cr. to compensate the revenue loss. MERC agreed with this proposition and directed GoM to release the said amount before October 2001, i.e., before finalization of MSEB's accounts for FY 2000-01.

As mentioned in Section 2 above, the MERC ruled positively on the petition filed by Prayas as well as Shri. Hogade and declared PPA amendment between Reliance and MSEB of "doubtful legal validity".

Shri. Paranjape, former Director, Kalpakkam Atomic Power Station filed a case before the MERC alleging that the MSEB violated MERC's tariff order dated May 5, 2000 which directed MSEB to purchase power from Enron strictly on the principle of "merit order dispatch". Several hearings were held on this petition with the final hearing being held in April 2001. MERC has not issued its final order in this case as yet.

MERC has, after duly inviting public comments and conducting public hearing, approved MSEB's application for fuel and other costs adjustments (FOCA) formula. The other major cases pending before the MERC are dispute between TEC and BSES regarding stand-by charges, a tariff revision application by Mula-Pravara Co-operative Society, and MSEB's application for resolution of dispute between MSEB and DPC. Recently, MSEB approached MERC for approval of PPAs for several bagasse-based co-generation plants. MSEB and project promoters claimed that they be allowed a tariff of Rs. 2.25 / unit (1995 level) with annual escalation of 5% as per GoM policy. MERC opined that GoM cannot give a "policy directive" specifying tariff, as the ERC Act 1998 specifies that tariff determination is the exclusive domain of ERCs, and decided to look into cost components of these projects. These cases are still in initial stage of technical validation and preliminary hearing. MERC plans to hold public hearings before approval of the PPAs.

In October 2000, Prayas had filed a petition before the MERC with a view to enhance transparency in the sector. Prayas requested MERC to obtain copies of several documents (such as clearances and project construction, operation and maintenance and financing agreements of IPPs) and to make the same available to consumers and other public. As a result of this petition, MSEB has made several documents public with hitherto "confidential" information. This includes information / documents such as computer model of DPC's tariff calculation, evaluation report of the competitive bidding process through which Patalganga project was awarded to Reliance. But, due to DPC's claimed confidentiality, MSEB refused to make public the agreements related to project construction and project financing. Prayas filed second petition objecting to this non-compliance. The final hearing on this petition was held on 18th July 2001. MERC gave its order on 31st July 2001 and, notwithstanding MSEB's claims of confidentiality (arising out of its contractual obligation under the PPA), directed MSEB to make available all documents demanded by Prayas.

3.3 Salient observations about the regulatory process in Maharashtra

In many other states, the regulatory commissions were created, as part of the overall reform package, usually under active coaxing from the World Bank (WB) or Asian Development Bank (ADB). As against this, in Maharashtra, MERC was established in response to peoples' initiative and without any external pressure related to the overall reform. In less than two years of its existence, MERC, through its regulatory process, has been instrumental in substantially improving the transparency and public participation in the decision-making and regulation functions in the sector. This could be attributed to three major factors, viz., MERC's positive approach, absence of external pressures, and strong public intervention. For example, in the last two years, access for public to data and information has substantially increased and several documents and information are now easily accessible to public. This included data such as detailed monthly bills from DPC, PPAs and related clearances and contracts

of IPPs, MSEB's metering and billing performance, hourly demand, load shedding and plant-wise generation. In line with its 'Conduct of Business Regulations', MERC has ensured that all proceedings before it are "actually" public and all notices of MERC are sent to its registered consumer groups. This has allowed consumer groups and general public to witness all proceedings before the commission.

Apart from these process-related gains, in terms of substantive issues, the regulatory process has also proved useful. Maharashtra is perhaps the only state, where an attempt is being made to estimate real T & D losses, without pressures from the WB or ADB. The Reliance PPA amendment case and the directive to GoM for timely disbursement of subsidy to MSEB has also demonstrated that such regulatory process can help restrain both private and government sectors, provided there is strong public intervention.

Though these are the positive aspects of regulatory process in Maharashtra, within the present legal and institutional framework, several more things need to be done to ensure sustained effectiveness of the regulatory process for protecting and promoting the "public interest". In the Electricity Regulatory Commission's Act 1998, powers of state electricity regulatory commissions (SERCs) are split in two sub-sections, 22.1 and 22.2. Powers under section 22.1 are not discretionary and but governments have choice of delegating powers under section 22.2 to the SERCs. GoM has still not delegated full powers under section 22.2 to MERC. As a result, the MERC still has no authority to approve investments of utilities or licensing. Apart from this, another factor affecting efficacy of the MERC is the lack of adequate financial and human (technical and legal) resources. Till now, MERC has very few technical staff and no legal staff at all. Such lack of crucial resources is likely to hamper MERC's ability to take proper decisions in a time-bound manner and affect the in-depth scrutiny of various techno-economic as well as legal aspects. Though MERC's conduct of business regulations stipulate that all records of the commission are public, a proper public information system is yet to evolve. In order to operationalise various transparency and public participation related principles articulated in the law and regulations, it is essential to institute proper "information disclosure systems" which would facilitate easy access to regulatory information. For example, if the MERC institutes a system of monthly newsletter, listing all proceedings before the MERC in that month (along with a summary of each hearing and list of documents / records available to the commission), then it would be far easier for public to access commission's records and participate in the process. A weekly email newsgroup version of this newsletter can further shorten the time lag and improve benefits.

Compared to other states, the public awareness in Maharashtra about the regulatory process is much better. However, considering the complexity and scale of regulatory process, it is essential to have sustained efforts for enhancing public awareness and capabilities of the civil society groups to effectively participate in the process.

In terms of substantive issues, there are some major challenges before the regulatory process. MERC, in its first tariff order in May 2000, declared its intention to remove all cross-subsidy within five years. How agricultural economy can cope with this change is a big question as for the last two decades, large infrastructure as well as cropping and irrigation practices have been developed on the assumption of continued supply of cheap, unmetered electricity. In the absence of comprehensive approach

aimed at pumping efficiency improvements and at gradual changes in cropping and irrigation patterns and practices, it is likely that agricultural economy will suffer badly. As another outcome of attempts of rapid reduction in cross-subsidy, GoM might be forced to bear the subsidy burden, resulting in just transferring burden of cross-subsidy from electricity consumers to taxpayers. Large T & D losses and the Enron imbroglio are other major issues that need to be resolved without affecting public interest in the Maharashtra's power sector.

4. The Reform Process

As mentioned in Section 3, the GoM appointed a committee under the Chairmanship of Shri. V.G. Rajadhyaksha in 1995-96. Dr. Madhav Godbole, Pradip Shah (CRISIL), and Shri. M.G. Varade (Ex. Director, MSEB) were other members of the committee. One of the major recommendations of this committee was to privatize distribution. Based on this recommendation, the GoM initiated measures to privatize power distribution in some urban industrial areas adjacent to Mumbai. These actions and recommendations of the Rajadhyaksha Committee resulted in strong protests from trade unions of MSEB employees. The unions opposed any move towards privatization and demanded that MSEB should be allowed to function with adequate autonomy. They also demanded a "code of conduct" to avoid government interference in MSEB's functioning. But these protests failed to change GoM's thinking in any significant way. It announced decision to privatize distribution in the New Bombay area (predominantly urban, industrial area). The 'Infrastructure Leasing and Financial Services' (IL & FS) was appointed for the study of various aspects related to the formation of a joint venture company between MSEB, CIDCO (a nodal urban infrastructure authority for the region, owned by GoM) and a private company. The GoM also assured MSEB unions, in the process, that it would consult unions before any final decision. IL & FS submitted its report in March 1999 and it was circulated to MSEB unions for their comments. However, in the meanwhile, elections for the Legislative Assembly in Maharashtra were held in 1999 and a new coalition of Congress, Nationalist Congress and some other smaller parties came to power. Apparently, this change in government and opposition from the MSEB unions resulted in putting this proposal on the back-burner and not much progress was made in this regards.

The second impetus for reform came in the mid-2000. During this period, the Chief Minister (CM) and some of his cabinet colleagues went to US. During this visit, they also met the President and other officials of the World Bank. Immediately after returning from the US, the CM announced plans for power sector restructuring on the line of the Orissa Model, i.e., unbundling and privatization. GoM appointed 'Administrative Staff College of India' (ASCI) to prepare a draft of reform Act, known as Maharashtra Electricity Reform Bill 2000. This bill is very similar to reform Act of Andhra Pradesh and Orissa. GoM's decision to adopt the WB model of power sector reforms resulted in strong protests. Over a dozen unions of MSEB went on indefinite strike from July 25, 2000 with only one demand of canceling privatization. The strike received wide support from MSEB's workers and engineers alike and over 95% workforce joined the strike. Though in terms of workers unity the strike was successful, striking workers were at the receiving end of the public wrath due to the large-scale disruption in electricity supply and the resultant inconvenience to general public. Apart from MSEB unions, many organizations such as Prayas, and Akhil

Bharatiya Grahak Panchayat also opposed government's approach to power sector privatization. After four days of strike, a compromise was struck between unions and government. The compromise agreement is peculiar. It is a Marathi agreement, reading that the government would withdraw the proposed bill and new bill will be introduced after approval of unions, but in bracketed English it says "after consultation" with unions ! The events during the strike revealed how MSEB and its workers have little credibility in the public eye. One of the major shortcomings in the process was the failure of unions to create public awareness about dangers of privatization and to demonstrate their commitment to improve MSEB's performance and consumer service. The revised version of the Bill (not materially different from the first version) was tabled in the Assembly in November 2000. But due to growing internal realization that until crushing liability of Enron is taken care of, reforms cannot move ahead as well as due to the growing opposition to Enron project (which needed immediate remedial action), the government did not press for passing of the bill. Instead, the government announced its decision to appoint an expert committee to review Enron Project.

After much delay and skirmishes over the Chairmanship of the Committee, the Committee was finally appointed in February 2001 under the Chairmanship of Dr. Madhav Godbole. Other members of the committee were Dr. E.A.S. Sarma (former Home Secretary, GoI), Mr. Deepak Parekh (Chairman, Infrastructure Development and Finance Corporation), Dr. R.K. Pachauri (Director, Tata Energy Research Institute), Mr. V. M. Lal (Energy Secretary, GoM) and Dr. Kirit Parikh (Professor Emirates, Indira Gandhi Institute of Development Research). After a controversy over Dr. Kirit Parikh's involvement in the earlier committee to renegotiate Enron project, he chose not to participate in the functioning of the committee citing his prior commitments. Apart from reviewing Enron and other IPPs in Maharashtra, the Terms of Reference of the committee also required the committee to make recommendations for reforming power sector in Maharashtra. This Part II of the committee's report was submitted to the government on July 11, 2001 and was made public subsequently. The committee has recommended unbundling and privatization of generation and distribution. As per the report, separate companies should be created for thermal and hydro generation plants and nearly a dozen companies (equivalent to present zones of MSEB) should be created for distribution. The committee has outlined a time-line of five years for privatization of distribution and seven years for that of thermal generation. It has further recommended surcharge of one paise / unit for funding expenditure of the Regulatory Commission. Because, currently, the issue of DPC is attracting full attention of policy makers as well as general public, there has been little debate or action on the report of this committee as yet.

5. Conclusion

Due to several reasons, developments of power sector in Maharashtra till now are much different than many other reforming states. Ruinous financial impacts as well as strong public opinion against the Enron project have forced MSEB / GoM to look for ways of avoiding this crushing liability. Only legal and techno-economic innovations as well as strong political will would succeed in relieving people of Maharashtra and other states too (as there are efforts to sell Enron power to other states) from the unwarranted and high-cost Enron power. The Enron experience has also resulted in rethinking about other IPPs in the state. Though a couple of attempts were made by

the GoM in the last two to three years, the privatization and unbundling have remained on paper. This was due to several factors such as, the large and unbearable burden of Enron PPA, strong opposition by unions and some public groups, and relatively better financial situation of MSEB (in the pre-Enron period). The regulatory process in the state is also much different when compared to other states. Due to strong public intervention and sectoral exigencies, the MERC had to handle several important cases such as amendments to PPA, subsidy by government, tariff revision and merit order dispatch. The regulatory process in the state has resulted in substantial improvement in the transparency and public participation but, at the same time, several further actions (e.g., operationalising transparency and civil society capability building) are needed to ensure that the process becomes sustainable and effective in protecting and promoting “public interest” in the long term. One of the major fallout of the Enron controversy has been lack of concerted efforts to improve the performance of MSEB. Fortunately, after appointment of the current Chairman of MSEB, since November 2000, several steps have been initiated to improve MSEB’s performance (such as design and implementation of proper energy audit, management information systems, and strong drive for recovery of arrears and theft reduction). These measures have started yielding some results in terms of reduction in arrears and better estimation of theft and identification of high theft areas. Of course, the success of these efforts depend on co-operation of MSEB’s workers and engineers and strong public pressure to ensure that the top management of MSEB is given free hand to deal sternly with erring staff and consumers alike and is made accountable for performance of MSEB.

Documents and Web-sites Referred

MSEB's annual Administrative and Financial Reports

Report of the Energy Review Committee (Godbole Committee) - 2001

Report of the Rajadhyaksha Committee - 1996

MERC's tariff order dated May 5, 2000

MSEB's tariff proposal before MERC in November 1999 and March 2000

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