CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION

RAIPUR

Petition No. 19 of 2007(T)

Present:

S.K.Misra, Chairman

Sarat Chandra, Member

In the matter of

Determination of Annual Revenue Requirement (ARR) and retail supply tariff for the year 2007-08 for the Chhattisgarh State Electricity Board

ORDER

(Passed on 22.10.2007)

This order deals with the application filed by the Chhattisgarh State Electricity Board (CSEB or the Board, for short) under sections 45, 62 read with Sec. 86(1) of the Electricity Act, 2003 (the Act) for determination of retail electricity supply tariff for the financial year 2007-08, based on its aggregate revenue requirement during the year and the revenue gap anticipated. This order is passed by the Commission having considered all the information and documents filed with the said application and filed subsequently by CSEB in course of consideration of the application, as also all information available to the Commission, and after having heard the applicant, the consumers and the representatives of consumers and other stakeholders in the public hearings held by the Commission.

2. In the determination of the revenue requirement of the Board and the retail tariff, the Commission has been guided by the principles enunciated in section 61 of the Act which mandates that the tariff should 'progressively reflect cost of supply of electricity', 'reduce cross subsidy', 'safeguard consumers' interest', and 'recover the cost of electricity in a reasonable manner'. As mandated under the same provision, the Commission has also been guided, in passing this order, by the National Electricity Policy and the National Tariff Policy (NTP).

3. In the examination and assessment of the revenue requirement for the year 2007-08 projected by CSEB, the Commission has been guided by the principles laid down in the NTP and by the Central Electricity Regulatory Commission (CERC), particularly in respect of generation and transmission functions. We have taken into consideration the views expressed by the various stakeholders on ARR in the public hearings. The Commission has taken care to ensure that the revenue requirement is based, as far as possible, on reasonable and prudent expenditure required to enhance the generation capacity of CSEB, which is urgently required, and enhance the quality of service and operational efficiency of the Board. The Board projected in the tariff application a total revenue requirement of Rs.3363.14 crore for the year and a revenue gap of Rs.258.89 crore, on the basis of the prevailing tariff, out of which only Rs.64.43 crore was proposed to be met from increase in the tariff of HT consumers and balance Rs.194.45 crore was proposed to be kept as regulatory asset which can be added gradually in ARR of future years, as an increase in tariff to the extent of deficit would result in a tariff shock. On detailed scrutiny, with the help of a reputed consultant, however, the Commission has assessed the revenue requirement for the year at Rs.2941 crore only and a **revenue surplus** of Rs.214 crore (Rs. 105 crore revenue surplus and Rs. 109 crore arrived at by truing up RoE for the year 2006-07).

Consequently, the average cost of supply has come down to Rs.2.98 per KWh from the last year's cost of supply of Rs.3.20 per kWh. This has been largely due to higher generation and lesser purchase of high cost power and only very marginally due to efficiency gains in distribution/transmission functions.

4. Although this is the third tariff order, the Commission has not undertaken truing-up exercise of the ARR approved for the year 2005-06 and 2006-07 mainly because the accounts of the Board have not been settled so far. In the tariff application the Board has pleaded that in the absence of statutory audit of the accounts, a true-up exercise would not be a true up in the real sense of the term. Apart from audit, the Commission has also observed, as brought out in the various sections of this order, that the accounts of the Board do not appear to have been firmed up yet, in that different expenditure figures have sometimes been quoted under the same head. It is unfortunate that after seven years of its existence a public utility of this size should not have taken care to keep its accounts in order. Although the Board alone may not be faulted for the delay in the statutory audit, considering that only 2001-02 audit report is presently available, it will take years before a true-up exercise of the last two tariff orders is possible if we wait for audit to be completed. That would not be desirable either in the interest of the consumers or the interest of the utility. We have separately commented in detail about truing-up exercise in Chapter 4 of this order. The Commission would, therefore, like to undertake a true-up exercise of 2005-06 and 2006-07 next year on the basis of provisional accounts approved by the Board. The Board in its tariff application has shown an excess of Rs. 68.6 crore and Rs. 15.8 crore of revenue respectively over ARR of 2005-06 and 2006-07, though on provisional basis. We have, however, taken up a true-up exercise of RoE for the year 2006-07 in arriving at the ARR of the

current year and have adjusted in the ARR for this year as amount of Rs. 109 crore as excess RoE recovered by the Board.

5. Over the last three years the Commission has made consistent effort not only to bring the ARR to realistic levels but also to rationalize the tariff for various categories of consumers. The objective of such a process of rationalization has been to gradually bring the retail tariff closer to the cost of supply and reduce cross-subsidy. We have not laid down a trajectory for reduction of cross-subsidy to ensure that the tariffs are not more than ± 20% of cost of supply, as mandated by the NTP, for two reasons. First, the consumer category-wise and a voltage-wise cost of supply is presently unavailable and secondly, the revenue from individual consumer categories as per the prevailing tariff is also not available with the degree of accuracy required. We have separately commented on the inaccuracies of the R-15 statement, which is the basis of such computation of revenue.

6. The NTP mandates introduction of an incentive-based regulation regime through a multi-year tariff framework 'to be adopted for any tariffs to be determined from April, 2006' [para 5.3(h)]. However, in spite of our best efforts CSEB is not yet prepared for introduction of the MYT regime in the State. The necessary studies have not been undertaken to yield the base-line data of various parameters, especially voltage-wise losses, and category-wise, voltage-wise cost of supply. Although progress has been made in meterization of transformers, a large number of distribution transformers are yet to be metered. Even in the 11KV feeders (259) where meterization is complete down to consumers, the Board has not instituted an effective mechanism for energy audit to monitor unmetered consumption and losses. The Board has not so far prepared the long-term and medium-term business plan and the capital investment plan. In the absence of such basic data it may not be

appropriate to introduce the MYT regime. The Board has already mounted a comprehensive study to ascertain voltage-wise cost of supply and losses. It will take more than a year for the results of the study to be available. The Commission would, however, insist on certain sample studies and like to introduce MYT, but not before the year 2009-10. The Board is being directed separately in this order for submission of the long-term and medium-term business plan, the truing-up application for the last two years and preparation of necessary data required for filing MYT application.

7. The Commission directs the CSEB to take immediate steps to implement the order after giving a public notice of seven days in accordance with Regulation 31 of the CSERC (Details to be furnished by Licensee or Generating Company for Determination of Tariff and Manner of Making Application) Regulations, 2004. The revised tariff will be applicable with effect from 1st November, 2007. Although this tariff will be applicable for a period of only five months of the year, in the subsequent truing-up exercise, which will be taken up later, excess revenue, if any, earned by the Board during the year, shall be passed on to the consumers.

8. This order shall remain in force till March 31, 2008 or till the next tariff order of this Commission, whichever is later.

Sarat Chandra
Member

S.K.Misra
Chairman

Table of Contents

Page No.

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND

Chhattisgarh State Electricity Board (CSEB/Board) is a statutory body constituted under Section 5 of the since repealed Electricity (Supply) Act, 1948 and continues at present as the State Transmission utility and licensee under the transitional provisions contained in Section 172 of the Electricity Act, 2003. It is a vertically integrated power utility responsible for generation, transmission, distribution and supply of electricity in the State of Chhattisgarh. This is the third tariff petition filed by CSEB, indicating the Aggregate Revenue Requirement (ARR) and tariff proposal for FY 2007-08, including segregated costs for its generation, transmission and distribution functions. Under the provisions of the Electricity Act, 2003 (EA 2003), the mandate of determination of tariffs is vested in the Chhattisgarh State Electricity Regulatory Commission (the Commission).

1.2 NATIONAL TARIFF POLICY (NTP) AND COMMISSION'S REGULATIONS

The National Tariff Policy (NTP) has been notified by the Government of India in January 2006. The NTP provides the framework to balance the conflicting objectives of attracting investments to ensure availability of quality power and protecting the interest of consumers by ensuring that the electricity tariffs are affordable even for the weaker sections of society. The NTP seeks to promote transparency and consistency in regulatory measures, efficiency in operations leading to improved quality, and competition in the sector. The NTP defines some key approaches to achieve these objectives as listed below:

- Power procurement through tariff-based competitive bidding process.
- Increasing the number of market participants to promote competition.
- Performance based costs and tariffs in generation, transmission and distribution functions along with the norms for cost of capital and operational parameters.
- Multi year tariff regime.
- Promoting benefits from Clean Development Mechanism.

The Commission has notified the following Regulations, which have impact on tariff setting principles and norms:

- CSERC (Fees and Charges) Regulations, 2004
- CSERC (Conduct of Business) Regulations, 2004
- CSERC (Details to be furnished by licensee etc.) Regulations, 2004.
- CSERC (Redressal of grievances of consumers and establishment of forum and electricity ombudsman) Regulations, 2004.

- Chhattisgarh State Electricity Supply Code, 2005
- CSERC (Intra-State Open Access in Chhattisgarh) Regulations, 2005
- CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006
- CSERC (Standards of Performance in distribution of Electricity) Regulations, 2006
- Guidelines for Power Purchase and Power Procurement Process, 2006
- Chhattisgarh State Electricity Grid Code, 2007

In the previous tariff order for the year 2006-07, the Commission had indicated that it would move to a multi year tariff regime in FY 2008-09, considering the unavailability and inadequacy of baseline data of operations and the necessary business plans of CSEB. Hence, for FY 2007-08, the Commission is continuing with the practice of determining the ARR and tariffs on an annual basis.

1.3 BRIEF NOTE OF TARIFF FILING

CSEB was required to submit the petition for approval of Aggregate Revenue Requirement (ARR) and determination of retail tariff for FY 2007-08, to the Commission by November 30, 2006, as required under Regulation 30 of the CSERC (Conduct of Business) Regulations, 2004 and Regulation 6 of the CSERC (Details to be furnished by the licensee, etc.) Regulations, 2004.

CSEB, in its ARR and tariff petition for FY 2006-07 had requested the Commission to permit Multi Year Tariff (MYT) filing in November, 2007 so that MYT is implemented w.e.f. 01.04.2008. The Commission in its previous tariff order dated September 13, 2006 emphasised that the MYT regime would be introduced from FY 2008-09 onwards, in view of the unavailability of necessary base line data in CSEB. The Commission, in the mean time advised CSEB to get ready with the business plan, voltage-wise cost of supply study, trajectory of reduction of losses and also learn from the experience of Utilities in neighbouring States, who had already adopted MYT.

CSEB was advised to submit the ARR and tariff petition for FY 2007-08 by the end of November 2006. CSEB, vide its letter dated December 5, 2006, pleaded that with the implementation of revised tariff w.e.f. October 1, 2006, the actual impact of tariff would not be available and CSEB would not be able to work out the projections for the forthcoming year. In view of this, CSEB requested that it be allowed to file the next tariff petition in November/December 2007.

The Commission advised the Board to examine the feasibility of filing MYT petition by March 2007, in response to which CSEB requested the Commission

vide letter dated February 6, 2007, to permit filing of single year tariff petition by June 2007. The Commission, vide its letter dated February 12, 2007, directed the CSEB to file the ARR and tariff petition for FY 2007-08 by the end of May 2007, and also advised the CSEB to supply firm information in respect of various expenses and revenue receipts for FY 2005-06 and FY 2006-07, so as to enable the Commission to true up the ARR for these years. CSEB was also advised by the Commission on May 10, 2007 to submit the Variable Cost Adjustment (VCA) claim application along with the ARR and tariff petition. CSEB informed the Commission vide letter dated May 26, 2007 that the information for FY 2007-08 was not available from the field offices and a minimum 20 days were required to prepare the petition once the data had been received from the field offices. CSEB requested the Commission to permit filing of ARR and tariff petition and VCA claim application by June 30, 2007. CSEB, vide letter dated June 26, 2007, informed the Commission that there was a further delay in receiving the sales data and therefore, it would not be possible to obtain the approval of the Board by June 30, 2007.

The Commission issued a notice to the Secretary of CSEB to appear before the Commission on July 6, 2007, to explain the reasons for further extension of time sought by CSEB for filing the tariff petition, along with the details of actions taken so far and the preparedness for filing of tariff petition. Shri. V K Jain, Secretary, CSEB, submitted that CSEB would be in position to submit the tariff petition by the third week of July. The Commission passed an order on July 6, 2007, ruling that the deadline for submission of the tariff petition would not be extended beyond July 31, 2007, under any circumstances, and CSEB would be liable to pay Rs. 50,000 by way of penalty under Section 142 of EA 2003, and in addition Rs. 5,000 for every day after July 31, 2007 till the tariff petition was submitted, for contravention of the Commission's Regulations and directions. CSEB filed the ARR and tariff petition for FY 2007-08 on July 31, 2007, which was registered as petition No. 19 of 2007 (T).

On a cursory examination of the petition, certain anomalies were noticed and conveyed by the Commission to CSEB vide letter dated August 4, 2007. The Commission directed CSEB to publish the abridged version of the petition in Hindi and English newspapers for inviting comments/objections/suggestions from the public. CSEB submitted the corrected copy of the ARR and tariff petition on August 17, 2007.

CSEB published a notice comprising details of ARR, revenue gap with existing tariff, proposed category-wise tariffs, and salient features of the ARR and tariff petition in the following newspapers on August 25, 2007:

- Dainik Bhaskar
- Nav Bharat
- Desh Bandhu
- Hari Bhumi, Bilaspur
- Hitavada

CSEB also sent the copy of the abridged Hindi version of the tariff petition to all the Members of the State Advisory Committee of the Commission on August 20, 2007 for their comments. A copy of the tariff petition (in English) was also sent to the Energy Department of the State Government. The Commission fixed September 17, 2007 as the last date for submission of written objections and suggestions. The Commission also directed CSEB to send written replies to the respective objectors with endorsement to the Commission. The objections raised by the public have been dealt separately in Chapter-3 of this order.

The Commission also published notice in the above mentioned news papers on September 8, 2007 inviting objections/ suggestions/ comments upto September 24, 2007 on the proposal of introducing compulsory Time of Day tariff for all the HT Industries in accordance with the NTP.

Technical validation sessions were held from August 22, 2007 to August 24, 2007, as well as on September 13, 2007 and September 14, 2007, which were attended by the staff of the Commission, officers of CSEB, and consultants of both CSEB and the Commission. During the discussions, CSEB was advised to furnish additional data, which were considered material for examination of the ARR and tariff, such as:

i. Copies of coal bills for own generation, details of projected firm and infirm generation from new thermal generation projects at Korba, reasons for projected increase in heat rate and reduction in PLF, details of planned outages, projected capital expenditure for Renovation and Modernisation projects, etc.
ii. Copies of Power Purchase Agreements, actual quantum of power purchase till date in FY 2007-08 and the cost, and reconciliation of power purchase from captive surplus, UI, traders, etc.
iii. Reconciliation of sales numbers for previous years as considered in the petition, with the sales and revenue data reported under R-15, and assumptions used to derive the category-wise data asked for by the Commission, since the R-15 does not provide the requisite details
iv. Details of break-up and basis for projecting A&G expenditure for FY 2007-08.

v. Details of actual number of employees as on December 1, 2005 and added after December 1, 2005, HRA expenditure, PF contribution and the rationale for changing the basis of allocation of employee expenditure to generation, transmission and distribution business vis-à-vis the basis considered in the FY 2006-07 tariff order.

vi. Scheme-wise details of capital expenditure with details of financing plan for the same

vii. Details of loans from various sources, interest capitalised and the interest computation on various loans.

viii. Details of non-tariff income (NTI) earned in FY 2006-07, with break-up of NTI earned during the period from April 2006 to September 2006, and during the period from October 2006 to March 2007, and income from miscellaneous charges along with the reason for projecting lower NTI in FY 2007-08.

ix. Detailed computation of depreciation expenditure in FY 2007-08.

x. Basis for allocation of Repair & Maintenance expenditure between generation, transmission and distribution functions along with reasons for projecting steep increase in generation R&M expenses.

xi. Details of period of amortisation of the Regulatory Asset proposed.

xii. Details of step taken by CSEB to reduce the T&D losses along with a detailed computation of transmission losses.

xiii. Category-wise load factor and billing demand ratio, and the cross subsidy reduction achieved through the revised tariff proposed by CSEB in its ARR and tariff petition.

1.4 STATE ADVISORY COMMITTEE MEETING

A special meeting of the State Advisory Committee, constituted under section 87 of the Act, was convened on September 18, 2007 to discuss the advice of the Committee on the tariff application. The Board gave a presentation in the meeting illustrating salient features of the tariff application. Various aspects of the tariff application were discussed by the Members of the Committee in the meeting and following valuable suggestions were given for the consideration of the Commission: -

i. The CSEB spent lesser amount for power purchase than the sanctioned one. Since, VCA provision is also there, there should not be big difference between the sanctioned and spent amount.

ii. The Board has suggested incentive to the farmers using energy efficient pumps and PVC piping system. The Board should make affective arrangements to ensure that the consumer does not use the scheme for

undue benefits. At first instance, the scheme does not seem to be practicable.

iii. With the implementation of compulsory TOD tariff proposed by the Commission, the industries shall be required to pay additional bill for the same type of working, therefore, the tariff can be increased for those categories of industries which have good paying capacity.

iv. Since the Board does not have accurate account of the fixed expenditure, the minimum demand charges proposed to be levied for 85% of the contract demand may not be implemented.

v. The fund to the tune of Rs. 1920 crores in the pension and gratuity trust may not be necessary for payment of pension and gratuity to the employees.

vi. The break-up of technical and commercial losses may be given by the Board. The extent of losses proposed to be reduced is inadequate.

vii. Concerted efforts are required to reduce the rate of failure of distribution transformers. The Board may take action to seal the meters provided on the distribution transformers so as to correctly account for the units sold through each metered distribution transformer.

viii. Serious efforts may be made by the Board to install remaining weighto meters, so as to assess the correct consumption of coal.

ix. Efforts be made to issue the bills on the basis of monthly meter reading.

1.5 PUBLIC HEARING

The Commission received objections and suggestions from a total of 26 stakeholders on a variety of issues, which are detailed in Chapter-3 of this Order.

Notices for public hearings were published in the following leading newspapers of the State on September 15, 2007. Besides, wide publicity was also given through local newspapers at Raipur, Bilaspur and Jagdalpur on September 23, 2007, September 25, 2007 and September 27, 2007 respectively.

- Nav Bharat (Hindi)
- Dainik Bhaskar (Hindi)
- Hari Bhumi, Bilaspur (Hindi)
- The Hitvada (English)
- Desh Bandhu (Hindi)
- Nai Dunia (Hindi)

The Commission held public hearings with a view to give adequate opportunity of personal hearing to the objectors in which hearing was held not only on the

representations / comments received but an opportunity was also given for open hearing to all the participants, irrespective of whether they had submitted written objections / comments on the tariff application or not at the following places in the State:

Public Hearing

Sl.	Place	Date of pubic hearing
1	Raipur	24.09.2007 & 25.09.2007
2	Bilaspur	26.09.2007
3	Jagdalpur	28.09.2007

CHAPTER 2 OPERATIONAL AND FINANCIAL PERFORMANCE OF CSEB

2.1 GENERAL

Analysis of the operational and financial performance of CSEB in the previous years is necessary to provide the perspective in which the ARR and tariff petition for FY 2007-08 filed by CSEB are to be examined. The purpose of the analysis is to assess the existing operational efficiency of CSEB, to identify specific areas in which improvement is required.

2.2 ABOUT CSEB

CSEB is an integrated power utility as already mentioned in the last section responsible for generation, transmission, distribution and supply of electricity in the State of Chhattisgarh. CSEB was created on November 15, 2000, when the new State of Chhattisgarh was carved out of the erstwhile unified State of Madhya Pradesh. CSEB is the State Transmission Utility and a deemed licensee in the State for electricity distribution under the transitional provision contained in Section 172 of the Act.

2.3 GENERATION

CSEB has a total installed capacity of 1423.85 MW, comprising 1280 MW thermal, 6 MW of co-generation and 137.85 MW hydro generations. The Board is adding 500 MW of thermal generation capacity by commissioning two new units of 250 MW each at Korba East in FY 2007-08. Thus, the installed capacity of CSEB is expected to be 1923.85 MW at the end of FY 2007-08, comprising 1780 MW thermal, 6 MW of co-generation and 137.85 MW hydro generations.

2.3.1 Installed Capacity

Installation of two new 250 MW units of Korba East will result in the Board having four coal based, four hydel and one co-generation plant. The details of the plants and their installed capacity are provided in the table below:

Table 2.1

Installed Capacity (MW)

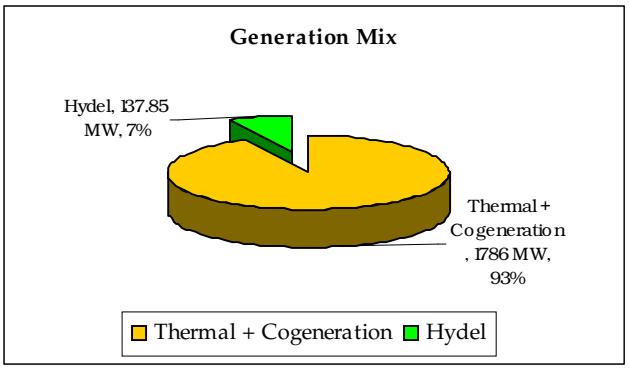
	Name of Plant	FY 2005-06 (Total)	FY 2006-07 (Total)
Thermal	Korba East TPS PH 2, 4 units (50MW each)	200.00	200.00
	Korba East TPS PH 3, 2 units (120 MW each)	240.00	240.00
	Korba West TPS, 4 units of (210 MW each)	840.00	840.00
	Total (Thermal)	**1280.00**	**1280.00**
Hydro & Others	Hasdeo Bango HEP, 3 units (40 MW each)	120.00	120.00
	Gangrel HEP, 4 units (2.5 MW each)	---	10.00
	Mini Micro H.P.S Korba, 1 unit (0.85 MW)	0.85	0.85
	Sikasar HEP, 2 units of (3.5 MW each)	---	7.00
	Kawardha Cogen Plant, 1 unit (6 MW)	---	6.00
	Total (Hydro & Others)	**120.85**	**143.85**
Total Installed Capacity		**1400.85**	**1423.85**

2.3.2 Capacity Addition

During the 10th Five Year Plan, CSEB has added generation capacity only marginally, as follows:

i. Mini Hydel power station, Korba - 0.85 MW
ii. Gangrel HEP - 10 MW (4X2.5 MW)
iii. Kawardha Co-generation plant - 6MW
iv. Sikasar Hydel project - 7 MW (2X3.5 MW)

The work on Korba East Extension (thermal) 500 MW (2X250MW) is expected to be completed during FY 2007-08, taking the installed capacity of CSEB to 1923.85 MW at the end of this year.



After installation of two new units of Korba East, the thermal-hydel ratio of CSEB will be 93:7. This is far away from the ideal ratio of 60:40 and is highly unfavourable so far as load management is concerned. This indicates that the installed capacity of CSEB is better capable to support demand with a flat load curve. **There is an urgent need to increase hydel capacity in the State, which will help in meeting peak demand requirements**. Higher the peak loads, CSEB will be forced to either restrict demand or procure costly power to meet the shortfall.

The generation capacity of the Board is expected to increase substantially in the 11th Five Year Plan period with the following projects on the anvil:

Table 2.2

List of New Projects

Plant	Capacity (MW)
Korba West Extension (Thermal)	500-600 (2X250 or 2X300)
IGTPP, Bhaiyathan (Thermal)	1200-1500
IFFCO Sarguja Joint Venture (Thermal)	1000 (2X500)
Marwah (Thermal)	1000 (2X500)
Korba South (Thermal)	1000 (2X500)

All the above new stations are pit head stations. Except for the first two projects, the progress in others is not much.

2.3.3 Plant Load Factor (PLF) and Availability

The details of PLF for CSEB'S thermal stations are given in the table below:

Table 2.3

Plant Load Factor of Thermal Stations

Power Station	FY 2005-06	FY 2006-07
Korba East PH 2	91.92%	92.66%
Korba East PH 3	75.49%	78.95%
Korba West	78.13%	80.78%

Table 2.4

Availability of Thermal Stations

Power Station		FY 2005-06	FY 2006-07
	Korba East PH 2	93.22%	94.16%
	Korba East PH 3	87.93%	88.14%
	Korba West	87.32%	88.61%

Considering the vintage of the units, these have performed well. CSEB has stated that the targets for availability and PLF for its thermal power plants for the year 2007-08 have been set after considering the maintenance plan for FY 2007-08, wherein one unit (#2) of Korba East is scheduled for turbine works. In addition, the plants have been over- stretched in the last two years on account of the deficit situation in the State. However, in view of the anticipated easing of the power supply situation, the plants are planned to be operated at normal loads keeping all equipments under designed ratings. Further, Residual Life Assessment (RLA) study has been proposed for two units of Korba West, and in addition, work of Air heater replacement is also planned in one unit. Due to this, the outage of these units will be higher during the year, and effective generation will be comparatively lower than last year. CSEB has submitted that the two new units of 250 MW each, which are likely to start commercial operation in the month of November 2007 and February 2008, are expected to generate at 70% PLF.

2.3.4 Operational Performance of Thermal and Hydel Plants

The operational performance of thermal stations of CSEB during FY 2005-06 and FY 2006-07 was as under:

Table 2.5

Thermal Stations

Particulars	Units	Korba East Phase II		Korba East Phase III		Korba West	
		FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07
		Actual	Actual	Actual	Actual	Actual	Actual
Capacity	MW	200	200	240	240	840	840
Availability Factor	%	93.22	94.16	87.93	88.14	87.32	88.61
Days of Operation	Number	365	365	365	365	365	365
Plant Load Factor	%	91.92	92.66	75.49	78.95	78.13	80.78
Auxiliary Consumption	%	10.18	10.16	8.84	8.48	9.80	9.37
Station Heat Rate	K c al/ k W h	3,041	2,942	2,835	2,639	2,645	2,783
Sp. Oil Consumption	M l/kW h	1.26	1.20	2.0	1.48	1.12	1.27

Particulars	Units	Korba East Phase II		Korba East Phase III		Korba West	
		FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07
		Actual	Actual	Actual	Actual	Actual	Actual
Calorific Value of Coal	Kcal/kg	3,504	3,390	3,504	3,390	3,507	3,698
Calorific Value of Oil	K cal/L	10,000	10,000	10,000	10,000	10,000	10,000
Price of Coal	Rs. per Tonne	626	595	626	595	547	603
Price of Oil	Rs. /K L	15,884	20,111	16,942	21,451	19,264	23,845
Specific Coal Consumption	kg/kWh	0.86	0.86	0.8	0.77	0.75	0.75
Gross Generation	MU	1,610	1,623	1,587	1,660	5,749	5,944
Auxiliary Consumption	MU	164	165	140	141	564	557
Net Generation	MU	1,447	1,458	1,447	1,519	5,186	5,387
Coal Consumption	Lakh Tons	13.92	14.24	12.75	13.04	43.18	44.79
Oil Consumption	KL	2,021	1,951	3,174	2,452	6,451	7,567
Coal Cost	Rs. Cr	87.13	84.69	79.81	77.55	236.11	270.08
Oil Cost	Rs. Cr	3.21	3.92	5.38	5.26	12.43	18.04
Other costs	Rs. Cr	6.25	5.83	6.16	5.96	18.77	19.72
Total Variable Cost	Rs. Cr	96.58	94.44	91.34	88.77	267.3	307.84
Variable Cost/ Unit Gross	Paise /U	60	58	58	53	46	52
Variable Cost/ Unit Net	Paise /U	67	65	63	58	52	57

The actual past performance of the hydro and other stations, as submitted in the petition, is elaborated in the table below:

Table 2.6

Operational Performance of Hydel and Other Stations

Power Station		FY 2005-06 Actual	FY 2006-07 Actual
Capacity MW	Hasdeo Bango	120.00	120.00
	Gangrel		10.00
	Mini Micro H.P.S Korba (W)	0.85	0.85
	Sikasar Hydel		7.00
	Kawardha Cogen Plant		6.00
	Total Hydro & Others	**120.85**	**143.85**
Gross MU	Hasdeo Bango	358.57	358.71
	Gangrel		27.25
	Mini Micro H.P.S Korba (W)	4.46	6.91
	Sikasar Hydel		5.97
	Kawardha Cogeneration Plant		2.71
	Total Hydro	**363.03**	**401.55**

Power Station		FY 2005-06 Actual	FY 2006-07 Actual
Aux	Hasdeo Bango	0.27%	0.38%
	Gangrel		4.55%
	Mini Micro H.P.S Korba (W)	0.50%	0.50%
	Sikasar Hydel		0.50%
	Kawardha Cogeneration Plant		9.00%
	Total Hydro	**0.27%**	**0.67%**
Net MU	Hasdeo Bango	357.60	357.35
	Gangrel		26.01
	Mini Micro H.P.S Korba (W)	4.44	6.88
	Sikasar Hydel		5.94
	Kawardha Cogeneration Plant		2.47
	Total Hydro	**362.04**	**398.65**

2.4 TRANSMISSION

In line with the growth in generation capacity and distribution network, the transmission network also has to be augmented to maintain the system stability, loss levels and voltage profile. The transmission network of the Board at present is as given in the table below:

Table 2.7

Transmission Network

Voltage (KV)	Transmission Lines (Ckt. km)			No. of Substations			Total Substation Capacity (MVA)			No. of transformers		
	As in March 05	As in March 06	As in March 07	As in March 05	As in March 06	As in March 07	As in March 05	As in March 06	As in March 07	As in March 05	As in March 06	As in March 07
400	277	277	277	1	1	1	945	945	945	3	3	3
220	1657	1685	2153	7	8	11	1930	2250	2890	16	18	22
132	3388	3708	3926	35	42	43	2309	2833	3100	73	88	91
HVDC	360	360	360	1	1	1	243	243	243	6	6	6

2.4.1 Transmission Losses

The transmission losses as reported by CSEB for FY 2006-07 are 4.03%, as compared to the actual transmission losses of 3.93% reported in FY 2005-06. There has been an increase of 0.10% in the transmission losses, despite reduction in the total units handled and sold, which is contrary to CSEB's claim that this increase in transmission losses is mainly on account of the increase in system input requirement. CSEB has proposed to maintain the transmission losses at the

existing level. The table below shows the transmission losses for CSEB during the past two years:

Table 2.8

Transmission Losses (MU)

Particulars	FY 2005-06 (Actual)	FY 2006-07 (Actual)
Total Energy Input to Transmission	12433	13375
Less: EHT sales	2819	2784
Less: Input to Distribution System at 33 kV	9125	10052
Transmission Loss	489	539
Transmission Loss (%)	**3.93**	**4.03**

2.4.2 Capacitor Installation

The installation of capacitors in the system is essential to improve the power factor, reduce reactive power flow on the network and improve voltage levels. CSEB installed capacitors of 20 MVAR during 2004-05, 125 MVAR during 2005-06 and 170 MVAR during FY 2006-07. Total installed capacity of capacitors as in FY 2006-07 was 614 MVAR. The Board plans to add 18 (185 MVAR) capacitors banks in FY 2007-08 to further improve the reactive power flow and voltage levels.

2.5 DISTRIBUTION AND SUPPLY

Distribution is a critical segment of the electricity business. Inefficiency in the distribution system contributes to losses and unreliability of electricity supply. Voltage regulation and outages are still far beyond the accepted levels. Release of new connections to applicants has not achieved the pace required to achieve the target of total electrification by the year 2012. Village electrification is not completed and some villages are yet to be electrified. The performance of CSEB in respect of distribution parameters has been analysed in the following sections.

2.5.1 Distribution Network

The distribution network of the CSEB has been expanded very aggressively since the formation of the Board. The present status of the distribution network is as follows:

Table 2.9

Distribution Network

Voltage	Sub-Transmission / Distribution Lines (Ckt.km)			Sub-Stations (Nos.)		
	As on March 05	As on March 06	As on March 07	As on March 05	As on March 06	As on March 07
33 KV	9813	10521	11415	426	469	510
11 KV	46340	48401	51564	38590	43144	48110
400/230 V	64760	72036	80367	-	-	-

The capacity of 33/11KV power stations is 2653 MVA and of distribution transformers is 3725 MVA as on March 31, 2007.

2.5.2 Consumer Profile

There are different kinds of statements generated in the Board, which are used for analysis of its operational and financial performance. Among those statements, R-15 is very important statement, which gives a bird's eye view of the overall performance of the Board. This statement is being prepared at the distribution centre level based on which a consolidated statement for the Board for HT and LT consumers are prepared. This statement gives monthly as well as annual status of total number of consumers, connected load, energy sales, revenue billed and the arrears against the different categories of consumers.

CSEB has submitted that the actual sales have been considered as per R-15 statement. An overview of the number of consumers in various categories, their connected load and sales, as submitted by CSEB, is shown in the table below:

Table 2.10

Consumer Profile for FY 2005-06and FY 2006-07

Category	No. of consumers		Contract Demand KW		Units Sold in MU	
	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07
LT Consumers	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**
BPL Consumers	823198	867949	41428	49042	258	304
Other Domestic	1234257	1293255	644940	773516	1162	1236
Non-domestic	170717	178509	201329	223846	270	288
Agriculture – Metered	1724	2354	11593	14995	15	21
Agriculture – Flat	119867	141593	343294	375007	430	566
Industry	21714	22600	346445	373965	357	374
Public Utilities (PWW & SL)	8467	8590	30293	32131	109	109

Category	No. of consumers		Contract Demand KW		Units Sold in MU	
	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07	FY 2005-06	FY 2006-07
Temporary Supply	27068	20075	54806	111267	135	109
Sub Total: LT	**2407012**	**2534925**	**1674128**	**1953769**	**2735**	**3007**
HT Consumers						
Railway Traction	21	21	230100	242700	617	653
Cement Industries	12	9	64005	49905	272	284
Coal Mines	20	21	93270	99805	406	0
Heavy Industries>20 MVA	3	3	336099	336099	1568	0
Coal Mines & Heavy Industry	23	24	429369	435904	1974	1759
Power intensive/ Steel Industry	241	281	589121	652824	1452	1946
Other HT Industries	302	377	144241	151372	399	478
HT Industries with low load factor	134	144	69274	85424	67	82
General (Residential)	38	37	49870	49032	237	224
General (Non-Industrial)	142	167	46331	49776	145	150
Public water works	14	13	6426	6366	29	30
Irrigation	17	16	6194	6497	6	8
Temporary Connection	0	0	0	0	0	0
Sub Total: HT	**944**	**1089**	**1634931**	**1729800**	**5198**	**5614**
Total	**2407956**	**2536014**	**3309059**	**3683569**	**7933**	**8622**

**** Contract Demand for HT is in KVA***

The total sales to various categories in FY 2006-07 have increased by 8.7% over sales in FY 2005-06.

Though CSEB has submitted that the sales and consumer category-wise details have been taken from R-15 statement, several discrepancies have been noted between the number of consumers, connected load and sales as reported in the R-15 statement and as considered in the tariff petition. The basic problem is that CSEB has not been modifying its internal Management Information System (MIS) in accordance with the consumer categorisation introduced by the Commission, resulting in a situation, where several assumptions have had to be used to arrive at the numbers in accordance with the Commission's formats. CSEB was asked to clarify on these issues, and submit a reconciliation statement. Some of the issues have been elaborated below:

LT R-15 Statement

- R-15 is the most critical document for commercial purposes, and provides the basis for the entire tariff determination process
- **However, there is a lot of delay in preparation of R-15 statement. R-15 statement for the month of June 2007 is yet to be prepared**
- Moreover, R-15 statement does not include the tariff categories as specified by the Commission in its tariff orders
- Sales to agriculture and BPL consumer categories as submitted in the petition do not match with R-15 statement.
- The net result has been to declare low loss, while approval is sought for higher loss levels.
- Average billing rate reported in R-15 for some categories indicates that the tariff approved by the Commission in its tariff order is not being followed, which is a serious lapse.
- Private street light sales are treated as public street light instead of general consumption (domestic tariff).

HT R-15 Statement

- R-15 statement for HT consumers does not include the tariff categories as specified by the Commission in its tariff orders, e.g., separate information of industrial consumers other than coal, cement, railways, irrigation and water works are not distinctly given.
- Further, HT category-wise sales are not readily available from R-15 for the following categories:
- Low load factor industries
- General purpose residential
- General purpose non-industrial
- Average billing rate reported in R-15 for some categories indicates that the tariff approved by the Commission in its tariff order is not being followed, which is a serious lapse.
- Sales to HT consumer categories as submitted in the petition do not match with R-15 statement.

The category of consumers reflected in the R-15 statement should have been the same as that of the existing tariff categories. This would help in analysing the effect of change and growth of sales, consumers and revenue in different categories in order to facilitate the Board for accurate forecasts. The Commission feels the statement should have been customised so as to serve the very purpose

of reforms in the distribution sector for which the Commission has given directives separately.

2.5.3 Distribution Losses

The level of distribution losses in the system reflects CSEB's efficiency in the distribution business. The reported distribution losses in FY 2006-07 are 31.51%. The excess actual distribution losses over levels approved by the Commission are 0.24% and 1.73% in FY2005-06 and FY 2006-07, respectively. The excess distribution losses in FY 2006-07 will increase to 2.51%, if the agricultural load factor is considered as 15%, as specified by the Commission. CSEB has submitted that the distribution losses have increased in the last few years mainly on account of increased rural electrification which contributes to higher technical losses. In addition, the growth in agricultural and BPL connections has been steep in the last few years.

Table 2.11

Distribution Losses (MU)

Particulars	FY 2005-06	FY 2006- 07
	Actual	Actual
Input to Distribution System at 33 kV	9125	10052
Less BPL Consumption, (Assessed)	258	304
Less Agricultural Consumption, (Assessed)	430	566
Less Metered Consumption ,(HT+LT)	4426	4968
Distribution Loss in	4011	4214
Distribution Loss % (w.r.t Distribution Input at 33 kV)	43.96	41.92
Distribution Loss % (w.r.t System Input)	**32.26**	**31.51**

The Commission allowed T&D losses of 33.81% for FY 2006-07. However, the actual T&D loss in FY 2006-07 was 35.54%, which amounts to a reduction of merely 0.65% over the previous year's level. The T&D losses of the past two years have been shown in the table below:

Table 2.12

T&D Losses (MU)

Particulars	FY 2005-06 (Actual)	FY 2006-07 (Actual)
Total Energy Input to Transmission	12433	13375
Less: EHT sales	2819	2784
Less: Input to Distribution System at 33 kV	9125	10052
Transmission Loss	489	539
Transmission Loss %	**3.93**	**4.03**

Particulars	FY 2005-06 (Actual)	FY 2006-07 (Actual)
Input to Distribution System at 33 kV	9125	10052
Less BPL Consumption (Assessed)	258	304
Less Agricultural Consumption (Assessed)	430	566
Less Metered Consumption (HT+LT)	4426	4968
Distribution Loss	4011	4214
Distribution Loss % (w.r.t Distribution Input at 33 kV)	43.96	41.92
Distribution Loss % (w.r.t System Input)	**32.26**	**31.51**
Total System losses in	4500	4753
Total System Loss %	**36.19**	**35.54**

While these levels of transmission and distribution losses have been reported in CSEB's petition under the energy balance, it has been reporting other data in other places in the petition, and to other stakeholders, as discussed below.

In a different context, CSEB has submitted certain data related to AT&C losses to the Government of Chhattisgarh (GoC), which has also been submitted to the Commission. The loss levels, both the present and projected levels, indicated to GoC and published by the latter as the State Government's plan for reduction of losses, are lower than that indicated to the Commission in the petition. The cost-benefit analysis of investment in the plan has not been worked out. Details of the AT & C / T & D loss reduction plan required to be formulated by the Government of Chhattisgarh and the Commission as mandated in Para 5.4.6 and 5.8.10 of the National Electricity Policy have been separately discussed.

The above clearly shows that there is not much sanctity to the loss data furnished to the Commission, as CSEB has been providing different data to different stakeholders, as per its convenience. For the purpose of this tariff process, the Commission has considered the loss levels and the energy balance as submitted on affidavit by CSEB in its petition. The loss levels are likely to be known with some degree of authenticity when the study by a consultant recently commissioned by the Board is complete.

2.6 DEMAND AND SUPPLY POSITION

As mentioned earlier the generation capacity of CSEB comprises three existing thermal power stations with 1280 MW capacity and one upcoming thermal station with 2x250 MW capacities, i.e., total thermal capacity of 1780 MW. The hydel capacity of CSEB is 137.85 MW and cogeneration capacity of 6 MW. So, the balance

power requirement has to be arranged through power purchase from various sources, i.e., Central sector, captive power plants, biomass units, IPPs, traders, etc. The quantum of power generated and power purchased by CSEB from different sources during FY 2005-06 and FY 2006-07 are given in the following table:

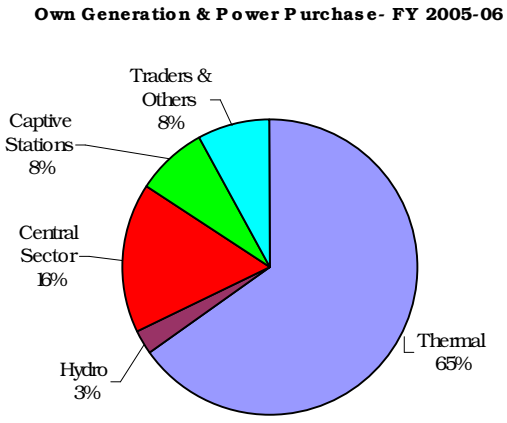
Table 2.13

Energy Generated and Purchased (MU)

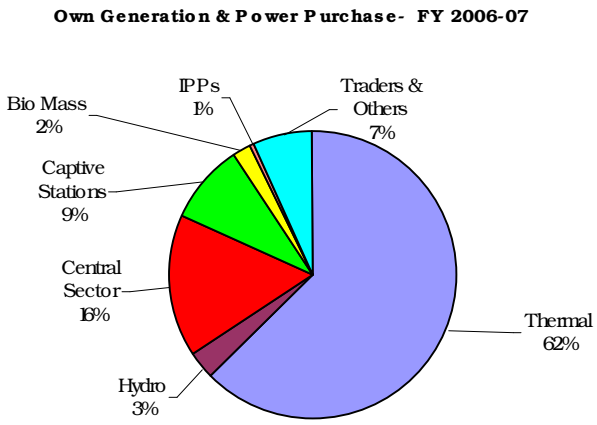
Particulars	FY 2005-06	FY 2006-07
Own Generation		
Thermal	8079.09	8364.72
Hydro	362.04	390.23
Total	**8441.13**	**8754.95**
Power Purchase		
Particulars	**FY 06**	**FY 07**
Central Sector	2007.25	2166.83
Captive Stations	993.77	1235.78
Bio Mass	0	257.23
IPPs	0	73.69
Traders etc.	990.91	886.29
Total	**3991.94**	**4619.82**
Grand Total	**12433.07**	**13374.77**

The pie charts below show the percentage-wise share of energy generated and purchased during FY 2005-06 and FY 2006-07.

FY 2005-06



FY 2006-07



It can be seen that over a period of one year there has been substantial change in the mix of the power purchase and generation by the Board. Noticeable change can be marked in the power purchased from the non-conventional energy sources particularly bio-mass based generators who have contributed 2% of the total energy requirement. The Commission has mandated the Board to purchase 5% of

its total energy consumption from these sources, which can be expected to be achieved in a year or two. Also the harnessing of power from the captive power plant and IPPs has increased over the last year and it has eased the Board to purchase less amount of costly power from the traders. It is expected that the power purchase from the traders will also reduce in the coming years with the progressive growth in these sectors.

2.7 ENERGY BALANCE

The total energy requirement to meet the actual sales including loss in transmission and distribution system was 13375 MU in FY 2006-07 showing an increase of 7.6% over the previous year. CSEB had own generation of 8755 MU in FY 2006-07, with the balance energy required being procured from different sources indicated above. The energy balance statement is given below:

Table 2.14

Energy Balance (MU)

Energy Requirement (MU)	FY 2005-06	FY 2006-07
Energy Sales	7933	8622
Intra State T&D Loss in %	36.19	35.54
Intra State T&D Loss in MU	4500	4753
Energy Requirement MU	**12433**	**13375**
Met By		
Own Thermal Generation	8079	8365
Own Hydro Generation	362	390
Net Power Purchase	3992	4620
Total Availability	**12433**	**13375**

2.8 ENERGY SALES AND REVENUE

Category-wise sales and revenue for CSEB during FY 2005-06 and FY 2006-07 are given in the table below:

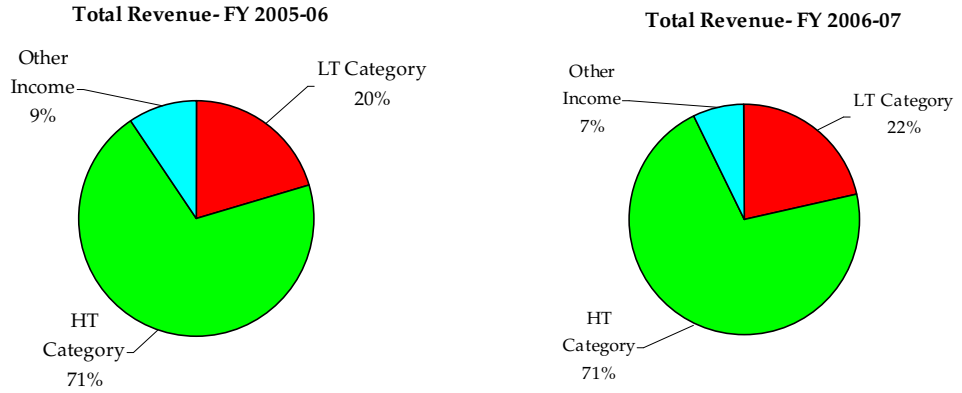
Table 2.15

Sales and Revenue

Particulars	FY 2005-06		FY 2006-07	
	Sales MU	Revenue (Cr.)	Sales MU	Revenue (Cr.)
LT Category	2735	608.43	3007.24	665.57
HT Category	5198	2115.73	5614.33	2188.19
Other Income		280.67		218.26
Total	**7933**	**3004.83**	**8621.57**	**3072.03**

The other income in FY 2006-07 has been lower compared to that reported in FY 2005-06. The total revenue of CSEB for FY 2006-07 was Rs. 3072.03 crore. The pie charts below give the percentage-wise share of revenue from LT and HT categories.

Revenue of CSEB



2.9 FINANCIAL PEFORMANCE OF CSEB

The financial performance of CSEB during FY 2005-06 and FY 2006-07 as per the petition is given below:

Table 2.16

Profit and Loss Account (Figures in Rs Crore)

Particulars	FY 2005-06	FY 2006-07
Revenue	**Provisional**	**Estimated**
Revenue from sale of power	2724.17	2853.77
Other Non-tariff income	280.67	218.26
Total Revenue	3004.84	3072.02
Generation Cost	459.00	500.89
Purchase of Power from Other Sources	900.22	1045.33
R&M Expense	143.25	191.90
Employee Expenses	631.47	587.33
A&G Expense	61.83	58.61
Net Prior Period Credit (-) / Charges (+)	-18.60	0.75
Less: other expenses capitalised	-32.89	-28.75
Other Debits (incl. Prov for Bad debts)	150.91	80.83
Extraordinary Items	0.00	0.00
Total Expenses	2295.21	2436.89
Profit Before Interest, Depreciation & Tax (PBDIT)	709.63	635.14
Depreciation and Related Debits	40.18	42.43
Profit Before Interest & Tax (PBIT)	669.45	592.71
Interest & Finance Charges	236.89	195.51
Less: Interest & other expenses capitalised	-20.94	-37.32
Net Chargeable to Revenue	215.95	158.19

Particulars	FY 2005-06	FY 2006-07
Revenue	**Provisional**	**Estimated**
Profit/Loss before Tax	453.51	434.52
Income Tax & Other (Misc.)	208.48	163.14
Surplus(+) / Shortfall(-)	245.03	271.38

The Commission has analysed the performance of CSEB in FY 2005-06 and FY 2006-07, vis-à-vis the performance and expenditure allowed in the Commission's tariff order for the respective years, on the basis of CSEB's submissions in its petition, and the provisional accounts submitted by CSEB for these financial years, as elaborated in Chapter-4.

2.10 PROGRESS OF REFORMS IN THE STATE ELECTRICITY SECTOR

The Commission had reviewed in the past two tariff orders for the year 2005-06 and 2006-07 the progress of reforms in the electricity sector in the State. In the last order, the Commission had noted that the pace of reforms was slow and the situation called for 'greater initiative by the State Government and greater efforts by the CSEB'. The Commission had specifically dealt with restructuring of the Board, reforms in the distribution sector in general and meterization, energy audit, billing and collection efficiency and consumer focus in particular.

While the pace of reforms continues to be slow, some initiatives have been taken by the State Government and the Board to reform the sector in terms of the mandate of the Electricity Act.

2.10.1 Restructuring of CSEB:

The process of restructuring of the Electricity Board has come to a virtual stand still. The Central Government, in pursuance of the provisions of Section 172 of the Act, has agreed to the request of the State Government to extend the transitional stage of the Board till December 9, 2007. No preparatory steps are in sight for restructuring even by that date. The Commission had strongly urged upon the State Government in our last tariff order to take steps for restructuring of the Board. The Commission would again like to reiterate its advice to the State Government in terms of the provision of section 82(2) of the Act, that reorganisation of the Board would be in the best interest of the development of the large potential of the electricity sector in the State. The Commission is of the view that unless the Board is restructured, the much-needed efficiency and growth in the sector will not be achieved.

2.10.2 Distribution Sector Reform:

Reforms in the distribution sector are crucial to the efficiency of the electricity sector. In the last tariff order the Commission had noted that 'CSEB, unlike most power utilities in the country, has certain strengths which can be harnessed for greater efficiency and larger benefit to the consumer. CSEB's consumer mix is very favourable and its financial position is very sound. Unfortunately, the benefits are not flowing to the consumers as expected, mainly because of lack of reform in the critical distribution sector'. Fortunately some efforts have been made for carrying forward reform in this sector, but these are not enough.

2.10.3 Meterisation:

The Commission had noted the slow phase of meterisation in the State. The present position is that out of the total of 25,34,925 LT electricity consumers of CSEB the metered connections are only 17,96,892 as on March 31, 2007. Because of the slow pace of meterisation and the difficulties being faced by the Board in procurement of meters, the time limit for cent percent meterisation has been extended by the Commission upto March, 2008, in exercise of powers under section 55 of the Act. However, a coordinated plan for procurement and installation of meters, which the Commission has been repeatedly stressing upon, has not so far been prepared by the Board. Fortunately, the position of stopped and defective meters has improved and all HT and three-phase LT defective and stopped meters have been replaced. This, however, is a continuous process and requires continuous efforts. But what is a matter of concern is that inspite of the provision of the Act and the clear direction of the Commission that no new connection may be given without a meter, the Board has provided new connections mainly to agriculture pump sets without meters. The Commission is taking suitable action in this case. There seems to be little appreciation of the fact that that meterisation is an important component in the value chain of the sector; it has implications on billing and collection and control over losses in the system. It should, therefore, receive utmost attention of the Board.

2.10.4 Energy Audit:

In the last tariff order the Commission had also emphasised on energy audit to arrive at losses in the system and improve the distribution system. There has been some improvement during the year in meterisation of all feeders and sub-stations. Though, all 132KV, 33KV (263) and almost all 11KV feeders (1511) (except new ones) have been provided with meters, meterisation of distribution transformers is still lagging behind. Out of about 48000 distribution transformers (DTR) only about 30% have been provided with meters and only 4322 DTR covered under

energy audit (Page 13 of petition). The Board has submitted that in case of 11 KV feeders (259) meterisation has been completed down to consumer level and energy audit is being carried out. However, there is no system in the Board for regular monitoring of the information received. As a result the whole effort has not yielded the desired result. The Board should assign this task to a small group of engineers which should continuously monitor the results received.

Fortunately, a reputed consultant has now been appointed to study the loss at various voltage levels, the pattern of consumption in the agriculture sector and the cost of supply for consumer categories at various voltage levels. This is an ambitious effort and its success will largely depend on the Board associating its key and devoted officers with the consultant so that necessary in-house competence is also developed in course of the study. The Commission has separately advised CSEB to associate such officers with the consultant right from the beginning and also to issue necessary instructions to the field staff to fully cooperate with the study.

2.10.5 Billing and Collection Efficiency:

Billing and collection efficiency is crucial to the financial viability of the Board. This has, however, not received the requisite attention inspite of repeated directions of the Commission. Although SAP is supposed to have been implemented, monthly meter reading and billing is yet to be implemented. The Board has recently prepared a time schedule for introducing monthly billing for various consumers as under:-

- Domestic consumers of Municipal Corporation limits : 1.4.2008
- Non-domestic consumers of Rural areas : 1.4.2008
- Agriculture consumers of Urban areas : 1.4.2008
- Domestic consumers of Urban areas : 1.4.2009
- Domestic consumers of Rural areas : 1.4.2009
- Agriculture consumers of Rural areas : 1.4.2009

The Board should learn from utilities in other States and take measures such as the franchisee system, AMR and spot billing etc., to improve billing efficiency.

The CSEB has been informed that the collection efficiency for the year 2006-07 has been 93.5% percentage which includes arrears alongwith the current revenues. The Commission has been repeatedly urging the Board to segregate arrears and current dues so that the collection efficiency is clearly known. This has not yet been done. The R-15, a basic document, which provides data regarding collection

from consumer categories, is always in default and there appears to be no sustained effort to improve collection efficiency.

2.10.6 Consumer Focus:

The Commission has issued the Supply Code in 2005 and has amended it recently in the light of the experience of its working. The standards of performance of the distribution licensees, as also the regulations for redressal for grievances of consumers have also been issued. In accordance with the guidelines in the regulations, Forums have been constituted at Raipur, Bilaspur and Jagdalpur. The Commission has also appointed the Electricity Ombudsman. However, the Jagdalpur Forum is practically non-existent and the numbers of grievances referred to the other two are also minimal. The grievance redressal machinery has not been very effective mainly because of lack of awareness among the consumers. Detailed instructions have been issued to the Board to give greater publicity to the grievance redressal machinery, but apparently no such efforts have been made. The Commission has set up a Consumer Advocacy Cell and is making to raise awareness of the consumers about their rights. But unless the Board makes necessary efforts and has a positive attitude towards the machinery in place, this will remain ineffective. The Commission has also started monitoring implementation of the standards of performance. Here again, there is only tokenism on the part of the utility. There is no monitoring of implementation of standards of performance. In fact, there is lack of awareness about it, even among the Board's officers, as a result there is not a single case in which compensation has been paid to a consumer for non-compliance of standards of performance.

The Board on the advice of the Commission had opened call centres at Raipur and Bilaspur to receive consumer complaints and monitor their redressal in a centralized manner with the help of information technology (IT). These call centres were closed down without informing the Commission after sometime, on the ground that their performance was not up to the mark. The Commission has again directed the Board to set up call centres and to install a centralised system of receiving complaints from consumers and monitoring their disposal, which has proved effective in many States.

CHAPTER 3 OBJECTIONS AND SUGGESTIONS FROM THE PUBLIC/CONSUMERS AND CSEB'S RESPONSE

3.1 REGULATORY PROCESS

As required under Regulation 21 of the CSERC (Details to be furnished by licensee etc.) Regulations, 2005, CSEB published a public notice on August 25, 2007, in leading newspapers of the State giving in brief the ARR, revenue gap on the basis of existing tariff, proposed tariff and salient features of the proposed tariff. Suggestions, objections and comments on the proposals in the tariff petition were invited from the public by September 17, 2007. The list of newspapers in which the public notice was published is given in Chapter -1. Some of the objections were received directly by the Board. All written objections were forwarded by the Commission to CSEB as and when they were received and CSEB was asked to submit its replies and views in respect of the objections. The list of objectors is annexed to this order as Annexure-1.

To ensure transparency in the process of tariff determination as envisaged in the Electricity Act, 2003, public hearings were held at the following places in the State:

1. Raipur - 24.09.2007 and 25.09.2007
2. Bilaspur - 26.09.2007
3. Jagdalpur - 28.09.2007

In the public hearings, some of the objectors who had submitted their objections in writing earlier presented their objections and suggestions personally before the Commission. Other participants from the general public, who had not submitted written objections earlier, were also given an opportunity to present their views in respect of the tariff proposals. The list of such participants is also annexed as Annexure-2.

3.2 OBJECTIONS RAISED AND CSEB'S REPLIES

The views and suggestions of the objectors are discussed below:

3.2.1 Issue 1: Operational Performance of Generating Stations

A number of objectors submitted that the operational performance like station heat rate, calorific value, and coal cost, etc., of different generating stations, were not up to the levels approved by the Commission. They objected that the station heat rate and variable cost of generation had increased in all the thermal stations, as compared to the levels approved by the Commission for FY 2006-07. They

intended that the projected station heat rate and variable cost for FY 2007-08 was also high.

CSEB's reply

The existing generating plants are mostly old plants and are suffering from various problems, which in turn affect the performance of these plants. The Board has been able to generate continuously from these old plants. However, expectation of continuous improvement from these old plants, which have outlived their useful life, is not justifiable due to practical constraints.

3.2.2 Issue 2: Non-Compliance of Directives Issued by the Commission

Some objectors submitted that CSEB had not complied with the directives issued by the Commission in its tariff order for FY 2005-06 and FY 2006-07, such as:

- Submission of petition is not supported by accurate and credible database
- Installations of weightometers has not been done in number of generating stations
- The Board has not taken effective action for recovery of arrears
- The Board has not submitted voltage-wise and consumer category-wise cost of supply
- A high rate of power purchase of Rs. 7.45 per unit has been projected by the Board
- The Board has not got its accounts audited
- The Board has been unable to supply quality power, reduce trippings, achieve cent percent metering, reduce distribution transformer failure rate and accurately assess agricultural load factor.

CSEB's reply

The Board's submission on the issue of non-compliance of objections is as follows:

- There is always scope for improvement in the data submitted. However, it does not mean that available data is not credible.
- The Board has already installed weightometers in five units at Korba East and 23 weightometers in Korba (W) are expected to be installed by the end of March 2008.
- The outstanding dues of railways are not current dues but an old outstanding due currently under arbitration. These dues will be reconciled in accordance with the arbitrator's award. Rs. 8789 lakh has been recovered from Government connections. HT arrears of Bhilai Steel Plant (BSP) and BALCO have been reduced to the tune of Rs. 32,764 lakh. Recovery of LT arrears is up to 95% of the billed amount.

- Work of computing cost of supply has been entrusted to a reputed consultant.
- Power from traders is purchased only due to acute emergency and the rate is governed by market.
- CSEB has already compiled the accounts, which are now being audited.
- The Board is trying to reduce the rate of transformer failure. Transformer failure occurs many a time due to sudden increase in load and theft of electricity, which can be limited to some extent only. The failure rate of distribution transformers has reduced from 16.47% in FY 2005-06 to 14.90% in FY 2006-07 and for power transformers from 2.24% to 1.21%. The Board has been taking measures to improve maintenance, provide new earthing, load balancing and installation of additional transformers to check the rate of failure. The work of 100% metering is under progress and is expected to be completed in accordance with the targets given by the Commission. Load factor assessment work shall also be done by the consultant. All out efforts are being made to improve the quality of supply.

3.2.3 Issue 3: Consumer Category-Wise and Voltage-Wise Cost of Supply

Several objectors submitted that the Commission, while approving the ARR and tariff for FY 2006-07, had directed CSEB to assess the cost of supply for different voltage levels and across consumer categories. However, CSEB had not submitted consumer category-wise cost of supply to the Commission in the present tariff proposal, in the absence of which, the consumer category-wise cross-subsidy cannot be determined. Many respondents submitted that according to the basic philosophy of tariff setting, tariffs should reflect the cost of supply and cross subsidy needs to be eliminated. However, the present tariff proposal does not reflect the same. They requested the Commission to decide the tariff for different categories of consumers only after correct assessment of category-wise cost of supply.

CSEB's reply

The assignment for undertaking the study of voltage-wise and category-wise cost of supply has been awarded to a reputed consultant and the work has also started. Since the results are not available with the Board presently, the category-wise and voltage-wise cost of supply could not be provided in the petition. In accordance with the recent amendment made in the Electricity Act, 2003, the cross subsidy has now to be reduced in phases and not eliminated.

3.2.4 Issue 4: High Power Purchase Cost

Several objectors submitted that CSEB has projected purchase of power from traders at a rate of Rs. 7.45 per unit in FY 2007-08, which has increased the power purchase cost by Rs. 176.13 crore. The Board had also entered in to a power swap arrangement with J&K for 60 MW power for 6 months, resulting in a financial impact of Rs. 20.02 crore. The objectors requested the Commission not to allow such high rates of power purchase and reject such proposals, which would increase the burden on consumers.

CSEB's reply

Power is purchased from traders only in acute emergencies, for which marginal rate of Rs. 7.45 per unit has been considered on the basis of the present market conditions. Power swap arrangement is still a cheaper proposition, as compared to purchase at the rate of Rs. 7.00 to Rs. 8.00 per unit during peak summer.

3.2.5 Issue 5: Employee Expenses

Many respondents submitted that the employee expenses per unit of electricity sold by CSEB works out to 52 paise per unit, without considering the terminal benefits, and 72 paise per unit after considering the terminal benefits, against the cost of supply of Rs. 3.46 per unit. The average salary of a CSEB employee works out to Rs. 24000 per month without terminal benefits, and Rs. 35000 per month with terminal benefits. Further, the employee expenses projected by the Board for FY 2007-08 are Rs. 712.13 crore, i.e., 21% of the total ARR. The respondents submitted that CSEB's employee expenses are very high, as compared to that in other States. They suggested that CSEB should take initiatives for reducing the employee expenditure.

CSEB's reply

The employee cost indicated in the ARR includes one-time provisions for payment of arrears on account of wage revision, which is due, and contribution to pension fund trust, which amounts to about Rs. 285 crore. The same is essential to safeguard employees' welfare also. The average tariffs of CSEB are far lower than in a number of States.

3.2.6 Issue 6: Capital Expenditure Plan

One respondent submitted that CSEB had projected a huge capital investment plan for FY 2007-08. Moreover, CSEB had not shown any improvement in the areas of loss reduction and energy generation. The respondent requested the Commission not to allow such huge capital investment without proper scrutiny

and public hearings. He added that the proposed depreciation of Rs. 87.58 crore should be reduced accordingly.

CSEB's reply

The capital expenditure considered by the Board in its petition are in accordance with the Board's Business Plan for the period from FY 2006-07 to FY 2010-11 which was submitted for the approval of the Commission, but the Commission had returned with some observations for compliance. The depreciation on assets is claimed on completed works, so, it has no direct relation to the capital investment plan. Moreover, the capital works undertaken by the Board are as approved by the Commission.

3.2.7 Issue 7: Interest and Finance Charges

Respondents submitted that CSEB had projected interest and finance charges of Rs. 419.69 crore, which comprises 11.7% of the total ARR or 40 paise per unit, which is very high as compared to other States. They requested the Commission to issue a balanced order, which allows capital investment such that it results in loss reduction and reduction in cost of generation, which can off-set the expenditure on interest and finance charges.

CSEB's reply

The interest and finance charges chargeable to revenue account and ARR are only Rs. 187.23 crore, on account of the associated capitalisation of Rs. 232.46 crore, of the gross interest and finance charges.

3.2.8 Issue 8: Prompt Payment Discount

A number of respondents especially Bhilai Steel Plant suggested that CSEB should provide some incentive/rebate to consumers who make early payment of bills to the CSEB, as it will facilitate improvement in collection efficiency and cash flow.

CSEB's reply

The Board bills a consumer after he completes the monthly consumption. It allows 15 days time for payment. There is no justification in allowing an incentive as the payment is made after consuming the electricity. However, an appropriate scheme for this purpose is under the Board's consideration.

3.2.9 Issue 9: Security Deposit in the Form of Bank Guarantee

Several respondents suggested to the Commission that the Board should accept security deposit in the form of bank guarantee from industrial consumers.

CSEB's reply

The Board is not in favour of getting energy bill security in the form of Bank Guarantee as liquidity is necessary for meeting day to day expenses of the Board. The Board, in any case, pays interest on cash security amount.

3.2.10 Issue 10: True up for FY 2005-06 and FY 2006-07

Several respondents submitted that CSEB had not provided its true-up accounts for FY 2005-06 and FY 2006-07. Moreover, the Commission was allowing the expenditure submitted by the Board, without sufficient audited data. The Commission should direct the Board to submit true-up analysis based on audited figures of income and expenditure for previous years.

CSEB's reply

The Board has only provisional accounts at present for FY 2005-06 and FY 2006-07, and hence, has not proposed any true-up for these years. True-up will be done once the Board's accounts for these years are audited.

3.2.11 Issue 11: Transmission and Distribution Losses

Many respondents objected to the present level of T&D losses in the State and lack of progress made by CSEB on the loss reduction front. They stated that though the Commission in its tariff order for FY 2006-07 had directed the Board to reduce the T&D losses to 33.81%, the Board had reduced losses only by 0.65% during FY 2006-07, resulting in the present T&D loss level of 35.54%. They requested the Commission to stipulate at least a 3% loss reduction target for the coming year, and if not achieved, CSEB's return on equity should be reduced by the cost of additional units on account of the losses.

CSEB's reply

The Board also desires to reduce the T&D losses and is making all efforts for the same. However, there are some practical difficulties in achieving the targets stipulated by the Commission. Moreover, though energy losses were expected to increase by 10% on account of the growth in load and wide extension of network after the formation of CSEB, the Board has reduced the loss levels. Hence, the proposed level of losses should be considered.

3.2.12 Issue 12: Load Shedding

It has been submitted that CSEB in its petitions for the previous and current years, has not submitted any data for load shedding while submitting the details of power purchase, though CSEB has been undertaking continuous load shedding

during the peak periods. CSEB should clarify that there shall be no load shedding in the current year.

CSEB's reply

All the projections in the ARR and tariff petition are based on the actual consumption and availability of supply during the previous years. With the addition of new generating units, the power availability in the State is expected to improve.

3.2.13 Issue 13: Tariff for Charitable Trust Organizations

One respondent suggested that the tariff for Dharamshalas run by a charitable trust should be levied at a concessional rate.

CSEB's reply

Charitable trusts have multiple objectives and activities, which do not warrant inclusion of such categories under domestic category. Further, the tariff is collected on actual basis from the occupiers of Dharamshala. The burden of their charity should not be passed on to CSEB, which is running its operation on a commercial basis.

3.2.14 Issue 14: Other Income

Some respondents submitted that CSEB, in its petition, had submitted that it had earned profit during the previous financial years, which has been deposited under Bank fixed deposit. However, CSEB had not submitted the details of income generated from it in the previous years. The respondents added that the additional income, if so generated, should be considered in the present ARR proposal.

CSEB's reply

The fixed deposits of the Board were from the income received prior to the enactment of Electricity Act, 2003. The amount was saved and invested to meet out the expected liabilities of CSEB as a result of apportionment from the erstwhile MPEB. Since, the apportionment has not yet been finalised, reserves have been reduced to the extent that the Board is barely able to maintain its equity commitments.

3.2.15 Issue 15: Temporary HT Connections

Some respondents stated that the following confusions in the interpretation of temporary connection charges should be clarified by the Commission:

- The billing demand for a month should be the Recorded Maximum Demand or the requisitioned demand, whichever is higher, and should be applicable for that particular month.
- Actual charges should be calculated from the date of connection considering proportionate charges for the month in which connection is availed.
- Demand and unit charges should be on monthly basis for each month and total period of temporary connection should not be considered.

CSEB's reply

The existing provisions of tariff meant for HT temporary connections in the tariff order for FY 2006-07 are very clear. If the Commission considers that the ambiguity pointed out by the respondents is justifiable, the Commission may clarify the provision in the forthcoming tariff order. However, the consumer should not cross the contract demand and the provisions in the existing tariff have been kept so as to refrain the consumer from drawing excess power than sanctioned. This is essential for system stability.

3.2.16 Issue 16: Tariff for Lighting and Water Supply for Industrial Area

A respondent requested the Commission to consider charging the tariff for street lighting and water supply in industrial areas under the categories of public street lighting and public water works.

CSEB's reply

Public water work and public street light connections are served to local bodies. In the industrial estate, the water supply is made primarily to meet the industrial requirement and therefore categorisation of such connections like public water works is not justified. The street light connection in the industrial estate is also not requisitioned by local bodies and is not meant for the general public.

3.2.17 Issue 17: Increase in Billing Demand

Many respondents objected to the proposed increase in billing demand for HT consumer categories, from 75% to 85% of contract demand, and requested the Commission to retain it at the existing level.

CSEB's reply

Actual peak/maximum demand of the system will not be affected by the proposed change in the definition of billing demand. Once a consumer has contracted certain demand from the licensee, the licensee has a legitimate rights to

recover the demand charges on the contracted demand. The rationale for change in definition of billing demand in respect of HT categories from existing 75% to 85% of contract demand is adequately explained in the petition. Further, the average billing demand for all HT consumers taken together is already around 84% of the contract demand. Other States have been charging 100% contract demand.

3.2.18 Issue 18: Different Tariff for Gram Panchayat

Respondents from gram panchayat suggested that a flat rate tariff should be levied on pump used for filling water in a pond, as it is used for common people. They also suggested that a different rate should be charged to panchayat and municipal corporations for the purpose of street lighting and water works, as the usage and revenue of panchayats and municipals corporations are different.

CSEB's reply

The tariff for public water works and street lighting is already low compared to that in other States and is also below average cost of supply. The Board is not in favour of different rates for municipal corporation and gram panchayat, as it has to reduce the burden of cross subsidy as per the provisions under Electricity Act, 2003. The State Government may provide extra subsidy to gram panchayat, if it considers appropriate. Filling of water into a pond is not agricultural activity and all connections should be billed according to their actual consumption as recorded in the meters.

3.2.19 Issue 19: Tariff for HT Poultry Industry

It has been suggested that HT Poultry and Dairy category should be merged in to LV-4 L.T. Allied Agriculture Services and accordingly charged Rs. 2.50 per unit as the business of both the H.T. and L.T. categories is the same. This has been suggested by an HT poultry consumer in the State.

CSEB's reply

As per the provisions under Electricity Act, 2003 and National Tariff Policy, the cross subsidy burden should be reduced from the present level. The suggestion can be approved if the State Government provides a direct subsidy for the same. HT and LT tariffs cannot be compared.

3.2.20 Issue 20: Power Purchase from Captive Power Plant (CPP)

Many respondents suggested that all power purchase from traders and CPPs by the Board should have the same load factor limitation of 80%, instead of 85%. They also suggested that discontinuation of power supply beyond 72 hours from either

side, should be treated as a force majeure and should not be taken for calculation of load factor.

CSEB's reply

The power purchase from various sources is governed exclusively as per the terms and conditions of the contract between the Board and supplier/trader. Further, power purchase from various sources depends upon various modalities and thus, cannot be uniform. Hence, the request is not justifiable. Force Majeure conditions have already been defined under the Regulations of the Commission, hence, no arbitrary approach can be considered.

3.2.21 Issue 21: Introduction of compulsory Time of Day (TOD) tariff

It has been suggested that considering the present level of power shortage during peak hours, the provision of Time of Day tariff must be made and higher charges should be levied for energy consumed during this peak period. It was submitted that time of day tariff should also be made applicable for all consumers including LT consumers.

CSEB's reply

The Board had already submitted a proposal to impose differentiated tariff to all HT consumers in its tariff petition for FY 2006-07, which was not considered by the Commission. The Board has hence, not considered repeating the same proposal in the tariff petition for FY 2007-08 on the premise that there is no change in the existing situation. Now, with the intention of the Commission to introduce compulsory TOD tariff, as indicated in the notice published on September 7, 2007, the Board would like to submit its proposal as under:

- Peak hour tariff from 5 P.M. to 11 P.M. : 130% of the normal energy charges
- Normal time tariff from 11 P.M. to 11 A.M. : Normal energy charges
- Off-peak hour tariff from 11 A.M. to 5 P.M. : 85% of the normal energy charges.

Demand charges will remain same for all the three slabs as per the applicable tariff.

3.2.22 Issue 22: Tariff for Flour Mills

It has been suggested that connected load of flour mills and hullers should be increased to 25 HP from 15 HP. Also, a single tariff should be made applicable to grinding of wheat, turmeric, pulses and spices.

CSEB's reply

Flour mills and Hullers of 15 HP capacity fulfil the entire requirement for general purpose, hence, there is no reason to increase the load to 25 HP. Since, the grinding of turmeric, pulses and spices is a commercial activity, and is not meant for general purposes like grinding of wheat, hence, different tariff rate is justifiable, which has been sub-categorised under L.T. industry tariff LV-5.

3.2.23 Issue 23: Tariff for HV-5 (Other HT Industries) Category

Many respondents suggested that HV-5 category should have the same tariff as that of HV-4 (steel industries), to provide impetus to value aiding industries in the State.

CSEB's reply

The Board wishes to encourage all types of industries in the State. CSEB had proposed to have only one tariff for all HT categories in the tariff petition for FY 2005-06, which was not considered by the Commission. The Commission has been considering rationalisation of tariff through its each tariff order.

3.2.24 Issue 24: Tariff for LV- 5 Category

Many industries such as flour mills, hullers, power looms up to 15 HP and other industries fall under LV-5 category. It has been suggested by some respondents that the tariff for these categories should be reduced so as to provide the necessary push for development of these industries. It was also submitted that the connected load for this category may be allowed for more than 100 HP.

CSEB's reply

The tariff for flour mills, etc. is already low and no revision has been proposed by CSEB in its proposal for FY 2007-08. Hence, further tariff reduction is not justifiable. Further, the Commission has introduced LV-5.3 demand based tariff which can be availed by the industries having load up to 150 HP as an optional tariff.

3.2.25 Issue 25: Tariff for LV-2 Category

It was suggested by the respondents that the tariff of Non-Domestic category (3-phase, above 500 units) should be reduced from Rs. 4.25 per unit to Rs. 3.75 per unit. It was also suggested to keep the demand charges same as that of Non-Domestic single phase category.

CSEB's reply

The final decision on tariff of the various categories is as per the discretion of the Commission. Further, the consumption of more than 500 units per month is done by bigger commercial establishments. Hence, reduction in the tariff rate for this sub-category is justified.

3.2.26 Issue 26: Introduction of MYT Regime

Several respondents have stated that as per the provisions of National Tariff Policy, the electricity tariff after April 1, 2006 had to be decided on the basis of Multi-Year Tariff (MYT) regime. CSEB has, however, submitted the ARR petition only for one year, i.e., FY 2007-08. Multi-year tariff shall facilitate the industries to plan production accordingly.

CSEB's reply

The Board is not in a position to file a MYT petition at this stage, because it has still not reached stability. The Board is not yet fully equipped with the base data for implementation of MYT and making earnest efforts to prepare the required data. Therefore, single year tariff proposal has been submitted after obtaining due permission of the Commission. Moreover, out of 29 States in India, only one or two utilities have opted for MYT, and that too on an experimental basis.

3.2.27 Issue 27: Special Category for very Low Load Factor Industries (BALCO)

BALCO, in its submission, suggested that considering its very low load factor, the Commission should formulate a new tariff category for low load factor industries, as it is paying more demand and energy charges due to wrong classification.

CSEB's reply

In the process of merger of tariff categories, some categories may be benefited and the others may not. Tariff cannot be determined for each consumer though each consumer may have his own consumption pattern. There is already a category of low load factor industry (HV-6), which can be availed by BALCO if they can meet the qualifying requirement. To reduce the effective cost per unit, it can increase the consumption and improve the load factor, as the consumption pattern is not commensurate to the contract demand.

3.2.28 Issue 28: Parallel Operation Charges

One of the respondents submitted that payment of Parallel Operation Charges should be charged only to the extent of power import/export by the party, rather than on installed capacity basis.

CSEB's reply

Parallel operation charges are not the subject matter of this tariff petition, and hence, no reply is required to be given.

3.2.29 Issue 29: Emergency Supply to CPP

Considering the nature and supply required by aluminium companies, a separate rate structure for emergency connectivity should be formulated as is done in the State of Orissa.

CSEB's reply

Electricity tariff structure in each State is designed in accordance with the specific requirement of that particular State and cannot be compared. The tariff applicable for emergency supply to CPPs in Orissa is the same as start up tariff, which also exists under CSEB's tariff structure, which can be availed by such consumers, if eligible.

3.2.30 Issue 30: Bad Debts

Several respondents submitted that CSEB had proposed bad debts of Rs. 105.99 crore in the ARR petition for FY 2007-08, which is very high. This should not be considered as expenditure and should be deducted from total expenditure.

CSEB's reply

As per the CSERC (Terms and Condition of Tariff Determination) Regulations, 2004, bad debts have to be considered under the ARR. It is not justifiable to deduct bad debts from total expenditure.

3.2.31 Issue 31: Power Purchase from Other Sources

Some respondents submitted that CSEB had proposed power purchase expenses of Rs. 1332.57 crore from other sources in its ARR petition for FY 2007-08, besides increase in thermal generation capacity of the Board due to commissioning of two new units at Korba East. The Commission should allow the expenses only if it feels the expenses are justifiable.

CSEB's reply

It has been shown in the tariff petition that unit 1 and unit 2 of Korba East will start operating from November 2007 and February 2008, respectively, on account of which, merely 808 MU will be generated from these units in FY 2007-08. The proposed energy requirement for FY 2007-08 is 14857 MU, of which only 9148 MU

can be met through own resources of CSEB. The balance 5709 MU has to be purchased from other sources. Hence, power purchase expenses of Rs. 1332.57 crore from other sources should be allowed.

3.2.32 Issue 32: Concessional Tariff for Energy Conservation

The Chhattisgarh Renewable Energy Development Agency (CREDA), the designated agency of Bureau of Energy Efficiency (BEE), suggested a concessional rate of tariff for the following consumers so as to promote energy efficiency measures in the State:

- Rebate of Rs. 0.25 per unit in electricity bills for the individuals who have installed solar water heating system in their houses.
- Rebate of Rs. 0.50 per unit in electricity bills for the commercial establishments/industries who have conducted energy audit and reduced their demand by 10%.

CSEB's reply

The expansion of scope may be considered for those segments of consumers who are involved in extravagant use of electricity. The quantum of rebate proposed by CREDA is quite high and will impact the cross-subsidy reduction programme. The State Government may provide a direct subsidy for this purpose.

3.2.33 Issue 33: Reintroduction of Telescopic Slab Wise Tariff

It has been suggested that consumption by domestic and commercial lights and fans consumers should be billed on telescopic slab-wise tariff. At present, it is charged on non-telescopic basis, due to which a high rate becomes chargeable even on a marginal increase in the units consumed.

CSEB's reply

It is for the consideration of Hon'ble Commission without affecting the overall revenue of the Board.

3.2.34 Issue 34: Tariff for Public Toilets

It has been submitted that the tariff for public toilets is being charged under the non-domestic category. As public toilets serve the public cause and the services provided are free of charge. These should be charged as per the domestic category.

CSEB's reply

There are only two categories for light and fan consumers - domestic and non-domestic. There is no justification to charge tariff for public toilets under domestic category.

3.2.35 Issue 35: Start up power

Some respondents submitted that the proposed withdrawal of benefit of start-up power is not justifiable. The provision is proposed to be made applicable to only those units whose loads are in the same premises. It should be allowed for the generating plants which have captive load at separate location.

CSEB's reply

The only change proposed by the Board in the start-up power tariff is to restrict the entitlement of captive power plants co-located with the load to avail this tariff on the ground that this was the condition already approved by the Commission in its order dated. 06.02.06 for captive power plants but not incorporated in to the tariff order.

3.2.36 Issue 36: Timely Replacement of Transformer and Irregular Supply

Some objectors submitted that the transformers are not replaced / repaired in a timely manner, and there is a problem of low voltage also in the villages, which affects irrigation of crops. The supply by CSEB is also not on a continuous basis.

CSEB's reply

Although the field officers are advised for timely repair and replacement of damaged transformers, but in case of failure to do so, the same may be complained to the Consumer Grievance Redressal Forum (CGRF) set up by CSEB. The consumers can also claim compensation in accordance with the Commission's Standards of Performance Regulations. The power supply position is expected to improve with the commissioning of two new units at Korba.

3.2.37 Issue 37: Temporary Connections in Some Colonies

It was submitted that permanent connections are not provided in some colonies, and therefore residents are availing temporary connections for the last few years. This should be corrected and permanent connections should be given expeditiously.

CSEB's reply

The local Chief Engineer has been advised to look in to the matter of providing permanent connections in the colonies as per the provisions under the amended Supply Code of the Commission. This is not a tariff related matter.

3.2.38 Issue 38: Electronic Meter Reading

It was suggested in the public hearing that LT industrial consumers in whose premises electronic meters have been installed, should be billed on the basis of demand recorded in the electronic meter and not on the basis of connected load.

CSEB's reply

The tariff LV- 5.3 is demand based tariff, which is not billed according to the connected load of the industrial connections, but on the basis of the contract demand. The consumers may opt for this tariff, which would do away with connected load problems. This was explained to the objectors in public hearings.

3.2.39 Issue 39: Tariff for EHV category

It was suggested that tariff for EHT consumers should be reduced as the tariff for EHV category in Chhattisgarh is the highest in the country.

CSEB's reply

The tariffs are now decided by the Hon'ble Commission. There are many factors for deciding the tariffs of each category and it may take a few years for rationalisation of tariff.

3.2.40 Issue 40: Issues raised by Bhilai Steel Plant (BSP)

BSP raised certain general issues related to ARR and some specific issues relating to BSP. The issues raised and the suggestions are as follows:

(i) Specific Oil Consumption

CSEB, in its petition, has proposed specific oil consumption of 2 ml/kWh for the existing generation units, which is higher than that approved by the Commission, as well as actual specific oil consumed during last year. The Board has proposed high specific oil consumption, despite 26% increase in R&M expenses over the last year's expenses.

CSEB's reply

As per the discussion paper issued by CERC for finalization of performance parameters for the stations of NTPC, specific fuel oil consumption was finally decided at 2 ml/kWh for all existing and new coal-based generating stations of NTPC. Further, most of the State Regulatory Commissions have approved specific fuel oil consumption of about 2ml/kWh for 210 MW units. Specific oil consumption of 3ml/kWh for Korba East Extension unit I and unit II have been

considered to meet the contingency of initial teething trouble in operation during stabilisation period.

(ii) Plant Load Factor

CSEB has proposed a much lower PLF for the existing generation units for FY 2007-08 in comparison to FY 2006-07. It has been suggested that if PLF achieved in FY 2006-07 is maintained during this financial year also, it will lead to a reduction of Rs. 76 Crore in the proposed ARR, which translates into Rs. 0.08 per unit reduction in cost of supply.

CSEB's reply

The Board has proposed PLF for Korba East Phase III for FY 2007-08 at the same level as that in FY 2006-07. The PLF of Korba West has been proposed lower due to the extra time required for the proposed RLA study in two units and replacement of Air Heater in one unit as mentioned in the tariff petition. The two new units which are to be commissioned during FY 2007-08 may not perform at expected 80% PLF due to teething problems in the initial phase after the date of commercial operation (COD). These units may not be able to perform up to the norms during the stabilisation period which is up to 180 days as stipulated in the CERC (Terms & Conditions of Tariff) Regulations, 2004. Therefore, reduction of Rs. 0.08 per unit in the cost of supply should not be considered.

(iii) T&D Losses

T&D losses of CSEB in FY 2006-07 were 35.54%, which is much higher than the target of 33.81% given by the Commission for that year. For FY 2007-08, the Board has projected T&D losses of 34.54%, which is still higher by 0.73% as compared to the Commission's approved target for FY 2006-07. It has been suggested that if it is not possible to improve further, at least T&D losses fixed by the Commission for FY 2006-07, should be maintained for FY 2007-08 also. This will reduce the ARR by Rs. 122.08 crore, which will result in a reduction of Rs. 0.13 per unit in the cost of supply.

CSEB's reply

As per the National Tariff Policy, electricity should be available to all the households by 2011-12. Substantial rural electrification involved in meeting the aforesaid target contributes to higher technical losses and associated commercial losses in rural areas. In FY 2006-07, the Board reduced the T&D losses by 0.65% over previous year on absolute basis, which would have been much higher if increase in loss resulting from aforesaid works is set off. The proposed loss

reduction by 1% is also on absolute basis. So, the reduction of cost of supply by Rs. 0.13 per unit is far from reality.

(iv) R&M Expenses

Some respondents have submitted that CSEB, under repair and maintenance expenditure, has proposed Rs. 30 crore towards distribution transformer maintenance. However, the Commission in its Order on the Annual Revenue Requirement of CSEB for FY 2006-07 has already allowed Rs. 30 Cr. for Repair and Maintenance expenditure towards distribution transformers maintenance as a one-time expenditure, therefore, the Commission should not allow it again while approving the ARR for FY 2007-08. Further, the expenditure budgeted by CSEB is Rs. 238.95 crore, whereas while determining ARR the same has been considered as Rs. 242.75 crore. The proposed expenditure has to be reduced accordingly.

CSEB's reply

The Commission approved R&M expenses of Rs. 147.30 crore for FY 2006-07, inclusive of Rs. 30 crore for distribution transformer maintenance. However, the provisional R&M expenses in FY 2006-07, as per Accounts of the Board are Rs. 188.49 crore without reckoning for the aforesaid amount of Rs. 30 crore. Thus, the amount spent by the Board under R&M expenses is already higher than the expenditure allowed by the Commission, which will be taken care of while truing up for FY 2006-07. The proposed R&M expenditure of Rs. 238.95 crore is after reducing capitalised amount of Rs. 3.80 crore from total R&M expenses of Rs. 242.75 crore, which is also included in Rs. (-) 232.46 crore shown as interest and other expenses capitalised. So, R&M expense has been correctly shown in ARR for FY 2007-08.

(v) Other Debits

CSEB has proposed other debits of Rs. 107.14 crore for FY 2007-08, out of which bad debts have been projected to the tune of Rs. 105.99 crore, showing 33% increase over the bad debts in the last year. The Board should recover its bills promptly, so that the burden due to non-recovery of receivables does not come in the fixation of tariff.

CSEB's reply

CSEB has about 27 lakh consumers of different categories and the ARR and tariff petition is based on parameters for all consumers in totality. The provision for bad debts, as proposed in the petition, is reasonable as already mentioned in para 13.4 (page 97) of the tariff petition. So, the Commission is requested to allow the same.

(vi) Open Access Charges

CSEB, in its ARR petition, has proposed to increase the short term Open Access charges from Rs. 540 per MW per day to Rs. 640 per MW per day. CSEB has also projected an increase in the transmission losses from 3.93% to 4.13%. Power procurement through Open Access, i.e., sources other than CSEB, helps in avoiding the purchase of power from costlier sources. Therefore, CSEB should not be allowed to increase the loss levels and Open Access charges.

CSEB's reply

The long-term and short-term open access charges are based on the transmission function's ARR of Rs. 188.95 crore, and the available transmission capacity of 2045 MW. Further, investment in transmission function is not commensurate with the grid augmentation required to meet the increasing inputs to the system, resulting in an increase in transmission losses. The transmission losses, which were 3.92% in April 2005 increased to 4.56% in April 2006 and further increased by 4.88% in April 2007. The Board has optimistically projected this loss as 4.13% for FY 2007-08, as against the actual transmission loss of 4.03% in FY 2006-07.

(vii) Power Purchase Cost

CSEB, in its ARR petition for FY 2007-08, has submitted that average power purchase rate was Rs. 4.33 per unit for power purchased from traders in FY 2006-07. However, the average power purchase rate from the same sources has been projected as Rs. 7.45 per unit for FY 2007-08. The Commission should hence, review the rate for power purchase from traders.

CSEB's reply

The Board has proposed only 7% power purchase from other sources (including traders) besides purchase from CGS, Captive stations, IPPs and Biomass units for FY 2007-08. The power from traders is purchased only in acute emergencies for which marginal rate of Rs. 7.45 per unit has been considered on the basis of present market conditions.

(viii) Cross Subsidy

BSP submitted that cross-subsidy for consumers under category of Coal Mines and Heavy industries have shown an upward trend and it has increased from the level of Rs. 0.43 per unit to the Rs. 0.61 per unit (proposed) for FY 2007-08, and for HV-5 consumer category, CSEB has proposed to increase the cross-subsidy from the

existing level of Rs. 0.72 per unit to Rs. 0.80 per unit. This is against the spirit of Electricity Act, 2003 which mandates gradual reduction in cross subsidy.

CSEB's reply

Cross-subsidy is a relative term which depends on tariff and cost of supply. As per the National Tariff Policy, tariffs are to be within $\pm$ 20% of the average cost of supply. Therefore, average cost of supply for all categories of consumers has to be considered, rather than the actual cost of supply, for determination of tariff for different consumer categories. Even after the proposed increase in tariff, tariff for BSP would be within the band of $\pm$ 20% of the average cost of supply.

(ix) Power Factor

Higher power factor at load point helps in reducing the system losses and contributes to system voltage improvement, therefore, it will be appropriate to apportion the benefits to the consumers who are maintaining the higher power factor.

CSEB's reply

The Board has not proposed any change in power factor incentive/penalty for FY 2007-08. However, it had proposed withdrawal of power factor incentive in the tariff petition for FY 2006-07, on the plea that it does not help in reduction of losses and improvement in voltage. Further, CEA's Grid Connectivity Regulations, 2004, provides that the distribution licensee shall compensate the inductive reactive power in its system so as to maintain power factor of not less than 0.98 at connection point of transmission system and it shall also require its consumers to maintain the required power factor by installing capacitors. Therefore, there is no case for reviewing of existing provision of power factor incentive/penalty.

(x) Penalty for Excess Drawal

CSEB currently levies additional charge on excess drawal over the CD both on demand charges as well as energy charges. Moreover, penalty is imposed for the entire month, whereas excess drawal may be for fraction of an hour. Therefore, the Commission is requested to review the penalty clause.

CSEB's reply

As the demand is always associated with the units consumed, the excess supply over and above the contract demand comprises both demand as well as energy. Hence, the charging of penalty on both demand as well as energy has been

incorporated. Further, penalty was 100% of normal charges in the past, which has already been reduced to 50%.

(xi). Reasonable Return

As per CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006, the rate of return on equity is to be applied on the paid-up equity capital (including notional equity on new investment). However, the computation of reasonable return submitted by CSEB in its petition is not very transparent in line with the above Regulations. The method adopted by CSEB should be reviewed by the Commission.

CSEB's reply

The Reasonable Return has been worked out as per CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006, and the same has been elaborated adequately in para 14.2 and para 14.3 of the petition.

3.2.41 Issue 41: Issues raised by Railways

Railways raised the following issues regarding ARR along with some general issues:

i. CSEB, in its ARR petition for FY 2007-08, has proposed a hike in traction tariff from Rs. 2.75 per KVAh to Rs. 2.85 per KVAh, which will increase the burden on Railways by about Rs. 6.5 crores annually.

ii. Railway claimed that cost to serve for Railway is Rs. 2.40 / unit with 4.13% losses at EHV system of CSEB

iii. As per the provisions under National Tariff Policy, cross-subsidy should be reduced progressively, by reducing the tariff for HT consumers who subsidise LT consumers, but, unfortunately the Board has proposed an increase in the tariff for Railways.

iv. In view of the social services being rendered by the Railways to the country, the tariff applicable to Railway traction should reflect the cost of supply without any cross-subsidy and should be reduced.

v. The proposed increase in energy charges by 10 paise per kVAh on account of uninterrupted power supply to Railways is further not justifiable, because Railways are facing interruptions in the supply.

vi. The proposed tariff hike for Railways is high, as compared to that for other HT categories like cement industries and coal mines, etc. The tariff for

Railways should be lower than of other HT industries, as these industries are profit-making companies.

vii. The demand charges levied by CSEB are much above the demand charges charged by other SEBs, and should be reduced accordingly.

viii. The Board should consider a reduction in tariff charged to Railways as the latter has not increased the freight charges of coal in the recent budget.

ix. Calculation of penalty on energy charge is highly unreasonable because even if maximum demand exceeds contract demand only once for 15 minutes, penalty on excess drawal is levied for 720 hours.

x. CSEB is purchasing power from the traders at a high rate of Rs. 7.45 per unit. The Board can grant open access permission to Railways to draw power from Sipat, NTPC, so that the heavy cost paid to traders can be reduced.

xi. The National Tariff Policy categorically defines that tariff should be Multi-Year Tariff (MYT), whereas, CSEB has given tariff for one year only and has failed to comply with the order of the Commission

xii. HV-5 tariff should be applied for consumption of electricity by Railways for industrial purposes, and HV-8 tariff should be made applicable for Railway stations, after reducing the tariff for HV-8 to make it more comparable with that of other industrial consumers.

xiii. Charging for leading power factor was represented at the time of tariff order for the FY 2006-07. The CSEB is charging without permission of the Commission.

xiv. MERC Regulations, 2005, section 83.1 states that cross subsidy is to be borne by the State Government and not by the Indian Railways. Similar scheme should be introduced in Chhattisgarh.

xv. No other tariff is based on KVAh. Why such discrimination with Railways has been done.

CSEB's reply

The Board gave the following responses to the objections raised by Railways:

i. The effective tariff is calculated by considering power factor, demand factor and load factor. After incorporating these three factors for FY 2006-07, the effective tariff with the existing tariff and proposed tariff works out to Rs. 4.27 per unit and Rs. 4.38, respectively.

ii. Average cost of supply and many other factors are considered for determination of tariff by the Commission. It is not only the line loss which contributes to the cost of supply.

iii. The reduction of cross-subsidy is definitely mandated under the EA ,2003 and NTP. The burden of cross-subsidy on HT consumers (including Railways) is being reduced gradually by the Hon'ble Commission.

iv. CSEB has already given the consultancy contract for determination of voltage-wise and consumer category-wise cost of service. The work shall be completed after about 14 months. Railway has become a profit making venture, running entirely on commercial principles these days. There are many industries providing services to the common man, who are bearing cross-subsidy. So, cross-subsidy should be there for Railways also.

v. Some transient faults in the supply systems are unavoidable. No restriction is ever imposed on account of load shedding to Railways, while, all other HT consumers are frequently subjected to load shedding. Hence, logic given by the Board is justifiable.

vi. No reduction in tariff for cement industry has been proposed. The effective reduction is due to the merger of this category with other tariff categories. Railway is already exempted from the payment of electricity duty and cess, which are applicable to other consumers of the State. Therefore, no further relaxation may be claimed under constitutional provisions.

vii. The effective tariff can only be compared after incorporating all the components payable as tariff. Therefore, the comparison of mere demand charges is purposeless. There is no point in comparison of tariff of one State with that of other State.

viii. The freight rate is never determined on the basis of public participation. Therefore, in the absence of direct public participation, it cannot be claimed that the freight and tariff charged by Railways are affordable.

Though Railways have been undertaking public utility services, they still enjoy a commercial status and make huge profits. So, it cannot be kept at par with public utility and agriculture services.

ix. If a consumer is not bound with the contract demand and is free to avail any quantum of power as and when required, the impact of such unlimited enhancement will cause system unstablility. Method of charging unauthorised enhancement in demand is same for all HT consumers. However, Railways are permitted enhancement in contract demand in

cases of emergencies without levy of penalty, which is not permitted to other consumers.

x. The prevalent rates in the market for purchase from traders are even higher than Rs. 7.45 per unit and the needy States have no option but to purchase the power. The proposed purchase of power from traders constitutes merely around 7% of the total requirement. The matter of open access is governed by the prevailing open access Regulations and is not related to tariff.

xi. The Board's unpreparedness for giving MYT proposal has been discussed in the petition. The Commission has been apprised of the difficulties and therefore has accepted this single year tariff application.

xii. There is no genuine ground available to discriminate between Railways and other similarly placed consumers for the purpose of application of HV-8 category. The Board has not proposed any hike in the tariff applicable to HV-8 category, so, any reduction is not justified. Railways can take separate connection for railway colony on HV-9 tariff.

xiii. A reference has been made on CEA's letter dated 15.01.01 to MPERC, while the Railways have forgotten the MPERC's order dated 13.02.04 in which the Railways was also a party. This matter of adopting lag plus lead logic was referred to an expert by MPERC, who after consulting MPSEB and Railways, had given opinion. Based on this opinion and holding hearing which was attended by the representatives of CEA, Railways and the Board, MPERC passed order on 13.02.04. Views of representative of CEA narrated in para 14 of the order are reproduced below :

"(i) The leading reactive power should not be ignored.

(viii) The lag plus load logic for commutation of power factor should be applied as the Railways have accepted that technically it is correct."

xiv. This clause of MERC is not related to HT connections and that too for Railway Traction. It was explained in the public hearing. Such clause is also existing in the Chhattisgarh regulations which can be exercised by the State Government for weaker sections, agriculture sector, etc.

xv. Perhaps the history is not known to the officers presently working in Railways. The Board and Railways had mutually agreed for adoption of KVAh based tariff so as to avoid the power penalty / incentive. The Board had proposed KVAh based tariff for all H.T. consumers in FY 2005-06. The Commission decided to implement it for the railway traction category with

their consent on experimental basis. The Chief Engineer, East Coast Railway, Bhuvaneshwar has also expressely accepted in his letter No. 1511 dated August 17, 2005 to Chief Engineer, South East Central Railway, Bilaspur that the system of lag plus lead logic of PF recording is technically correct.

3.2.42 Issue 42: Tariff Proposal for seasonal Industries

It has been submitted that there should be a separate tariff structure for seasonal industries such as rice and ice factories, which was prevalent in the State earlier.

CSEB's reply

The base consumption for levy of tariff minimum has been already reduced to 25 units from 45 units per HP per month. So, further reduction in this is not justified.

3.2.43 Issue 43: Animal Husbandry

Respondents submitted that a farm having even more than two cows should not be treated as dairy business as proposed by CSEB and should not be charged as per non-domestic tariff.

CSEB's reply

Dairy business is not related to the number of cows owned by a person. Domestic tariff will be applicable if the consumption of milk products is for own purposes. However, tariff as per the agriculture allied services will be applicable if the milk products are used for commercial purposes. Further, tariff for agriculture allied service category is subsidised and is very low as compared to tariff for other commercial businesses.

3.2.44 Issue 44: Issues of tapped lines

It has been suggested that tapped lines should be permitted for connectivity of generator. The Board should develop the necessary infrastructure so that all the records are available at the load dispatch centre. Further, it was also submitted that the proposed pooled losses in intra-State transmission should not be considered, as the power is consumed by other nearby consumers connected on the same line.

CSEB's reply

The issue of creation of infrastructure for tapped lines in not related to the tariff petition. However, the Board has followed the same methodology as in vogue in the power sector through out the country.

CHAPTER 4 ANNUAL REVENUE REQUIREMENT FOR FY 2007-08: CSEB'S PROPOSAL AND COMMISSION'S OBSERVATIONS AND DECISIONS

4.1 BACKGROUND

CSEB, in its ARR and tariff petition for FY 2007-08, has furnished data for the Board as a whole. Disaggregated data has also been furnished for the three functions, viz., generation, transmission and distribution, comprising function-wise operational data as also expenses allocated on certain basis. The ARR and retail tariff proposals have been worked out, taking into account the supply of power by the generating units to the distribution function. The Commission has examined the ARR of the Board as a vertically integrated entity, which it presently is, and has also allocated the expenses to each of the functions on a certain basis. Such allocation is necessary to have an idea of the function-wise costs and efficiencies, as well as for determination of generation tariff, transmission tariff and wheeling charges for open access customers. While allocating the expenses to three functions, the reasonableness of the basis of allocation has also been examined and allocation has been done accordingly.

If the Board is restructured into separate companies for generation, transmission and distribution, separate ARR/tariff filing will be required to be submitted to the Commission. The expenses allocated to each function on the above basis in this order and the previous two tariff orders will provide the basis and database for assessment of past trends in expenditure, as and when separate ARR and tariff petitions are filed for each function, before the Commission.

4.2 ELECTRICITY CONSUMERS CATEGORY-WISE

The total number of consumers of the Board as on March 31, 2007 has been stated to be 25.36 lakh. The Board has projected an increase of around 2.69 lakh consumers in FY 2007-08, resulting in a total consumer base of around 28 lakh at the end of FY 2007-08. The consumer mix and the category-wise increase in the number of consumers projected by CSEB for FY 2007-08 is given in the table below:

Table 4.1

Category-wise Consumers

Consumer Category	Number of consumers at the end of the year		Projected Growth in number of consumers	% of total LT/HT Consumers
	FY 2006-07 (Actual)	FY 2007-08 (Projected)		FY 2007-08 (Projected)
LT Consumers (99.96%)				
Domestic - BPL Consumers	867949	1017949	150000	36.31%
Domestic - Other Consumers	1293255	1348026	54771	48.09%
Non Domestic	178509	185804	7295	6.63%
Agriculture (Metered)	2354	56331	53977	2.01%
Agriculture Flat Rate	141372	141372	0	5.04%
Agriculture Allied Services	221	221	0	0.01%
Industries	22600	23522	922	0.84%
Public Utilities	8590	8718	128	0.31%
Temporary Supply	20075	21427	1352	0.76%
Total LT	**2534925**	**2803370**	**268445**	**100.00%**
HT Consumers (0.04%)				
Railway Traction	21	21	0	1.69%
Cement Industries	9	9	0	0.73%
Coal Mines & Heavy Industries > 20 MVA	24	26	2	2.10%
Steel Industry	281	321	40	25.87%
Other HT Industries	377	452	75	36.42%
Low Load factor HT Industries	144	154	10	12.41%
General (Residential)	37	37	0	2.98%
General (Non-Industrial)	167	192	25	15.47%
Public water works	13	13	0	1.05%
Irrigation	16	16	0	1.29%
Temporary Connection	0	0	0	0.00%
Sub Total: HT	**1089**	**1241**	**152**	**100.00%**
Total (LT+HT)	**2536014**	**2804611**	**268597**	

The steep increase in the number of consumers in FY 2007-08 is stated to be on account of the projected release of 1.5 lakh new Below Poverty Line (BPL) connections, as well as around 55000 and 54000 new connections in the other domestic and LT agricultural category respectively.

LT consumers comprise 99.96% of the total consumer base of CSEB, with domestic consumers and BPL consumers comprising 84.4% (48.1% and 36.3%, respectively), of the LT consumer base. HT consumers comprise merely 0.04% of the total consumer base. Out of the total HT consumers, steel industries and other HT industries comprise 26% and 36%, respectively, while low load factor industries and general (non-industrial) consumers comprise 12% and 15%, respectively. The

total number of HT consumers is projected to go up to 1241 from 1089, a rise of 14%.

4.3 CATEGORY-WISE SALES

CSEB has projected the category-wise sales for FY 2007-08 on the basis of trend analysis of sales over the last five years. The actual category-wise sales over the last five years, the five-year Compounded Annual Growth Rate (CAGR), growth rate considered by CSEB and the sales projected by CSEB for FY 2007-08 are given in the table below:

Table 4.2

Consumer Category-wise Energy Sales (MU)

LT Consumers	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05	FY 2005-06	FY 2006-07	CAGR 5 year, %	Growth considered %	Projected Sales FY 2007-08
BPL Consumers	109	117	130	141	258	304	22.80%	11.52%	339
Other Domestic	778	854	986	1058	1162	1236	9.70%	9.70%	1356
Non-domestic	166	186	212	235	270	288	11.65%	11.65%	322
Agriculture – Metered	0	0	4	5	15	21	-	-	184
Agriculture – Flat	0	0	250	261	430	565	-	-	619
Agriculture Allied						0.81	-	-	1.6
Industry	228	270	301	328	357	374	10.38%	10.38%	412
Public Utilities (PWW & SL)	68	75	84	95	109	109	9.83%	9.83%	119
Temporary Supply	83	82	68	92	135	109	5.66%	5.66%	115
Sub Total: LT	**1432**	**1584**	**2035**	**2215**	**2735**	**3007**	**16.00%**	**15.31%**	**3468**
HT Consumers									
Railway Traction	483	495	530	586	617	653	6.23%	6.23%	694
Cement Industries	294	633	631	370	272	284	-0.66%	0.00%	284
Coal Mines & Heavy Industry	1441	1614	1817	1771	1974	1759	4.06%	4.06%	1830
Power intensive/ Steel Industry	149	454	923	1258	1452	1946	67.18%	24.36%	2420
Other HT Industries	518	411	413	579	399	478	-1.58%	3.87%	497
HT Low Load factor Industries	0	0	0	0	67	82		10.00%	90
General (Residential)	0	0	0	96	237	224		10.00%	246
General (Non-Industrial)	316	308	339	262	145	150	-13.86%	3.34%	155
Public water works	20	22	26	27	29	30	8.73%	8.73%	33
Irrigation	6	6	6	9	6	8	5.80%	5.80%	8
Temporary Connection	0	0	0	0	0	0		0.00%	0
Sub Total: HT	**3227**	**3943**	**4685**	**4958**	**5198**	**5614**	**11.71%**	**11.46%**	**6258**
Total (LT+HT)	**4659**	**5527**	**6720**	**7173**	**7933**	**8622**	**13.10%**	**12.80%**	**9726**

CSEB has projected a growth of 12.8% in the overall sales of electricity, contributed by a 15.3% growth in LT category sales and 11.5% growth in HT category sales, resulting in sales of 9726 MU in FY 2007-08. CSEB has stated that the sales in FY 2005-06 and FY 2006-07 were affected by the acute power shortage and load shedding, which is expected to be reduced to a large extent in FY 2007-08, on account of the expected increase in availability from the Central sector as well as Board's own generation stations.

The Board has largely used the five-year CAGR to project the sales for FY 2007-08, except in the following cases:

(a) Un-metered categories like BPL and agriculture, where number of new connections to be released and normative load factor, have been used to project the sales.
(b) In case of consumer categories, where five-year CAGR has been negative or zero, CSEB has either considered recent trends for projection of sales, or assumed that sales will remain at FY 2006-07 levels.
(c) Sales to new consumer categories, in respect of which trend is not available, have been projected to increase at the rate of 10%.
(d) Sales to power intensive and steel industries has registered a very high increase over the five-year period, and CSEB has considered that the high rate of increase may not be sustainable, and hence, projected the increase in sales over the past two years.

CSEB has submitted that it has given the break-up of slab-wise sales as well as the voltage-wise break-up of sales within each consumer category, on the basis of the data obtained from the R-15 database.

The consumer category-wise sales as projected by the Board are discussed below:

A. LT Consumers

1) BPL Consumers

The Board has projected an addition of 1.5 lakh new metered connections for BPL consumers in FY 2007-08 under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) scheme, on the basis of the directive given by the State Government in this regard. The average consumption of these consumers has been considered as 30 units per connection per month, in accordance with the Commission's tariff order for FY 2006-07. The projected sale to this category is 339 MU, which is an increase of 11.52% over the sales in the previous year.

Commission's views

In FY 2006-07, CSEB had projected an addition of 2.3 lakh new BPL connections, which were considered unattainable by the Commission, and hence, the Commission considered addition of 1.5 lakh BPL connections. However, the actual number of new BPL connections added by CSEB in FY 2006-07 was around 44, 700, which is far less than the original projection.

For FY 2007-08, although CSEB has projected addition of 1.5 lakh connections, the Commission is sceptical about CSEB's capability to achieve the same. However, for the purpose of this order, the Commission has accepted CSEB's projection, as the CSEB should be in the best position to judge its capability in this regard and set its targets. The Commission has considered that the Board will add new consumers in an even manner through the year, to achieve the annual target at the end of the year. The Commission has considered a normative consumption of 30 units per month, for both existing and new BPL connections, to assess the sales to this category. If the consumption of the BPL category consumers exceeds 30 units per month in any month, then such BPL consumers would have to be billed under other domestic category. The Commission has projected sale to BPL category in FY 2007-08 as 331 MU.

2) Other Domestic Consumers

The Board has projected an addition of around 55000 new connections under Other Domestic category in FY 2007-08, and has projected the sales to this category to be 1356 MU, which is an increase of 9.7% over the sales in the previous year, in line with the five-year CAGR in sales for this category. The Commission has accepted this projection, as the five-year growth trend is consistent with the recent trend of year-on-year growth.

3) Non Domestic Consumers

The Board has projected sales to non-domestic consumer category at 322 MU, which is an increase of 11.65% over the sales in the previous year, in line with the five-year CAGR in sales for this category. The Commission has accepted this projection, as the sale to this category has shown a sustained growth over the last five years.

4) Agriculture Consumption

CSEB has projected the sales for agriculture category taking in to account release of 40,000 new metered connections in FY 2007-08, as per the directive issued by the

State Government to release 1 lakh new agriculture connection by year 2009. CSEB has clarified that of the 34417 metered agricultural connections released in FY 2006-07 (against the target of 35000 new connections), only 22356 new connections have been reflected in the R-15 statement, and hence, the balance 12061 new connections (i.e., 34417 – 22356) have been considered as added in the beginning of FY 2007-08, resulting in a projected addition of 52061 new agricultural connections in FY 2007-08.

CSEB has considered an average load of 4 HP per connection and a load factor of 18% for metered and flat rate category, for projecting the sales to this category at 184 MU and 620 MU for metered and un-metered category, respectively. CSEB has submitted that though the Commission has considered load factor of 15% for assessing agricultural consumption, the actual field data received for different months based on sample metering, indicates a higher load factor of 22.36%. The Board has submitted that this load factor appears to be reasonable, considering that many agricultural consumers in the State are cultivating up to three crops a year. CSEB has given the example of Kawardha division, where farmers are cultivating sugar cane, paddy, grams, etc., round the year, and the load factor there is as high as 50%. In view of the above, CSEB has considered a load factor of 18% to compute the consumption of metered and flat rate agricultural consumers for FY 2006-07 and for FY 2007-08.

Commission's views

The Commission had approved a load factor of 15% for FY 2006-07, on the basis of CSEB's submission that the 15% load factor has been indicated by study of sample metering. In the petition for FY 2007-08, CSEB has submitted that the actual load factor is even higher, and has hence, considered a load factor of 18% for metered and flat rate consumers for FY 2006-07 and FY 2007-08.

The need for assessing the consumption of agricultural category with some degree of accuracy arises because of the lack of metering for individual connections. The Board has been very lax in this aspect, and has not been able to convert flat rate connections to metered connections in spite of the repeated directions of the Commission. The worrying fact is that CSEB does not appear to be reading the meters of consumers with metered connections, and continues to project consumption of this category on the basis of load factor. This is totally unacceptable and the whole purpose of metering is defeated. CSEB should ensure that individual connections are provided with meters, these meters are read regularly, and bills are issued only on the basis of meter reading for consumers

under metered tariff. Further, CSEB should provide meters on all 11 kV feeders and agricultural distribution transformers in the first phase, so that the energy accounting is improved, and a more realistic assessment of the un-metered consumption is made.

As regards realistic load factor assumption, considering that paddy is the main crop of the farmers in the State and it is a highly water-intensive crop, it is difficult to assess the load factor with any degree of certainty, in the absence of scientific study in this matter. For the purpose of this order, the Commission has accepted CSEB's projection of 18% load factor for metered and flat rate connections, which indicates operation of pumpsets for 1577 hours every year, i.e., around 6 to 7 hours of operation per day, if the monsoon months are considered as zero consumption months.

The Board was directed to undertake a scientific study of agriculture consumption. The Commission has noted that the Board has finally appointed a consultant for the same recently, with the results expected in around 14 months time. Once the results of the study are available, and CSEB also increases the rate of meterisation, the assessment on the basis of load factor can be discontinued.

Thus, the agricultural sales considered by the Commission for FY 2007-08 are 184 MU and 620 MU for metered and flat rate category, respectively. The flat rate sales include sales of 1.62 MU to agricultural allied services, which are not being reported separately at present. **CSEB should ensure that the sales to this category is recorded separately, and not be clubbed with the sales to agricultural category.**

5) LT Industries

The Commission has accepted the sales of 412 MU projected by the Board to LT industrial category, which is an increase of 10.4% over the sales in the previous year. This is in line with the five-year CAGR in sales for this category.

6) Public Utilities

The Board has projected sales to public utilities at 119 MU, which is an increase of 9.90% over the sales in the previous year, in line with the five-year CAGR in sales for this category. The Commission has accepted this projection, as the sale to this category has shown a sustained growth over the last five years.

7) Temporary Connections

The Board has projected sales to temporary LT connections at 115 MU, which is an increase of 5.60% over the sales in the previous year, in line with the five-year CAGR in sales for this category. The Commission has accepted this projection, as the sales to this category is difficult to project, and has fluctuated widely over the last few years.

Commission's views on projected LT sales

Though the Board has claimed that the slab-wise consumption data has been extracted from the R-15, the same appeared to be incorrect on the basis of the Commission's preliminary analysis. In the discussions during the technical validation session, CSEB admitted that the R-15 did not record the actual slab-wise consumption, and the Board had no documentary evidence to justify the slab-wise sales considered in the petition. The Board submitted that once the SAP system was in place across the State, the Board would be in a position to submit authentic data in this regard. In the meantime, the Board has adopted the approach of proportionately allocating the sales of the category over the sub-categories and slabs in a particular manner, based on the Board's best judgement. The pitfalls in this approach are clearly brought out by the allocation done by CSEB in its Form no. F1/T1b and Form T1c for the non-domestic category, as shown in the table below:

Table 4.3

Non-Domestic Category

	Sub-category	Consumption Slab	Number of consumers	Connected load in kW	Consumption in MU
LV 2 Non-Domestic	**Single Phase**	0-500 Units	131,153	105,330	64.31
		0 to > 500 Units (Non-Telescopic)	14,573	11,703	96.47
		Sub Total	**145,726**	**117,034**	**160.78**
	Three phase	0-500 Units	32,788	105,330	64.31
		0 to > 500 Units (Non-Telescopic)	3,643	11,703	96.47
		Sub Total	**36,431**	**117,034**	**160.78**
	Total		**182,157**	**234,067**	**321.56**

In the above table giving the projected profile of the non-domestic category in FY 2007-08, the number of consumers in single phase category comprises 80% of the total consumer base, but the connected load and the consumption have been allocated equally between single-phase and three-phase category. Moreover, the connected load and consumption have been further allocated to below 500 units per month and consumption above 500 units per month in the same proportion, i.e., 90% and 10%, respectively, for both single-phase and three-phase category.

While these assumptions may result in the same revenue as for the previous year, there is no sanctity of these numbers, and the resulting revenue can be significantly different, in case of any tariff changes made by the Commission. **The Board should realise the importance of correcting and streamlining its commercial database to reflect the actual tariff categories and sub-categories, so that the Board itself is in the position to correctly assess the revenue from the tariff.** However, for the purpose of this order, the Commission is left with no choice but to accept the data submitted by the Board, for determination of the revenue.

B. HT Consumers

1) Railway Traction

The Board has projected sales to Railway traction category at 694 MU, which is an increase of 6.23% over the sales in the previous year, in line with the five-year CAGR in sales for this category. The Commission has accepted this projection, as the sale to this category has shown a sustained growth over the last five years.

2) Cement Industries

The Board has projected the sales to this category in FY 2007-08 to remain at the same level as in the previous year, at 284 MU, as there has been no growth in the consumption by cement industry during the last few years. There is also no expectation of increase in contract demand of existing consumers nor any likelihood of new consumers. The Commission has accepted this projection and sales to cement industries in FY 2007-08 have been considered as 284 MU.

3) Coal Mines & Heavy Industries

The Board has submitted that the sales growth in this category has been negative in the last few years, but, consumption of coal mines is likely to increase on account of increased activities and new generating units. CSEB has hence, projected sales of 1830 MU for coal mines and heavy industries during FY 2007-08, by considering a 4.06% increase in sales over the previous year, which is in line with the five-year CAGR in sales to this category.

Commission's views

The sales to this category have shown a fluctuating trend over the last five years, but the long-term trend is positive. Further, the Board has estimated that new units are likely to come up and consumption of existing units is also likely to increase on account of increased activities. Moreover, the consumption by BALCO,

the biggest consumer in this category, is expected to increase this year, on account of reduced generation from its captive generation facilities, which has also reduced the sale of surplus captive generation of BALCO to the Board. The Commission has obtained the details of actual sales to BALCO in the first five months of FY 2007-08, and on comparison with the sales to BALCO during the same period in the previous year, the Commission has projected that the sales to BALCO are likely to be higher by around 90 MU in FY 2007-08 over FY 2006-07 levels. Hence, the total sales to this category in FY 2007-08, have been accepted by the Commission as 1920 MU, which includes addition of 90 MU to the sales projected by the Board (i.e. 1830 MU).

4) Steel Industries

The Board has submitted that the sales to this category are dependent on the market conditions, and have been moderately high during the previous years. However, a number of applications for new connections as well as for load enhancement are being processed and hence, the Board has projected sales to this category in FY 2007-08 as 2420 MU, by considering the two-year CAGR of 24.36%.

Commission's views

The sales to this category have been increasing steadily over the last five years, with a five-year CAGR in sales of 67%. It may not, however, be appropriate to assume that the sales will increase at this high rate even during FY 2007-08. The growth assumed by the Board therefore, appears to be on the lower side. The Commission has considered the three-year CAGR of 28.2% to project the sales to this category in FY 2007-08. Hence, the total sales to this category in FY 2007-08, have been considered by the Commission as 2495 MU.

5) Other HT Industries

The Board has submitted that the sales to this category is dependent on Government policies, infrastructure facilities, input costs and other factors, and hence, the Board has projected the sales in FY 2007-08 as 497 MU by assuming a moderate growth of 3.87%, which is the four-year CAGR.

Commission's views

The sales to this category have been fluctuating over the last five years, with a negative five-year CAGR in sales of 1.6%. However, the sales have increased in the shorter-term, by around 20% in FY 2006-07 over FY 2005-06 levels. Hence, the Commission has considered the three-year CAGR of 4.99% to project the sales to

this category in FY 2007-08. Hence, the total sales to this category in FY 2007-08, have been considered by the Commission as 502 MU.

6) Low Load Factor Industries and start up Power

The Board has submitted that no trend is available since this is a new consumer category created by the Commission in the last tariff order, and has shown an annual increase of 22%. Hence, the Board has projected the sales to this category as 90 MU, by considering a 10% increase in sales over FY 2006-07 levels, which has been accepted by the Commission.

7) HT Bulk Supply & Residential

For this category also, the Board has submitted that no trend is available since this is a new consumer category created by the Commission in the last tariff order, and hence, the Board has projected the sales to this category as 246 MU, by considering a 10% increase in sales over FY 2006-07 levels.

Commission's views

The long-term trend in sales to this category is not available, since this category was grouped with the general purpose (non-industrial) category, prior to the Commission's last tariff order for FY 2006-07. However, there has been a reduction in sales in FY 2006-07 over FY 2005-06 levels, and hence, it may not be appropriate to consider a 10% increase in sales to this category. The Commission has hence, projected the sales to this category as 237 MU, considering a 6% increase in sales over FY 2006-07 levels.

8) General Purpose (non-industrial)

CSEB has submitted that it has received a number of applications for new connections under this category, and the annual increase in FY 2006-07 was 3.34%, which has been considered projecting the sales for FY 2007-08, giving projected sales of 155 MU for this category.

Commission's views

The sales to this category have remained almost flat in the last few years and have not increased significantly. Hence, the Commission has considered the sales to this category in FY 2007-08 to remain at the same level as in FY 2006-07, at 150 MU.

9) Public Water Works

The Board has projected the sales to this category for FY 2007-08 as 33 MU, by considering a growth rate of 8.73%, which is the five-year CAGR, which has been

accepted by the Commission in view of the consistent trend in sales over the last few years.

10) HT Irrigation

The Board has projected the sales to this category for FY 2007-08 as 8 MU, by considering a growth rate of 5.8%, which is the five-year CAGR, which has been accepted by the Commission in view of the consistent trend in sales over the last few years.

Approved Sales for FY 2007-08

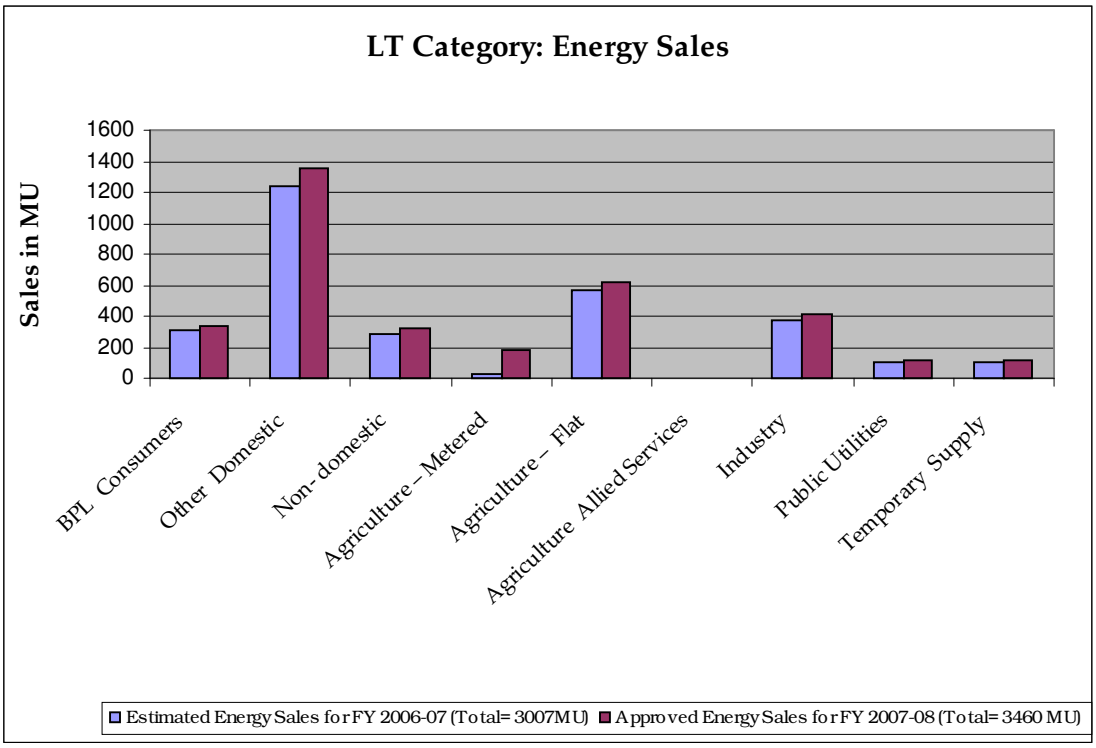
The summary of category-wise sales projected by the Board in its petition and the sales approved by the Commission for FY 2007-08 is given in the table below:

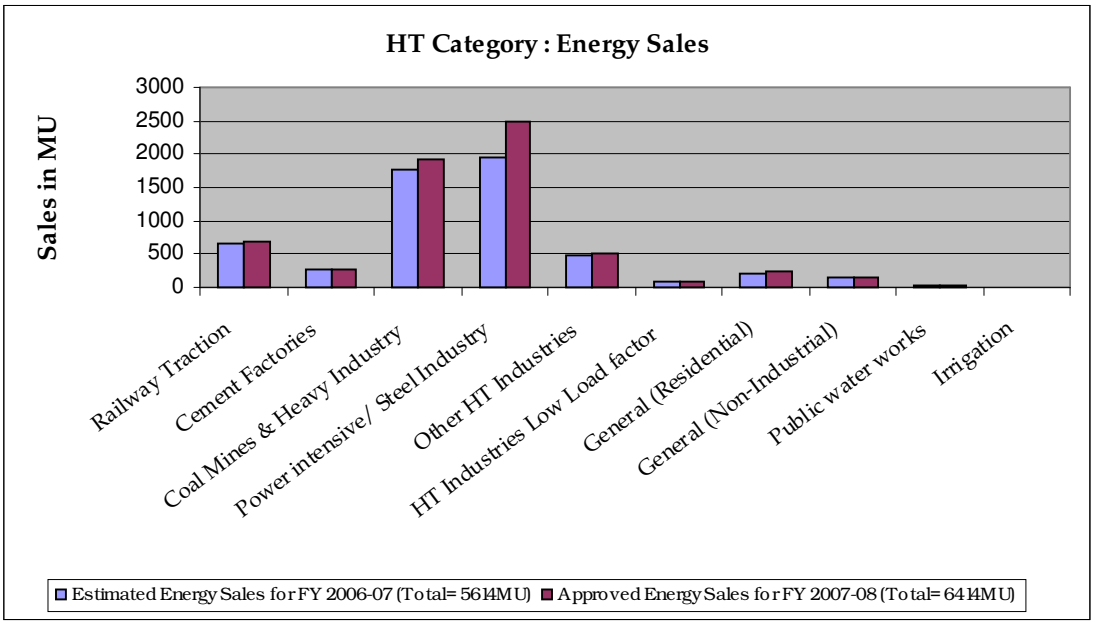
Table 4.4

Category-wise Energy Sales (MU)

Sl.	Consumer Category	Projected by CSEB	Approved by the Commission
	LT Category		
1	BPL category	339	331
2	Other Domestic	1356	1356
3	Non-Domestic	322	322
4	Public Utilities	119	119
5	Industry	412	412
6	Agriculture		
	a) Metered consumers	184	184
	b) Flat Rate consumers	619	619
	c) Allied services	1.6	1.6
7	Temporary Supply	115	115
	Sub-total LT Category	**3468**	**3460**
	HT Category		
1	Railway Traction	694	694
2	Cement Industries	284	284
3	Coal Mines & Heavy Industries	1830	1920
4	Steel Industries	2420	2495
5	Other Industries	497	502
6	Low load factor Industries	90	90
7	Bulk Supply Residential	246	237
8	General (Non-industrial)	155	150
9	Public Water Works	33	33
10	Irrigation	8	8
11	Temporary Supply	0	0
	Sub-total HT Category	**6258**	**6414**
	Total Energy Sales	**9726**	**9874**

The Commission has approved a slightly higher total energy sale of 9874 MU for FY 2007-08, as compared to the 9726 MU projected by the Board. The category wise estimated sales for FY 2006-07 and approved sales for FY 2007-08 are compared in bar-charts below:





The voltage-wise segregation of the approved energy sales is given in the table below:

Table 4.5

Voltage-wise Approved Energy Sales (MU)

Sl.	Voltage level	Approved Sales (MU)	% of Total Sales
1	230/440 V (LT)	3460	35.04%
2	11 kV (HT)	69	0.70%
3	33 kV (HT)	3302	33.44%
4	132/220 kV (EHT)	3043	30.82%
5	Sub-total (HT + EHT)	6415	64.96%
6	**Total**	**9874**	**100.00%**

4.4 TRANSMISSION & DISTRIBUTION LOSS

CSEB has projected transmission and distribution (T&D) losses of 34.54% for FY 2007-08, comprising transmission losses of 4.13% and distribution losses of 30.41%, respectively. The Board has submitted that the actual T&D losses in FY 2005-06 and FY 2006-07 were 36.19% and 35.54%, respectively. The Board has submitted that the T&D losses have been estimated on the basis of assessed consumption of the un-metered consumer categories, viz., BPL and agriculture, and hence, any change in the estimation of sales to these categories will have a major impact on the estimation of the losses.

It has also been submitted that the transmission loss has been increasing slightly over the last three years, on account of the increase in the system input, and inadequacy of capital investment in this function in the past. An increase in the transmission losses, from 4.03% in FY 2006-07 to 4.13% in FY 2007-08, has been projected on account of the increase in system input. It has, however been stated that the transmission losses in the State are the lowest in the region as well as compared to the neighbouring States.

As regards distribution loss, the Board has submitted that the losses have been increasing in the last few years on account of the increased rural electrification, which leads to higher technical losses, as well as increase in commercial losses. The Board has submitted that it has managed to reduce the distribution losses by 0.65% in FY 2006-07 on absolute basis, despite the increased level of rural electrification and the increase in the number of BPL and agricultural connections.

CSEB has proposed a reduction of 1% in the T&D losses in FY 2007-08, as compared to the reported loss level in FY 2006-07. The table below shows the T&D losses as projected by CSEB:

Table 4.6

Transmission & Distribution Losses-CSEB Projections

Particulars	FY 2005-06 (Actual)	FY2006-07 (Actual)	FY 2007-08 (Projected)
Total Energy Input to Transmission (MU)	12433	13375	14857
Less: EHT sales (MU)	2819	2784	2945
Less: Input to Distribution System at 33 kV (MU)	9125	10052	11298
Transmission Loss (MU)	489	539	614
Transmission Loss (%)	**3.93**	**4.03**	**4.13**
Input to Distribution System at 33 kV (MU)	9125	10052	11298
Less BPL Consumption (Assessed) (MU)	258	304	339
Less Agricultural Consumption (Assessed) (MU)	430	566	620
Less Metered Consumption (HT+LT) (MU)	4426	4968	5822
Distribution Loss (MU)	4011	4214	4518
Distribution Loss (%) (w.r.t. Distribution input at 33 kV)	43.96	41.92	39.99
Distribution Loss (%) (w.r.t. system input)	**32.26**	**31.51**	**30.41**
Total System Loss (MU) (T&D loss)	4500	4753	5131
Total System Loss (%)	**36.19**	**35.54**	**34.54**

Commission's views

The Commission had approved overall T&D losses of 33.81% for FY 2006-07, comprising transmission loss of 3.93%, and distribution loss of 31.1% (w.r.t. input to distribution system). The Commission had observed that the distribution loss of CSEB was very high, given that the HT consumption was around 64% of the total consumption. The Commission had directed the Board to take effective steps to reduce the distribution loss by providing meters on feeders and distribution transformers for effective energy audit to arrive at the accurate technical and non-technical losses.

The Commission also directed the Board to further reduce the T&D losses by 3% in FY 2007-08, bringing it to 30.81%, and stated that these are firm targets and in case the Board was unable to achieve these targets, the deficit in reduction of loss would have to be borne by the Board, as both deficiency in performance and the efficiency gains were to be retained by the Board. The Commission added that the loss reduction target would be reviewed after the completion of the loss study on

the basis of the findings of the study. However, in its petition, the Board has indicated that it has not achieved the targets set by the Commission for FY 2006-07, but also projected only a 1% reduction in T&D loss in FY 2007-08, resulting in an overall T&D loss level of 34.54% as compared to the Commission's target of 30.81% in FY 2007-08.

The rationale given by the Board for increase in **transmission losses**, viz., on account of the higher energy units handled, is fallacious, since in FY 2005-06, the actual energy units handled by the transmission system was 12405 MU against the projected and approved quantum of 14158 MU and the actual transmission loss for the year has been reported as 3.93% against the projected and approved loss level of 3.71%. Hence, the rationale that higher units handled will result in higher transmission loss is too simplistic. CSEB should undertake detailed load flow studies and ensure that appropriate metering is in place at all transmission and distribution (T<>D) interface points, so that the transmission loss can be measured accurately. The Commission, however, approves transmission loss of 4.03% for FY 2007-08.

As regards the **distribution losses**, the Commission has already stated in its previous tariff order that given the favourable HT:LT consumer and consumption mix, the distribution loss reported by CSEB was very high. The target of distribution loss given in the Commission's previous tariff order is still operative. However, if this is followed in toto, then the total loss reduction expected in FY 2007-08 would amount to 4.73%, on account of CSEB's failure to reduce the loss levels in FY 2006-07. While this may be legally justifiable, the Commission feels that it may not be practicable for CSEB to achieve a loss reduction of 4.73% in one year, even though the Board has been claiming in other fora that it could achieve even lower loss levels over the next few years, as discussed in Chapter 2 of this order.

Moreover, Clause 5.3(h)(2) of the Tariff Policy notified by the Central Government, dealing with operational norms, stipulates that

> *"In cases where operations have been much below the norms for many previous years the initial starting point in determining the revenue requirement and the improvement trajectories should be recognized at "relaxed" levels and not the "desired" levels."*

Hence, considering the practical aspect, and the fact that the actual loss levels are being reported as 35.54% in FY 2006-07, the Commission is left with no option but

to revise the loss reduction target. **The Commission directs CSEB to reduce the T&D loss level by 3% in FY 2007-08 over the actual T&D loss level of 35.54% in FY 2006-07, resulting in target overall T&D loss of 32.54%, comprising transmission loss of 4.03% and distribution loss of 29.71% (w.r.t. energy input to distribution system), as shown in the table below:**

Table 4.7

Transmission & Distribution Losses –Approved for FY 2007-08

Sl.	Particulars	CSEB Projection	Approved by Commission
	Transmission Loss		
1	Energy Input to transmission system (MU)	14857	14637
2	Energy output to distribution interface (MU)	14244	14047
3	Transmission Loss (MU)	614	590
4	**Transmission Loss (%)**	**4.13%**	**4.03%**
	Distribution Loss		
5	Energy Input to distribution system (MU)	14244	14047
6	Energy Sales (MU)	9726	9874
7	Distribution Loss (MU)	4518	4173
8	**Distribution Loss (%)**	**31.72%**	**29.71%**
9	**Overall T&D Loss (%)**	**34.54%**	**32.54%**

The summary of proposed, approved and actual T&D loss for FY 2005-06, FY 2006-07 and FY 2007-08 is given in the table below:

Table 4.8

Transmission & Distribution Losses for three years

Year	Proposed	Approved	Actual (As per Tariff Petition for FY 2007-08)
FY 2005-06	35.81%	35.81%	36.19%
FY 2006-07	34.51%	33.81%	35.54%
FY 2007-08	34.54%	32.54%	-

The Commission reiterates its directive to reduce T&D loss reduction by 3% w.r.t. actual loss levels. The National Electricity Policy as notified by the Central Government stipulates vide Clause 5.4.6 and Clause 5.8.10 as reproduced below:

5.4.6 A time-bound programme should be drawn up by the State Electricity Regulatory Commissions (SERC) for segregation of technical and commercial losses through energy audits. Energy accounting and declaration of its results in each defined unit, as determined by SERCs, should be mandatory not later than March 2007. An action plan

for reduction of the losses with adequate investments and suitable improvements in governance should be drawn up Standards for reliability and quality of supply as well as for loss levels shall also be specified ,from time to time, so as to bring these in line with international practices by year 2012.

5.8.10 It would have to be clearly recognized that Power Sector will remain unviable until T&D losses are brought down significantly and rapidly. A large number of States have been reporting losses of over 40% in the recent years. By any standards, these are unsustainable and imply a steady decline of power sector operations. Continuation of the present level of losses would not only pose a threat to the power sector operations but also jeopardize the growth prospects of the economy as a whole. No reforms can succeed in the midst of such large pilferages on a continuing basis.

The State Governments would prepare a Five Year Plan with annual milestones to bring down these losses expeditiously. Community participation, effective enforcement, incentives for entities, staff and consumers, and technological upgradation should form part of campaign efforts for reducing these losses. The Central Government will provide incentive based assistance to States that are able to reduce losses as per agreed programmes.

As described in the Chapter 2, CSEB submitted various data related to AT&C losses in different context at various places. The Commission has taken a serious note of the same and also brought to the notice of the Government vide its letter no. 04-CSEB/04/01/2007/1308. The loss reduction action plan for FY 2007-FY 2012 as notified by the Government issued under the provision of para 5.8.10 of NEP has set the targets for reduction during the Eleventh Five Year Plan and it appears that the targets notified are not likely to be achieved. Further, if Central Government accepts this target then CSEB would not get any incentives for loss reduction in future as these targets are not likely to be achieved. If the Commission adopts these targets which are prima facie unachievable, in fixation of tariff, it may result in losses to the Board. The Commission is of the view that implementable targets to be set and a loss reduction plan be prepared accordingly so that the State and utility get the benefit of the loss reduction.

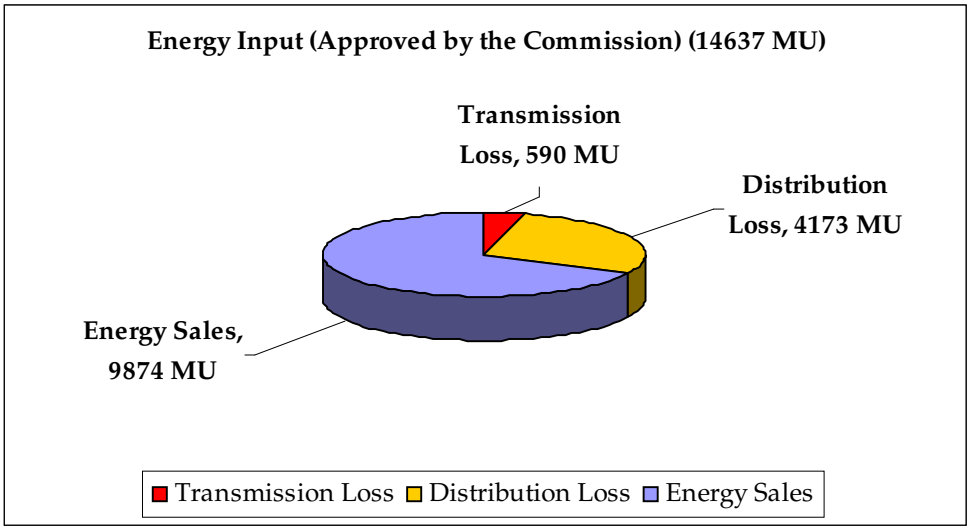
4.5 ENERGY REQUIREMENT

The energy requirement is the sum of energy sales and T&D losses in the system. The energy requirement projected by the Board and as approved by the Commission for FY 2007-08 is shown in the table below:

Table 4.9

Energy Requirement (MU) for FY 2007-08

Particulars	CSEB Projection	Approved by Commission
Metered Sales	8767	8923
Assessed Un-metered sales	959	951
Total sales	9726	9874
T&D Loss (%)	34.54%	32.54%
T&D Loss	5131	4763
Energy Requirement	**14857**	**14637**



4.6 OWN GENERATION

CSEB owns and operate thermal, hydel, micro hydel and co-generation stations. During FY 2007-08, two new units of 250 MW each at Korba East thermal station, i.e., Korba East Extension I and II are expected to be commissioned. After commissioning of the two units of Korba East Extension, CSEB will own and operate five thermal generating stations, four hydel stations including one micro hydel station and one co-generation plant. The details of the CSEB generating stations alongwith capacity is given in the following table:

Table 4.10

CSEB: Generating Stations

Name of the Station	Nos. and Unit Size (MW)	Total Capacity (MW)
Korba East Phase II	4X50	200
Korba East Phase III	2X120	240
Korba West	4X210	840
Korba East Extension I	1X250	250
Korba East Extension II	1X250	250
Kawardha Cogeneration Plant	1X6.0	6
Total (Thermal + Cogeneration)	**-**	**1786**
Hasdeo Bango (Hydel)	3X40	120
Gangrel (Hydel)	4X2.5	10
Sikasar (Hydel)	2X3.5	7
Micro HPS Korba West	1X0.85	0.85
Total (Hydel)	**-**	**137.85**
Total Capacity	**-**	**1923.85**

4.6.1 Operational Parameters of the Generating Stations

CSEB has submitted the actual performance of the generating stations for FY 2005-06, FY 2006-07, and projected performance for FY 2007-08 for the above thermal, hydel and co-generating stations. CSEB has also submitted the maintenance plan for its thermal units for FY 2007-08.

The performance parameters of the stations as considered by CSEB in its petition and as approved by the Commission for FY 2007-08 are discussed below:

A) Plant Load Factor (PLF) of thermal stations

CSEB has submitted the details of actual PLF for FY 2005-06 and FY 2006-07 and projected PLF for FY 2007-08, for all existing thermal stations. It has also submitted the projected PLF for the two new units at Korba East. The actual PLF for FY 2005-06, PLF approved by the Commission for FY 2006-07, actual PLF for FY 2006-07 and PLF projected by CSEB for FY 2007-08 is given in the table below:

Table 4.11

Plant Load Factor (PLF) projected by CSEB

Power Stations	FY 2005-06 (Actual)	Approved by Commission for FY 2006-07	FY 2006-07 (Actual)	FY 2007-08 (Projected)
Korba East phase II	91.92%	88.50%	92.66%	85.75%
Korba East phase III	75.49%	80.00%	78.95%	78.95%
Korba East Extension I (w.e.f. 1st Nov 07)	-	-	-	70.00%
Korba East Extension II (w.e.f. 1st Feb 08)	-	-	-	70.00%
Korba West	78.13%	78.00%	80.78%	75.78%

As may be observed from the above table, CSEB has projected lower PLF for FY 2007-08 for all its existing stations as against the actual PLF achieved during FY 2006-07. It is further observed that the actual PLF for Korba East Phase III during FY 2006-07 is lower than the approved PLF for FY 2006-07. The summary of maintenance plan of thermal units as given by CSEB is given in the table below:

Table 4.12

Maintenance Plan for FY 2007-08 considered in the Petition

Unit	Capacity (MW)	Maintenance Plan during FY 2007-08 (Days)
Korba East Ph II Unit 1	50	15
Korba East Ph II Unit 2	50	25 (Turbine Works)
Korba East Ph II Unit 3	50	16
Korba East Ph II Unit 4	50	16
Korba East Ph III Unit 1	120	20
Korba East Ph III Unit 2	120	17
Korba West Unit 1	210	26
Korba West Unit 2	210	37 (RLA study)
Korba West Unit 3	210	26
Korba West Unit 4	210	46 (RLA study+AH Replacement)

CSEB has submitted the following reasons for projecting lower PLF in FY 2007-08 as compared to actual PLF in FY 2006-07:

- For Korba East Phase II, unit 2 is scheduled for turbine works, and the plant is to be run at normal loads keeping all equipments under design ratings as plant has been overstretched in the past due to power deficit condition.
- For Korba West, Residual Life Assessment (RLA) study is proposed for two units, i.e., unit no. 2 & 4 and work of Air Heater replacement is planned for one unit, i.e., unit no. 4.

For two new units of Korba East Extension, which are likely to start commercial operation in the months of November 2007 and February 2008, CSEB has submitted that the PLF of 70% has been considered on account of anticipated teething problems in the initial months of operation. The Board has requested the Commission to approve the above relaxed norms as allowed by Central Electricity Regulatory Commission (CERC) earlier, for Central Generating stations and considering CSEB's inexperience in commissioning of new stations.

Commission's Views

During the technical validation sessions, the Commission directed the CSEB to submit the revised maintenance plan for its existing thermal units considering the actual maintenance carried out till August 2007. The revised maintenance plan is as given in table below:

Table 4.13

Revised Maintenance Plan for FY 2007-08 submitted by CSEB

Unit	Capacity (MW)	Maintenance Plan during FY 2007-08 (Days)
Korba East Ph II Unit 1	50	15
Korba East Ph II Unit 2	50	14 (completed in July 2007)
Korba East Ph II Unit 3	50	16
Korba East Ph II Unit 4	50	15 (completed in June 2007)
Korba East Ph III Unit 1	120	17 (completed in July 2007)
Korba East Ph III Unit 2	120	10 (completed in August 2007)
Korba West Unit 1	210	21 (completed in July 2007)
Korba West Unit 2	210	33
Korba West Unit 3	210	31 (completed in August 2007)
Korba West Unit 4	210	42

The Commission has assessed the impact of revised maintenance plan on PLF projected by CSEB in its petition. The Commission, while approving the PLF of thermal stations for FY 2007-08, has also considered the annual generation quantum considered by Central Electricity Authority (CEA) for FY 2007-08 in its programme, and the actual PLF achieved during FY 2005-06 and FY 2006-07. For Korba East Phase II, the PLF after considering the revised maintenance plan works out to 86.55%. The actual PLF achieved during FY 2005-06 and FY 2006-07 is 91.92% and 92.66%, respectively. The PLF as per annual generation target approved by CEA for FY 2007-08 works out to 89.27%. Based on the performance of this generating station in the preceding years and the maintenance plan, the Commission is of the view that the generation from this plant at PLF of 86.55% is achievable. The Commission therefore, approves the PLF of 86.55% for this station.

The PLF for Korba East Phase III, after considering the revised maintenance plan, works out to 80.32%. The actual PLF achieved during FY 2005-06 and FY 2006-07 is 75.59% and 78.95%, respectively. The PLF as per annual generation quantum considered by CEA for FY 2007-08 in its programme, works out to 77.05%. During technical validation session, CSEB agreed that PLF of 80% can be achieved from this generating station during FY 2007-08. It is also to be noted that the units of this power station have been refurbished in January 2004 and August 2005. Considering the refurbishment of these units and the revised maintenance plan, the Commission is of the view that the PLF of 80.32 % from the station is achievable. The Commission therefore approves the PLF of 80.32% for FY 2007-08 for this station which is very marginally higher than the normative PLF of 80%.

The PLF for Korba West, after considering the revised maintenance plan works out to 76.28%. The actual PLF achieved during FY 2005-06 and FY 2006-07 is 78.13% and 80.78%, respectively. CSEB has projected lower PLF as it has proposed RLA study for unit no. 2 and 4 which have been commissioned in March 1984 and March 1986 respectively. The PLF of unit no. 2 was 88.08% in FY 2005-06 and 81.54% in FY 2006-07. Similarly, the PLF for unit no. 4 was 72.23% in FY 2005-06 and 78.94% in FY 2006-07. As per CEA report on "All India Electricity Statistics-General Review", the average PLF of 159 units of 200/210 MW capacity in the country was 79.22% during FY 2005-06. The PLF of unit no. 2 and 4 in FY 2006-07 is nearly equal to the national average PLF for such units for FY 2005-06. **As per the the CERC (Terms and conditions of tariff) Regulations, 2004, the expected life of coal based projects is 25 years, whereas both the units have not completed its expected life yet. The performance of these two units is nearly equal to the other units of the station. Further, CSEB has also not submitted the proposal for refurbishment of unit no. 2 & 4 for the approval of the Commission under investment plan. Considering the performance of unit no. 2 and 4 and their vintage, the Commission is of the view that the Board should reconsider its plan for refurbishment of these two units. Considering these aspects the Commission is of the view that the RLA study of unit no. 2 & 4 may not be required in FY 2007-08. The Commission, approves the PLF of 78.17% for the station.**

The summary of PLF projected by CSEB and approved by the Commission for existing thermal stations of CSEB is given in table below:

Table 4.14

Plant Load Factor (PLF) for CSEB's Existing Generating Stations

Power Stations	Projected by CSEB for FY 2007-08	Approved by Commission for FY 2007-08
Korba East phase II	85.75%	86.55%
Korba East phase III	78.95%	80.32%
Korba West	75.78%	78.17%

As regards the new stations, i.e., Korba East Extension-I and Korba East Extension-II, the Commission does not agree with CSEB's views that during the initial months of operation after Commercial Operation Date (COD), the PLF will be lower than 80%. The Commission is of the view that as these units are of standard size and CSEB has enough experience of operation of 210 MW units, therefore, there should not be any problem in achieving PLF of 80% post Commercial Operation Date of the units. Therefore, for new stations, the Commission approves the PLF of 80% after the Commercial Operation Date (COD) of the units. Based on the actual infirm generation in unit-I up to September, 2007, the Commission has assessed that infirm gross generation from both units till COD would be 187 MU.

B) Generation from Hydel and Co-generation Plants

CSEB has projected generation from hydel and co-generation plants as given in the table below:

Table 4.15

Gross Generation from Hydel and Co-generation Plants – CSEB Submissions

Particulars	FY 2005-06 Actual	FY 2006-07 Actual	FY2007-08 Projected
Capacity (MW)			
Hasdeo Bango	120.00	120.00	120.00
Gangrel	-	10.00	10.00
Mini Micro H.P.S Korba (W)	0.85	0.85	0.85
Sikasar Hydel	-	7.00	7.00
Kawardha Cogen Plant	-	6.00	6.00
Total Hydro & Others	**120.85**	**143.85**	**143.85**
Generation (MU)			
Hasdeo Bango	358.57	358.71	358.71
Gangrel	0.00	27.25	27.25
Mini Micro H.P.S Korba	4.46	6.91	6.91
Sikasar Hydel	0.00	5.97*	7.18
Kawardha Cogen Plant	0.00	2.71*	8.64
Gross Generation (MU)	**363.03**	**401.55**	**408.69**

*As submitted by CSEB in subsequent submission

Commission's views

The Commission has approved the gross generation as proposed by CSEB for Hasdeo Bango, Gangrel and mini micro hydel station. For Sikasar Hydel station, the Commission has considered capacity utilisation factor as 24% for estimating gross generation during FY 2007-08, on the basis of the Project Report for Sikasar. For Kawardha co-generation plant, CSEB in its petition had initially submitted gross generation of 8.64 MU. In response to the Commission's query about the basis of projecting such lower generation, CSEB has submitted revised projected gross generation of 24.27 MU and the same has been considered by the Commission. The summary of gross generation from hydel stations and co-generation stations as projected by CSEB in its petition and as approved by the Commission is given in the table below:

Table 4.16

Gross Generation from Hydel and Co-generation Plants approved by the Commission

Station	Capacity	CSEB Projection	Approved by Commission
	MW	MU	MU
Hasdeo Bango	120.00	358.71	358.71
Gangrel	10.00	27.25	27.25
Mini Micro H.P.S Korba	0.85	6.91	6.91
Sikasar Hydel	7.00	7.18	18.00
Kawardha Cogen Plant	6.00	8.64	24.27
Capacity/Gross Generation	**143.85**	**408.69**	**435.14**

C) Auxiliary Consumption of Thermal Stations

CSEB has submitted the actual auxiliary consumption for FY 2005-06, FY 2006-07 and projected auxiliary consumption for FY 2007-08 as given in the table below:

Table 4.17

Auxiliary Consumption of Thermal Stations projected by CSEB

Thermal Station	FY2005-06 Actual	Approved by Commission for FY 2006-07	FY 2006-07 Actual	FY 2007-08 Estimated by CSEB
Korba East phase II	10.18%	10.15%	10.16%	10.00%
Korba East phase III	8.84%	9.00%	8.48%	8.98%
Korba East Extension I	-	-	-	9.25%
Korba East Extension II	-	-	-	9.25%
Korba West	9.80%	9.50%	9.37%	9.45%

CSEB has submitted that the units of Korba East Phase II are of 50 MW size and of Russian design, hence, the auxiliary consumption of these units is on a higher side. CSEB has envisaged a reduction of 0.16% in auxiliary consumption for Korba East phase II for FY 2007-08 as compared to the actual auxiliary consumption for FY 2006-07. For Korba East Phase III, CSEB has projected an increase of 0.50% in auxiliary consumption as compared to the actual auxiliary consumption for FY 2006-07, considering the practical conditions of the units. For Korba West, CSEB has considered an increase of 0.08% in auxiliary consumption as compared to the actual auxiliary consumption for FY 2006-07, due to the proposed RLA study.

For new stations, i.e., Korba East Extension – I and II, CSEB submitted that auxiliary consumption of 9.25% will be necessary in the initial months of generation and hence, auxiliary consumption of 9.25% has been considered for these two new stations.

Commission's Views

The Commission, in its previous tariff orders, had directed CSEB to bring down auxiliary consumption below 10% in Korba East Phase-II station and below 9.5% in Korba East Phase III and Korba West stations. The auxiliary consumption proposed for all three stations is lower than the auxiliary consumption approved by the Commission for FY 2006-07. Based on the actuals for FY 2006-07, vintage and capacity of units, etc., the Commission approves the auxiliary consumption for existing stations as proposed by CSEB. However, for new stations, the Commission does not agree with CSEB's views that higher auxiliary consumption will be necessary in the initial months of operation. The Commission is of the view that post COD, the auxiliary consumption of new stations should be less than 9%, and hence, the Commission approves the auxiliary consumption of 9% for new units after COD of the units. However, for infirm generation prior to COD, the Commission has approved the auxiliary consumption of 9.25%. The summary of station-wise auxiliary consumption as estimated by CSEB in its petition and as approved by the Commission is given in the following table:

Table 4.18

Auxiliary Consumption of Thermal Stations for FY 2007-08

Thermal Station	CSEB Petition	Approved by Commission
Korba East phase II	10.00%	10.00%
Korba East phase III	8.98%	8.98%
Korba East Extension I	9.25%	9.00%(Post COD)*
Korba East Extension II	9.25%	9.00%(Post COD)*
Korba West	9.45%	9.45%

* Auxiliary consumption as 9.25% prior to COD

D) Auxiliary Consumption of Hydel and Co-generation Plants

CSEB has submitted the actual auxiliary consumption of Hydel and Co-generation Plants for FY 2005-06 and FY 2006-07 and projected for FY 2007-08 as given in the table below:

Table 4.19

Auxiliary Consumption of Hydel and Co-generation Plants projected by CSEB

Stations	FY 2005-06	FY 2006-07	FY 2007-08
Hasdeo Bango	0.27%	0.38%	0.38%
Gangrel	-	4.55%	4.55%
Mini Micro H.P.S Korba (W)	0.50%	0.50%	0.50%
Sikasar Hydel	-	0.50%	0.50%
Kawardha Cogen Plant	-	0.50%	0.50%

Commission's Views

The Commission, during the technical validation session, directed CSEB to submit the reasons for considering lower auxiliary consumption for Kawardha co-generation plant. CSEB, in its reply, has submitted that there was an error in the petition and the estimated auxiliary consumption for Kawardha co-generation plant will be around 8.9%. The Commission has observed that the actual auxiliary consumption of Gangrel station for FY 2006-07 was 4.55%. Considering the prevailing conditions, the Commission has allowed the same auxiliary consumption of 4.55% for FY 2007-08. **However, the Commission directs CSEB to carry out the energy audit of Gangrel station and reduce the auxiliary consumption of the station to the extent possible**. The auxiliary consumption approved by the Commission for FY 2007-08 is given in the following table:

Table 4.20

Auxiliary Consumption of Hydel and Co-generation Plants for FY 2007-08

Stations	CSEB Projection	Approved by Commission
Hasdeo Bango	0.38%	0.38%
Gangrel	4.55%	4.55%
Mini Micro H.P.S Korba (W)	0.50%	0.50%
Sikasar Hydel	0.50%	0.50%
Kawardha Cogen Plant	0.50%	8.90%

E) Station Heat Rate (SHR)

The Board has submitted the actual station heat rate for the past two years and projected station heat rate for FY 2007-08 as shown in the table below:

Table 4.21

Station Heat Rate Projected by CSEB (kcal /kWh)

Stations	FY 2005-06 Actual	Approved by Commission for FY 2006-07	FY 2006-07 (Actual)	FY 2007-08 (Projected)
Korba East phase II	3041	2780	2942	2942
Korba East phase III	2835	2600	2639	2639
Korba East Extension I	-	-	-	2700
Korba East Extension II	-	-	-	2700
Korba West	2645	2575	2783	2700

CSEB has projected the station heat rate for Korba East phase-II and phase-III for FY 2007-08 at the same levels as the actual of the previous year and for Korba West, the station heat rate is projected to reduce by 83 kcal/kWh as compared to the actual of the previous year. For the new units, CSEB has proposed station heat rate of 2700 kcal/kWh.

Commission's Views

The Commission, during the technical validation session, asked CSEB to submit the reasons for increase in station heat rate during FY 2006-07 as compared to station heat rate approved by the Commission, and for proposing higher heat rate for FY 2007-08 as compared to approved heat rate for FY 2006-07. CSEB in its reply has made the following submissions:

- For Korba East Phase II, the actual heat rate for FY 2006-07 was 2942 kcal/kWh, when operating at PLF of 92.66% and with the reduction in generation during FY 2007-08, the heat rate is likely to increase further. However, CSEB has optimistically considered heat rate at same level.
- For Korba West, actual heat rate for FY 2006-07 was 2783 kcal/kWh when operating at PLF of 80.78% and with the reduction in generation during FY 2007-08, the heat rate is likely to increase further. The Board has however, proposed a reduction in heat rate.

For existing stations, the Commission in its tariff order for FY 2006-07 after considering all the factors, i.e., capacity of units, vintage, CEA norms, CERC norms and provisions of National Tariff Policy, approved the station-wise heat rate. Further, CSEB in its reply to the Commission's query has not mentioned any specific reason for increase in station heat rate during FY 2006-07 as compared to approved heat rates. Therefore, for FY 2007-08, the Commission approves the station heat rate for existing stations at the same level as approved for FY 2006-07.

The Commission also asked CSEB to submit the rationale for projecting higher station heat rate for new stations as compared to normative heat rate. CSEB, in its reply, referred to the CEA report on "Technical Standard on Operation Norms for Coal/Lignite Fired Thermal Power Stations" issued during December 2004. As per this report of CEA, the normative heat rate is applicable for station with PLF of 80% and for each 1% reduction in station PLF, heat rate will increase by 2.5 kcal/kWh. Therefore, at 70% PLF, heat rate works out to 2650 kcal/kWh and CSEB has provided a further cushion of 50 kcal/kWh while projecting the heat rate of 2700 kcal/kWh for new stations. As the Commission has considered a PLF of 80% for new stations post COD, the Commission approves the normative heat rate of 2500 kcal/kWh for the new 250 MW units during post-COD period. For pre-COD period, the Commission approves the heat rate of 2600 kcal/kWh for Korba East Extension – I and II.

Table 4.22

Station Heat Rate for FY 2007-08 (kcal /kWh)

Stations	CSEB Projection	Approved by Commission
Korba East phase II	2,942	2,780
Korba East phase III	2,639	2,600
Korba East Extension I	2,700	2,500*
Korba East Extension II	2,700	2,500*
Korba West	2,700	2,575

*Heat rate approved as 2600 kcal/kWh for pre-COD period

F) Specific Oil Consumption

CSEB has submitted the station-wise specific oil consumption for thermal generation stations for the past two years and projected the same for FY 2007-08, as shown in the table below:

Table 4.23

Specific Oil Consumption Projected by CSEB (ml/kWh)

Stations	FY 2005-06 Actual	Approved by Commission for FY 2006-07	FY 2006-07 (Actual)	FY 2007-08 (Projected)
Korba East phase II	1.26	1.50	1.20	2.00
Korba East phase III	2.00	2.00	1.48	2.00
Korba East Extension I	-	-	-	3.00
Korba East Extension II	-	-	-	3.00
Korba West	1.12	1.25	1.27	2.00

Specific oil consumption of 2 ml/kWh for Korba East phase II, Korba East phase III and Korba West has been proposed as per the normative Secondary Fuel Oil Consumption as per CERC norms for unit size up to 500 MW. For the new Korba

East Extension units, CSEB has proposed slightly higher specific oil consumption of 3 ml/unit considering post commissioning activities.

Commission's Views

The CERC norm for secondary fuel oil consumption is 2 ml/kWh. The Commission has observed that the actual secondary fuel oil consumption for all 3 existing stations achieved during FY 2006-07 is lower than the secondary fuel oil consumption approved by the Commission for FY 2006-07. The Commission after considering the actual secondary fuel oil consumption achieved during FY 2006-07 has approved the secondary fuel oil consumption of 1.5 ml/kWh for existing stations.

For new units, the Commission has approved the normative secondary fuel oil consumption of 2 ml/kWh post COD of units and 4.5 ml/kWh for infirm generation prior to COD of new units. The station-wise secondary fuel oil consumption as approved by the Commission is given in the table below:

Table 4.24

Specific Oil Consumption for FY 2007-08 (ml/kWh)

Stations	CSEB Petition	Approved by Commission
Korba East phase II	2.00	1.50
Korba East phase III	2.00	1.50
Korba East Extension I	3.00	2.00*
Korba East Extension II	3.00	2.00*
Korba West	2.00	1.50

*Specific oil consumption approved as 4.5 ml/kWh for pre-COD period

Based on approved parameters as discussed above for plant load factor, auxiliary consumption, station heat rate and secondary fuel oil consumption, the Commission has determined the gross generation, net generation, coal and oil consumption and total fuel (variable) costs as discussed below.

4.6.2 Gross Generation

The gross generation as projected by CSEB and as approved by the Commission (based on approved PLF) for FY 2007-08 is given in the table below:

Table 4.25

Gross Generation Approved by Commission for FY 2007-08 (MU)

Stations	Capacity (MW)	CSEB Petition	Approved PLF (%)	Approved by Commission
Korba East phase II	200	1,506.46	86.55%	1,520.51
Korba East phase III	240	1664.39	80.32%	1,693.27
Korba East Extension I	840	638.40	80.00%	823.26*
Korba East Extension II	250	252.00	80.00%	381.66*
Korba West	250	5591.47	78.17%	5,767.82
Total Thermal	**1780**	**9652.72**	-	**10,186.53**
Hasdeo Bango	120.00	358.71	-	358.71
Gangrel	10.00	27.25	-	27.25
Mini Micro H.P.S Korba (W)	0.85	6.91	-	6.91
Sikasar Hydel	7.00	7.18	-	18.00
Kawardha Cogen. Plant	6.00	8.64	-	24.27
Total Hydel & Cogen	**143.85**	**408.69**	-	**435.14**
Total Own Generation	**1923.85**	**10061.41**	-	**10621.67**

*Includes pre-COD gross generation of 93.66 MU for each unit

4.6.3 Net Generation

Considering the approved auxiliary consumption for each generating station, the net generation projected from each station of CSEB for FY 2007-08 is given in the table below:

Table 4.26

Net Generation Approved by the Commission for FY 2007-08 (MU)

Stations	Projected Net Generation (CSEB)	Approved Gross Generation	Approved Auxiliary Consumption (%)	Approved Auxiliary Consumption	Approved Net Generation
Korba East phase II	1355.81	1,520.51	10.00%	152.05	1368.46
Korba East phase III	1514.93	1,693.27	8.98%	152.06	1541.22
Korba East Extension I	579.35	823.26	9.00%	74.33	748.94
Korba East Extension II	228.69	381.66	9.00%	34.58	347.08
Korba West	5063.08	5,767.82	9.45%	545.06	5222.76
Total Thermal	**8741.86**	**10,186.53**		**958.08**	**9228.46**
Hasdeo Bango	357.35	358.71	0.38%	1.36	357.35
Gangrel	26.01	27.25	4.55%	1.24	26.01
Mini Micro H.P.S Korba (W)	6.88	6.91	0.50%	0.03	6.88
Sikasar Hydel	7.14	18.00	0.50%	0.09	17.91
Kawardha Cogen. Plant	8.60	24.27	8.90%	2.16	22.11
Total Hydel & Cogen.	**405.97**	**435.14**		**4.89**	**430.25**
Total Self Generation	**9147.83**	**10,621.67**		**962.97**	**9,658.71**

* Auxiliary consumption of 9.25% prior to COD

4.7 ENERGY BALANCE

The total energy requirement approved by the Commission for FY 2007-08 is 14637 MU, which will have to be met from the Board's own generation and purchases from Central generation sources and other sources. The energy balance is given in the table below:

Table 4.27

Energy Balance (MU)

Sl.	Particulars	CSEB Projection	Approved by Commission
A	**Energy Requirement**	**14857**	**14637**
1	Own generation	9148	9659
2	Power to be purchased	5709	4978

4.8 Fuel Costs

(A) Fuel Supply

CSEB gets its coal supply from South Eastern Coal Ltd. (SECL) from its coalfields near Korba. Coal is transported by rail, ropeway and conveyor belt over a distance of about 10-15 km. The secondary fuel (oil) is supplied by the oil companies.

(B) Transit & Stacking Loss of Coal

All the thermal power stations of CSEB are pithead stations. For FY 2007-08, CSEB has projected transit and stacking loss of 0.30% for Korba East phase II and Korba East phase III, and for Korba West, it has proposed transit and stacking losses of 0.60%. However, in subsequent submissions, CSEB submitted that the actual transit and handling losses for Korba East for FY 2006-07 were 1.46% and it would be very difficult to achieve the transit loss level of 0.3% and requested the Commission to consider transit loss of 1.46%.

The Commission in its order for FY 2006-07 had approved the transit loss of 0.3% for all the stations. Considering the transit losses reported for FY 2006-07, the Commission is of the view it may not be possible for CSEB to achieve normative transit loss of 0.3%. While the Commission has accepted the opening levels of transit loss levels projected by the Board, these may not be accurate as the weightometers have not been installed at the thermal generating stations, despite the Commission's repeated directives in this regard. However, CSEB should attempt to reduce the transit losses gradually to achieve the normative level of transit losses. The Commission has considered the reduction of 0.2% in transit losses for Korba East station and the reduction of 0.1% in transit losses for Korba West station over the actual transit loss of FY 2006-07. Therefore, the Commission has approved transit and stacking losses 1.26% for Korba East stations including

Extension units and 0.48% for Korba West station for FY 2007-08. **The Commission directs the CSEB to install the weightometers at the earliest on each station.**

4.8.1 Assessment of fuel requirement and cost

A) Coal

The consumption of coal, oil and the related costs are derived from the following parameters:

- Station heat rate (Kcal/kWh)
- Calorific value of coal (kcal/kg)
- Calorific value of secondary fuel (kcal/Litre)
- Gross generation (MU)
- Specific oil consumption (ml/kWh)
- Price of coal and oil

CSEB has projected the fuel requirement and fuel costs for FY 2007-08 based on operating parameters and costs as detailed in the table below:

Table 4.28

Fuel Requirement and Cost for FY 2007-08 projected by CSEB

Stations	Gross Generation	Heat Rate	Transit Loss of coal	Wt. Avg. Cost of Coal	Wt. Avg. CV of Coal	Cost of sec. oil	CV of oil	Sp. Cons of oil
	(MU)	kCal/ kWh	%	Rs./MT	kcal/kg	Rs./ kl	kcal/l	ml/kWh
Korba East phase II	1506.46	2942	0.30%	606.67	3400	22824	10000	2.00
Korba East phase III	1664.39	2639	0.30%	606.67	3400	23830	10000	2.00
Korba East Extension I	638.40	2700	0.30%	606.67	3400	24165	10000	3.00
Korba East Extension II	252.00	2700	0.30%	606.67	3400	24165	10000	3.00
Korba West	5591.47	2700	0.60%	615.05	3700	23830	10000	2.00

As regards the price of coal, CSEB submitted that the royalty on coal has increased by around 14% and this would affect the landed price of coal by around 2%. An increase of 2% in coal prices has therefore, been assumed for estimating the coal costs.

Commission's Views

The Commission obtained the details of actual weighted average coal prices and corresponding calorific value for the coal purchased during the months from April to July 2007. The Commission has also obtained a copy of the notification on

increase in the royalty of coal. The Commission has observed that the increase in royalty for coal is applicable from August 1, 2007. The Commission has considered the actual coal prices for the period from April to July 2007, and for the period from August 2007 to March 2008, the impact of increase in royalty charges on coal has been considered.

The weighted average cost of coal and gross calorific value as considered by the Commission for estimating the fuel costs for FY 2007-08 are summarised in the following table:

Table 4.29

Coal Price and Calorific Value as considered by the Commission

Sl.	Station	GCV of Coal (kcal/kg)	Cost of Coal (Rs./MT)
1	Korba East Phase II, Phase III and Korba East Extension	3400	607
2	Korba West	3700	635

B) Secondary Fuel (Oil)

CSEB uses only furnace oil for Korba East phase II and a mix of furnace oil and HSD/LDO for Korba East phase III and Korba West stations. As regards price of secondary fuel, the CSEB in its petition has submitted the details of actual prices for FY 2005-06 and FY 2006-07 and price projected for estimating the fuel costs for FY 2007-08. The costs indicated in its petition are the weighted average price of mixed oil. The actual average calorific value of secondary oil for FY 2006-07 as submitted by CSEB is of 10,000 kcal/litre and the same value has been considered for FY 2007-08.

Commission's Views

The Commission obtained the details of actual secondary fuel oil prices for the period from April to July 2007. The Commission has considered the calorific value of oil as 10000 kcal/kg as projected by CSEB in its petition. The cost of furnace oil has been taken by the Commission as Rs. 22824/kl and High Speed Diesel (HSD) as Rs. 36237/kl for computation of weighted average price of oil. Considering the actual secondary fuel oil prices and proportion of furnace oil and HSD proposed used in different stations, the weighted average price of secondary fuel and calorific value considered by the Commission is given in the following table:

Table 4.30

Secondary Fuel Price and Calorific Value as considered by the Commission

Sl.	Station	CV of Secondary Fuel (kcal/Litre)	Cost of Oil (Rs./kL)
1	Korba East Phase II	10000	22825
2	Korba East Phase III	10000	24166
3	Korba East Extension Unit I and Unit II	10000	23719 (Pre COD) & 24837 (Post COD)
4	Korba West	10000	24166

For Kawardha co-generation plant, the Commission has considered variable cost of Rs. 1.24/kWh for FY 2007-08 as applicable for biomass plants in accordance with the Commission's order on Tariff for Biomass Plants.

4.8.2 Other Fuel Related Variable Cost

CSEB has considered other fuel related costs, cost of lubricants and consumables and station supplies for calculating the variable charges. It has not provided any justification pertaining to other fuel related costs and station supplies.

As these costs are included in R&M expenses, the Commission has not included these costs in the computation of fuel related variable costs. In addition to these costs, the other fuel related costs include cess on water supplied, Electricity Duty, and cess on auxiliary consumption. CSEB, in its subsequent submissions, submitted that the rate of Electricity Duty on auxiliary consumption has been revised from 22.48 paise per unit to 25.6 paise per unit. Further, the rate of cess at 5 paise/unit will remain unchanged. Based on these assumptions, CSEB has estimated the total financial implications on account of ED and cess on auxiliary consumption and water charges for FY 2007-08 as Rs. 32.20 crore.

As these charges (ED and cess on auxiliary consumption) and water charges are Government levies, the Commission approves these charges as proposed by CSEB.

4.8.3 Total Fuel Cost

Based on the target and rates approved by the Commission for FY 2007-08, the summary of total fuel costs as estimated by CSEB in its petition and as approved by the Commission for FY 2007-08 is given in following table:

Table 4.31

Total Fuel Costs approved by Commission for FY 2007-08 (Rs. Crore)

Sl.	Station	CSEB Petition	Approved by Commission
1	Korba East Phase II	85.66	81.21
2	Korba East Phase III	85.95	85.31
3	Korba East Extension Unit I	35.13	41.66
4	Korba East Extension Unit II	13.87	19.67
5	Korba West	277.25	275.36
6	Kawardha co-generation	0.00	2.74
	Total Fuel Costs	**497.86**	**505.95**

The total fuel cost approved by the Commission for FY 2007-08 is Rs. 505.95 crore as against Rs. 497.86 crore estimated by CSEB.

Table 4.32

Summary of Approved Station-wise Operational Parameters and Fuel Cost of Thermal Generation Stations for FY 2007-08

Sl. No.	Particulars	Unit	Korba East Phase-II	Korba East Phase-III	Korba West	Korba East Extension-Unit I		Korba East Extension-Unit II	
						Pre COD	Post COD	Pre COD	Post COD
1	Capacity	MW	200	240	840	250	250	250	250
2	P.L.F	%	86.55%	80.32%	78.17%		80.00%		80.00%
3	Generation (Gross)	MU	1,520.51	1,693.27	5,767.82	93.66	729.60	93.66	288.00
4	Auxiliary consumption	%	10.00%	8.98%	9.45%	9.25%	9.00%	9.25%	9.00%
5	Auxiliary consumption	MU	152.05	152.06	545.06	8.66	65.66	8.66	25.92
6	Net Generation	MU	1368.46	1541.22	5222.76	85.00	663.94	85.00	262.08
7	Heat Rate	KCal/KWh	2,780	2,600	2,575	2,600	2,500	2,600	2,500
8	Specific Oil Consumption	Ml/KWh	1.50	1.50	1.50	4.50	2.00	4.50	2.00
9	Calorific Value of Oil	KCal/litre	10,000	10,000	10,000	10,000	10,000	10,000	10,000
10	Calorific Value of Coal (GCV)	KCal/Kg.	3,400	3,400	3,700	3,400	3,400	3,400	3,400
11	Overall Heat	G. Cal.	4227019	4402513	14852137	243527	1824000	243527	720000
12	Heat from Oil	G.Cal	22808	25399	86517	4215	14592	4215	5760
13	Heat from Coal	G.Cal	4204211	4377114	14765620	239312	1809408	239312	714240
14	Actual Oil Consumption	KL	2,281	2,540	8,652	421	1,459	421	576
15	Actual Coal Consumption	Lakh Tonnes	12.37	12.87	40.10	0.71	5.39	0.71	2.13
16	Transit & Stacking Loss	%	1.26%	1.26%	0.48%	1.26%	1.26%	1.26%	1.26%
17	Coal Consumption including stacking & handling loss	Lakh Tonnes	12.52	13.04	39.91	0.70	5.32	0.70	2.10
18	Cost of Oil per	Rs./KL	22,825	24,166	24,166	23,719	24,837	23,719	24,837

Sl. No.	Particulars	Unit	Korba East Phase-II	Korba East Phase-III	Korba West	Korba East Extension-Unit I		Korba East Extension-Unit II	
	KL								
19	Cost of Coal per MT	Rs./MT	607	607	635	607	607	607	607
20	Total Cost of Oil	Rs. Crore	5.21	6.14	20.91	1.00	3.62	1.00	1.43
21	Cost of Coal	Rs. Crore	76.00	79.18	254.45	4.33	32.71	4.33	12.91
22	Total Fuel Cost	Rs. Crore	81.21	85.31	275.36	5.33	36.33	5.33	14.34
23	Fuel cost / Unit Gross	Rs./KWh	0.53	0.50	0.48	0.57	0.50	0.57	0.50
24	Fuel cost / Unit Net	Rs./KWh	0.59	0.55	0.53	0.63	0.55	0.63	0.55
25	Specific Coal Consumption	Kg/KWh	0.82	0.77	0.70	0.76	0.74	0.76	0.74

Table 4.33

Summary of Approved Station-wise Fuel and other variable Cost of CSEB's Generation Stations for FY 2007-08

Station	Gross Generation		Net Generation		Fuel Cost		Other Variable Costs (Water charges & ED & Cess on Auxiliary Consumption Charges)		Total Variable Cost		Variable Charges	
	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved
	MU	MU	MU	MU	Rs. Cr.	Rs. Cr.	Rs. Cr.	Rs. Cr.	Rs. Cr.	Rs. Cr.	Rs./kWh	Rs./kWh
Korba East Phase II	1506.46	1520.51	1355.81	1368.46	85.66	81.21	5.87*	2.57	91.51	83.78	0.67	0.61
Korba East Phase III	1664.39	1693.27	1514.93	1541.22	85.99	85.31	6.27*	2.92	92.22	88.24	0.61	0.57
Korba West	5591.47	5767.82	5063.08	5222.76	277.25	275.36	18.26*	14.89	295.51	290.2	0.58	0.56
Korba East Extension-Unit-I	638.40	823.26	579.35	748.94	38.13	41.66	3.12*	1.42	38.25	43.08	0.66	0.58
Korba East Extension-Unit-II	252.00	381.66	228.69	347.08	13.87	19.67	1.23*	0.56	15.10	20.23	0.66	0.58
Hydel Plant	400.05	410.87	397.38	408.14	-	-	9.84*	9.84	9.84	9.84	0.25	0.24
Kawardha Co-gen. Plant	8.64	24.27	8.60	22.11	-	2.74	0.0004*	0.0004	0.0004	2.74	0.00	1.24
Total	10061.41	10621.67	9147.84	9658.71	497.86	505.95	44.57*	32.20	542.43	538.1	0.59	0.56

*Includes other fuel related cost and cost of lubricants also

4.9 POWER PURCHASE FROM DIFFERENT SOURCES

4.9.1 Sources of Power Purchase

CSEB has two primary sources of firm power, viz.

- Central Generating Stations (CGS)
- Biomass Power Generating stations

In addition to the above sources, CSEB buys power from traders, IPPs and from captive plants.

4.9.2 Purchase of Energy

The total power to be purchased in FY 2007-08 after inter-State transmission losses has been assessed by CSEB at 5709 MU. The summary of the total quantum of power purchase and power purchase cost as projected by CSEB is given below:

Table 4.34

Power Purchase Quantum and Cost Projected by the Board for FY 2007-08

Sl.	Particulars	Quantum	Total Cost	Average Rate
		MU	Rs. Crore	Rs./kWh
1	Central Sector Stations	3021	515	1.7
2	Captive Stations	1331	279	2.1
3	Bio Mass	257	68	2.65
4	IPPs	729	198	2.72
5	Traders	236	176	7.45
6	Power Swap Impact	28	22	7.76
7	UI Over Drawal	116	46	3.97
8	UI Under Drawal	(10)	(4)	(4)
9	Total	5709	1301	2.28
10	Transmission Charges		22	0.04
	Total	**5709**	**1323**	**2.32**

4.9.3 Power Purchase from Central Generating Stations

CSEB has a firm allocation of share of power from generating stations of NTPC and Nuclear Power Corporation (NPC) stations. In addition to the firm share allocation, most of these stations have 15% unallocated power. The distribution of this unallocated power among the constituents of Western Region is decided from time to time based on the power requirement and power shortage in different States.

In addition to the share from these Central generating stations (CGS), CSEB also buys power from the Eastern Region stations of NTPC, viz., Kahalgaon Thermal Power station, Farakka Super Thermal Power station and Talcher Super Thermal Power station.

CSEB, in its petition, while projecting the energy available from CGS has considered the existing firm share in Central generating stations and its share in unallocated quota prevalent during first four months of FY 2007-08. CSEB has submitted that it has assumed that its share in CGS will remain unchanged during FY 2007-08.

Further, CSEB has considered the power availability from the following new Central generating stations while projecting the power purchase quantum and costs for FY 2007-08:

Western Region

- Sipat STPS unit-I (From September, 2007)
- Sipat STPS unit-II (From December, 2007)

Eastern Region

- Kahalgaon STPS Stage-II (From July 2007)

CSEB has projected a total quantum of 447 MU from the new generating stations of Central Sector.

CSEB has submitted that the external transmission loss on purchase from Central generating stations in the Western Region is 4.09%. The external transmission loss on purchase of power from Eastern Region Central Generating stations and traders would be about 7.40% as the power to be purchased is from various States outside the Western Region, generally from the Eastern and North-Eastern regions, where there is surplus power available for sale.

CSEB has projected the quantum of power available from CGS by applying its effective share on energy sent out from each station. Further, CSEB has applied the external transmission losses to arrive at net energy available to it.

The Board has estimated the fixed charges for CGS assuming the station-wise annual fixed charges equivalent to that in FY 2006-07. For projecting the variable cost, i.e., variable charges and Fuel Price Adjustment (FPA) charges, CSEB has considered an escalation of 2% on average variable cost of FY 2006-07 for thermal generating stations on account of increased royalty rates on coal. CSEB has projected the variable charges at the same rates as that of FY 2006-07 for gas and nuclear stations. For new stations, such as Vindhyachal STPS-III unit-10, Sipat

STPS and Kahalgaon STPS, CSEB has projected the fixed and variables charges on the basis of charges billed in respect of Vindhyachal STPS unit-9.

Commission's views

For projecting the energy availability from Western Region Central Generating stations during FY 2007-08, the Commission has considered the allocation of power (firm share of Chhattisgarh as well as unallocated power) based on the latest allocation as specified in Western Region Power Committee notice no. WRPC/Comml-I/6/Alloc/2007/6515 dated July 16, 2007. For projecting the energy availability from Eastern Region Central generating stations, the Commission has taken into account the allocation of power (unallocated quota allocated to the State) as per the latest allocation approved by CEA vide letter No. 5/ER/CSA/GM-07 dated March 16, 2007. The summary of the total share available to CSEB during FY 2007-08 is given in the table below:

Table 4.35

CSEB Share of Central Generation Stations (MW)

Sl.	Name of Power Station	CSEB Petition			Approved by Commission		
		Firm Allocation	Unallocated Power	Total Share	Firm Allocation	Unallocated Power	Total Share
Western Region							
1	Korba STPS	210	7.72	217.72	210	7.72	217.72
2	Vindhyachal STPS I	0	5.55	5.55	0	5.55	5.55
3	Vindhyachal STPS II	0	4.46	4.46	0	4.46	4.46
4	Vindhyachal STPS III	105	4.42	109.42	105	6.67	111.67
5	Kawas GPP	0	2.92	2.92	0	2.92	2.92
6	Jhanor (Gandhar) GPP	0	2.95	2.95	0	2.95	2.95
7	Kakrapar APS	0	1.98	1.98	0	1.98	1.98
8	Tarapur APS	48	4.86	52.86	48	4.86	52.86
Eastern Region							
9	Farakka STPS	0	9.76	9.76		9.76	9.76
10	Kahalgaon STPS I	0	5.12	5.12		5.124	5.12
11	Talcher STPS	0	6.10	6.10		6.10	6.10
Total		**363**	**55.84**	**418.84**	**363**	**58.09**	**421.09**

The Commission has considered the generation quantum as per the CEA in its program for FY 2007-08, for projecting the energy availability from existing CGS. For estimating the net energy available (i.e., energy sent out), the Commission has considered the auxiliary consumption of NTPC stations based on actual auxiliary consumption in FY 2005-06, as reported by CEA in its performance review of thermal power stations for FY 2005-06.

The Commission has considered the energy available from new generating stations based on expected date of commercial operation and estimated generation during the year. The Commercial Operation of Sipat unit-I is likely to start from December 2007 and for Kahalgaon STPS unit-II, the commercial operation is likely to start from January 2008. However, certain quantum of power from these stations (infirm power) will be available to CSEB before commercial operation. As regards to Sipat unit II, as per the information available from NTPC it is very unlikely that energy from Sipat STPS unit-II would be available during FY 2007-08, therefore, the Commission has not considered the availability of energy from Sipat unit II while estimating the energy availability from CGS for FY 2007-08.

The Commission has considered the fixed cost of existing NTPC stations based on the Annual Fixed Charges for FY 2007-08 as per the latest CERC orders for each respective station. The Commission has considered the variable cost for all the existing NTPC stations based on the variable charges including FPA as projected by CSEB for FY 2007-08. The power purchase cost for Kakrapar station has been taken as per the tariff notified by Department of Atomic Energy as on October 6, 2006 (as available on the CEA website). For estimating power purchase cost for purchase of energy from Tarapur station (unit 3 & 4), the Commission has considered the average rate as projected by CSEB.

For estimating the power purchase cost for Vindhyachal III units 1 & 2, the Commission has considered the fixed charges as per the CERC order in the matter of approval of provisional tariff for Vindhyachal STPS Stage-III (1000MW) from date of commercial operation to March 31, 2009 dated August 13, 2007. For Kahalgaon STPS Stage-II and Sipat STPS unit-I, the Commission has considered the fixed charges as applicable for Vindhyachal STPS Stage-III and variable charges as projected by CSEB.

The Commission has also considered incentives for Korba SPTS, Vindhyachal STPS-1 and Vindhyachal STPS 2, and stations of Eastern Sector for the projected generation above 80% PLF, in accordance with the provisions of CERC (Terms and

Conditions of Tariff) Regulations. The Commission has also considered the Income Tax, Electricity Duty, Cess, prior period charges payable/refundable by CSEB to Central Generating stations as Rs. 73.36 crore based on estimates made by CSEB for FY 2007-08.

The summary of the total quantum of power which CSEB may purchase (net energy after transmission loss external to CSEB) and total power purchase cost from each CGS as estimated by CSEB in its petition and as approved by the Commission for FY 2007-08, is given in following table:

Table 4.36

Summary of Power Purchase from CGS for FY 2007-08

Station	CSEB Petition			Approved by Commission		
	Quantum	Total Cost	Average Rate	Quantum	Total Cost	Average Rate
	MU	Rs. crore	Rs./Unit	MU	Rs. crore	Rs./Unit
KSTP	1,526	202	1.32	1,504	202	1.35
VSTP I	39	15	3.89	36	15	4.12
VSTP II	33	6	1.76	29	5	1.87
VSTP III-Unit1	337	66	1.96	343	66	1.94
VSTP III-Unit 2	292	57	1.96	306	54	1.76
Kawas GPP	22	9	4.19	17	8	4.70
Jhanor (Gandhar) GPS	22	7	3.10	19	6	3.27
FSTPP-EP	64	10	1.64	62	11	1.75
KhTPS-EP	35	6	1.76	37	7	1.91
TSTPS-EP	39	3	0.81	41	4	0.87
KhTPS-II	52	10	1.96	34	7	2.04
Sipat Stage –I	251	49	1.96	255	49	1.94
Sipat Stage – II	144	28	1.96	0	0	0.00
KAPP	9	2	2.45	9	2	2.45
TAPP 3&4	157	43	2.78	274	76	2.78
Total	**3,021**	**515**	**1.70**	**2,966**	**514**	**1.73**

4.9.4 Power Purchase from Biomass based Generating plants

CSEB, in its petition, has submitted that the actual power purchase during FY 2006-07 from 10 biomass plants, with a total capacity of 97.4 MW was 257.23 MU. The same quantum of power purchase has been projected for FY 2007-08 also. The

projected cost for purchase of power from biomass plants is in accordance with the per unit fixed charge linked to the year of operation and variable charge as applicable for FY 2007-08, as approved by the Commission in its order in the matter of determination of tariff and related dispensation for procurement of power from biomass based generation projects, dated November 11, 2005 (petition no. 7 of 2005). This rate is subject to change as this case has been remanded to the Commission by the Hon'ble Appellate Tribunal for Electricity for reconsideration.

Commission's views

The Commission, while estimating the energy availability from the existing biomass plants, has considered the actual power supplied from the existing power plants from April, 2007 to August 2007 and estimated the generation for the rest of the period during the year proportionately. The Commission has observed that CSEB in its petition has not projected any energy availability from new biomass power plants to be commissioned in FY 2007-08, though as per the details available with the Commission, new biomass plants with aggregate capacity of 76.5 MW are likely to be commissioned during FY 2007-08 in a phased manner. The Commission further observes that some of the new bio-mass power plants may have already been commissioned till September 2007.

For estimating the energy availability from new biomass power plants expected to be commissioned during FY 2007-08, the Commission has considered the trend of power available from existing stations and the fact the new plants will be available only for few months in FY 2007-08. The Commission has estimated the cost for purchase of energy from biomass based power plants in accordance with the per unit fixed chares (based on year of operation) and per unit variable cost for FY 2007-08 as approved by the Commission in its aforementioned order on biomass based generation projects. The summary of projected energy available from biomass based plants and power purchase cost approved by the Commission for FY 2007-08 are given in the table below:

Table 4.37

Summary of Power Purchase from Biomass Units for FY 2007-08

Particulars	Projected by CSEB			Approved by Commission		
	Quantum	Cost	Average Rate	Quantum	Cost	Average Rate
	MU	Rs. Crore	Rs./Unit	MU	Rs. Crore	Rs./Unit
Existing Stations	257	68	2.65	463	127	2.75
New Stations	-	-	-	89	25	2.79
Total	**257**	**68**	**2.65**	**552**	**152**	**2.76**

4.9.5 Power Purchase from Independent Power Projects (IPPs)

CSEB has projected the purchase of power from following Independent Power Projects (IPPs) within the State of Chhattisgarh, based on power purchase agreements already entered in to:

- Jagdamba Power & Ispat
- Aryan Coal and Benefication
- Abhijeet Infrastructure Limited
- Salasar Sponge & Power Limited
- Jindal Power Limited

The Board has projected that in FY 2007-08, the existing IPPs are expected to perform at 85% PLF and has accordingly projected the power purchase of 297.38 MU at a rate of Rs. 2.80 per unit. CSEB also has a share of 5 MW power from Orissa Hydro Power Corporation (OHPC).The power purchase from OHPC is expected to be 28.05 MU at the rate of Rs. 0.63 per unit for FY 2007-08. CSEB further projected the power purchase of 210 MW for 3 months from 250 MW unit of Jindal Power Limited as per short-term PPA and accordingly projected 350.40 MU at the rate of Rs. 2.80 per unit during FY 2007-08.

Commission's views

The Commission has considered the purchase of power by CSEB from the existing IPPs as projected by the Board in its petition. In response to the Commission's query during technical validation session regarding power availability from M/s Monnet Ispat Energy Ltd. during FY 2007-08, CSEB submitted that at the time of preparation of the petition, no schedule of power was indicated by M/s Monnet Ispat Energy Ltd. However, M/s Monnet Ispat Energy Ltd. has proposed to supply 10 MW from January 2008 to March 2008. Hence, CSEB, in its revised submissions has proposed purchase of 17 MU from Monnet Ispat Energy Ltd. during FY 2007-08. The Commission has accordingly taken into account this projected purchase from M/s Monnet Ispat Enegy Ltd. as 17 MU during FY 2007-08. For other IPPs including Monnet Ispat Energy Ltd., considering the actual power purchase till August 2007, the Commission has approved the total power purchase of 389 MU for FY 2007-08. The Commission has considered purchase of 140 MU from M/s Jindal Power Ltd., which is around 40% of the quantum projected by CSEB, considering the ground reality that currently evacuation lines have not been commissioned and hence, the actual power would not be available as projected by the Board. The summary of the quantum and cost of power purchase from IPPs as projected by CSEB and approved by Commission are given in the table below:

Table 4.38

Summary of Power Purchase from IPPs for FY 2007-08

Particulars	Projected by CSEB			Approved by Commission		
	Quantum	Cost	Average Rate	Quantum	Cost	Average Rate
	MU	Rs. Crore	Rs./Unit	MU	Rs. Crore	Rs./Unit
Jindal Power Ltd.	350	98	2.80	140	39	2.80
Other IPPs	379	100	2.64	389	103	2.64
Total	**729**	**198**	**2.72**	**529**	**142**	**2.68**

4.9.6 Power Purchase from Captive Power Plants

CSEB, in its petition has submitted that in FY 2006-07 the actual power purchase from captive power plants of a total capacity of 224 MW was 1288.89 MU at an average cost of Rs. 1.91 per unit. The load factor of power supply by captive plants was around 65.7%. The same assumptions have been made by the Board for FY 2007-08 and power purchase of 1384.12 MU projected from total captive capacity of 240.75 MW. CSEB further submitted that the rate of power purchase from captive power plants increases from Rs. 2.32 per unit at 70% load factor to Rs. 2.80 per unit at 85% load factor and pro-rata adjustment is done for lower load factors. Accordingly, the Board has projected the average rate of Rs. 2.10 per unit, considering an increase of 10% over the rate of FY 2006-07.

Commission's views

The Commission has considered the total power purchase and the rate as proposed by CSEB in its petition for all other captive power plants except for Jindal Steel & Power Ltd. (JSPL) (30MW), JSPL (70 MW) and BALCO (60MW), the three major CPP sources. Based on the actual power purchase by CSEB from these three CPPs during the period from April to August 2007, the Commission is of the view that the power availability from these CPPs, as estimated by CSEB, is on a higher side and the actual power available from these three CPPs during FY 2007-08 will be much lower. The Commission has estimated the power availability from these three CPPs considering the actual power available from April, 2007 to August 2007, and has considered that only 50% of the power purchase as projected by CSEB from these three sources will be available. Thus, the Commission has estimated energy availability of 85 MU, 226 MU and 90 MU from JSPL (30 MW), JSPL (70 MW) and BALCO, respectively. The Commission has considered the average rate of Rs. 2.32/unit for power purchase from JSPL (30MW) as against the projected rate of Rs. 2.48/unit and average rate of Rs. 2.30/unit for power

purchase from JSPL (70MW) as against the projected rate of Rs. 2.47/unit, as per the agreements. The Commission has considered an average rate of Rs. 1.56/unit for power purchase from BALCO, as projected by the Board. The summary of the power purchase and cost from CPPs as projected by CSEB and approved by Commission are given below:

Table 4.39

Summary of Purchase of Power from CPPs for FY 2007-08

Particulars	Projected by CSEB			Approved by Commission		
	Quantum	Cost	Average Rate	Quantum	Cost	Average Rate
	MU	Rs. Crore	Rs./Unit	MU	Rs. Crore	Rs./Unit
JSPL(30 MW)	171	42	2.48	85	20	2.32
JSPL(70MW)	452	112	2.47	226	52	2.30
BALCO	419	65	1.56	90	14	1.56
Others	290	60	2.07	290	60	2.07
Total	**1,331**	**279**	**2.10**	**691**	**146**	**2.11**

4.9.7 Power Purchase from Traders

CSEB has submitted that during FY 2006-07, it purchased 645.83 MU from six power traders at rates varying from Rs. 2.94 per unit to Rs. 5.48 per unit, with the average rate being Rs. 4.33 per unit. CSEB has submitted that the price of power in the market available from traders has increased substantially since then and hence, CSEB has considered a rate of Rs. 7.45 per unit at its periphery for power purchase from traders only in acute emergency to the extent of 236.37 MU in FY 2007-08. Further, CSEB has submitted that it may sell power to traders after October 2007, i.e., when it is expected to have surplus power after commissioning of Korba East Extension units 1 and 2. Subsequent to technical validation session, CSEB revised the estimated power purchase from traders to 699MU.

Commission's views

The Commission has obtained the details of actual power purchase from traders till August 2007 and CSEB's revised projections for September and October 2007. The actual power purchased from traders during the period April to August 2007 is 415.83 MU. CSEB, in its subsequent submission, has stated that the actual purchase from April to July 2007 from traders (other than for power swap) is 148.78 MU and estimated that it would purchase 187 MU in the month of August. However, for the month of August 2007, the actual power purchase from traders as submitted by CSEB is 267 MU. As regards revised estimation of power purchase during September and October 2007, CSEB submitted that considering the power

shortage situation in these two months, around 215 MU and 130 MU would be purchased from traders during September and October 2007, respectively, @ Rs. 5.72/unit and Rs. 6.93/unit based on Letter of Intents (LoIs) issued to the traders. The Commission, considering the actual power purchase by CSEB from April, 2007 to August 2007 from traders and revised estimate of power purchase for September and October 2007 has approved a quantum of 761 MU for purchase from traders. For approving the power purchase cost, the Commission has considered the actual cost of the power purchase from traders for the period April to August 2007 and the rates considered by the Board for September and October based on LoIs issued, which works out to be Rs. 4.73 per kWh.

The summary of the quantum and cost of power purchase from traders as projected by CSEB and approved by Commission is given below:

Table 4.40

Power purchase from traders in FY 2007-08

	Projected by CSEB			Revised Submission by CSEB*			Approved by Commission		
	Quantum	Cost	Average Rate	Quantum	Cost	Average Rate	Quantum	Cost	Average Rate
Particulars	MU	Rs Crore	Rs/Unit	MU	Rs Crore	Rs/Unit	MU	Rs Crore	Rs/Unit
Traders	236	176	7.45	761	360	4.73	761	360	4.73

** Revised submission – Actual from April to August 2007 and projected for September and October 2007*

4.9.8 Power Swap

The Board has submitted that it has entered into a power swap arrangement with J&K through NTPC Vidyut Vyapar Nigam Ltd. (NVVN) for 60 MW power for 6 months. Accordingly, CSEB has projected about 220 MU of energy to be made available by J&K at their grid @ Rs. 3.69 per unit and 202 MU is likely to be received at CSEB grid, after accounting for transmission losses at the rate of 7.90% in northern and western grids. The Board has submitted that as per the agreement it has to return this 220 MU along with 5% additional energy in lieu of transaction costs to J&K at the rate of Rs.3.65 per unit. The total swap impact as projected by CSEB is 28.38 MU (17.38 MU by way of transmission loss and 11 MU as 5% additional energy to be returned) in addition to rate difference of 4 paise per unit on 220 MU as trading charges. CSEB, in its revised submission during technical validation sessions, projected total quantum of 337 MU under power swap arrangement.

Commission's views

The Commission has considered 337 MU under power swap arrangement as projected by CSEB, and has considered the additional quantum required for

compensation for power swap to be 43 MU. The Commission is of the view that as additional power during non-peak hours may be available once the new generating units become operational, CSEB may not have to purchase additional power for returning the power. Therefore, the Commission has not approved the cost of power purchase for additional power to be returned under swap arrangement and the Commission has only considered the transaction charge of 4 paise/unit for determining the cost impact of the power swap. The Commission approves the total transaction cost as Rs. 1.35 Crore.

4.9.9 Power Purchase through UI

CSEB, in its petition has submitted that considering the expected increased in availability of power from upcoming plants, it has proposed only 116.37 MU as overdrawal and 10 MU as underdrawal towards unscheduled exchanges in line with the basic spirit of ABT mechanism in FY 2007-08. It has projected an increase of 24% in the UI rates of 2006-07 for estimating the UI charges for FY 2007-08, on account of increase in UI rates by CERC and has projected average rates of Rs. 3.97 per unit and Rs. 4 per unit for overdrawal/ under-drawal during FY 2007-08. In response to the Commission's query that the actual purchase from UI for the first four months (148.97 MU) is higher than the projections, CSEB in its revised submission projected purchase of 366.81 MU from UI at a total cost of Rs. 125.57 Crore.

Commission's views

The Commission has considered the actual UI over-drawal and under-drawal from April 2007 to August 2007, of 268.61 MU and 46.5 MU, respectively, for estimating the quantum of over-drawal and under-drawal during the year. For the period from September 2007 to March 2008, the Commission has considered the over-drawal and under-drawal through UI as projected by the Board. Based on the approved energy availability from CSEB generating stations and various sources of power purchase and projected category-wise sales and approved T&D losses, CSEB may have additional power available during non-peak hours typically during day-time. The Commission has made a conservative assessment of this additional power available and has assumed it to be sold to the grid through the UI under-drawal mechanism, since such power availability cannot be projected in advance, and depends on system conditions.

The rate for the over-drawal and under-drawal has been considered based on the actual over-drawal and under-drawal rates for the period from April to August 2007, and the rates projected by the Board for over-drawal during the remaining

portion of the year. For under-drawal, the Commission has considered a rate of Rs. 3 per kWh, as compared to the actual rate of Rs. 2.65 per kWh over the period from April to August 2007, considering that the average UI rates have increased, and the under-drawal rates are also bound to increase.

The summary of the quantum and cost of over-drawal and under-drawal through UI as projected by CSEB and approved by Commission is given below:

Table 4.41

Over-drawal and Under-drawal through UI in FY 2007-08

Sl No.	Particulars	Petition			Approved		
		Quantum	Total Cost	Average Rate	Quantum	Total Cost	Average Rate
		MU	Rs. Crore	Rs./Unit	MU	Rs. Crore	Rs./Unit
1	UI-Over Drawal	116	46	3.97	418	139	3.34
2	UI-Under Drawal	10	4	4.00	(895)	(267)	2.98
3	**Net-UI**	**106**	**42**	**3.96**	**(477)**	**(127)**	**2.67**

However, CSEB should endeavour to maximise the revenue through sale of such additional energy, to the extent actually available, in order to pass on the benefit to its consumers, through reduction in tariff. The Commission clarifies that the sale of additional energy, if any, through the UI under-drawal route or otherwise, should not be at the cost of undertaking load shedding for any consumer category, as the primary responsibility of the CSEB is to ensure continuous supply of quality power for 24 hours every day to its consumers.

4.9.10 External Transmission Charges to PGCIL

CSEB has estimated the transmission charges payable to PGCIL and GRIDCO at Rs. 21.95 crore for FY 2007-08. The Commission considering the applicable transmission charges for western region transmission capacity allocated to CSEB, inter-regional link charges, and eastern region transmission charges for existing capacities and expected addition of new capacities has estimated the external transmission charges at Rs. 28.92 crore for FY 2007-08.

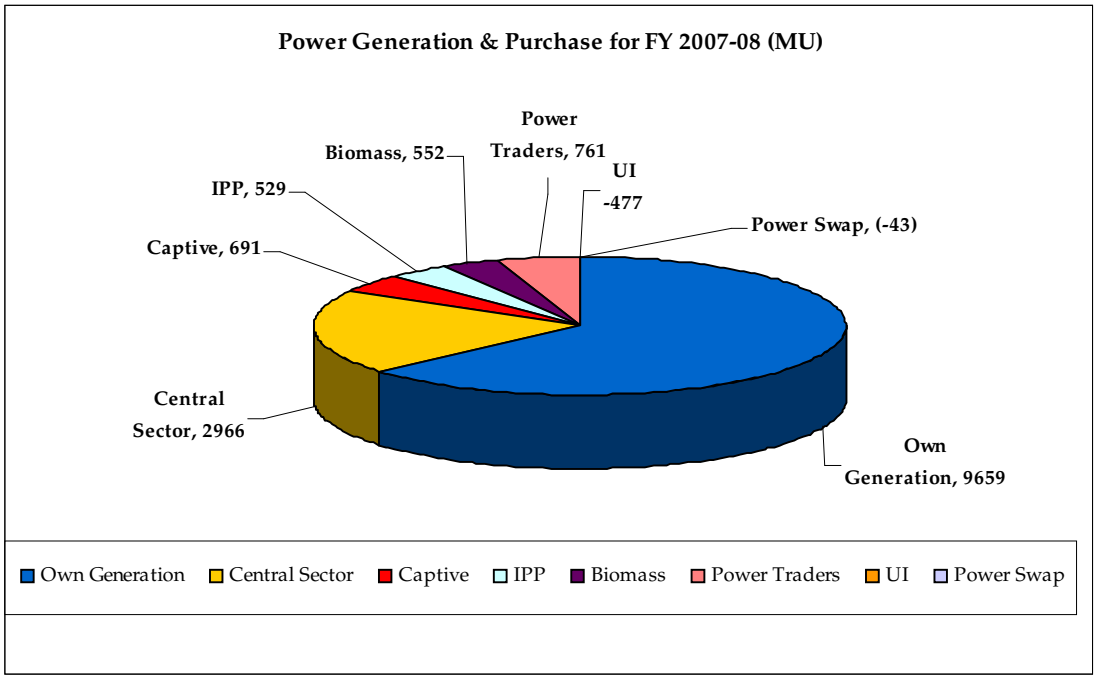
4.9.11 Total Power Purchase Expenses

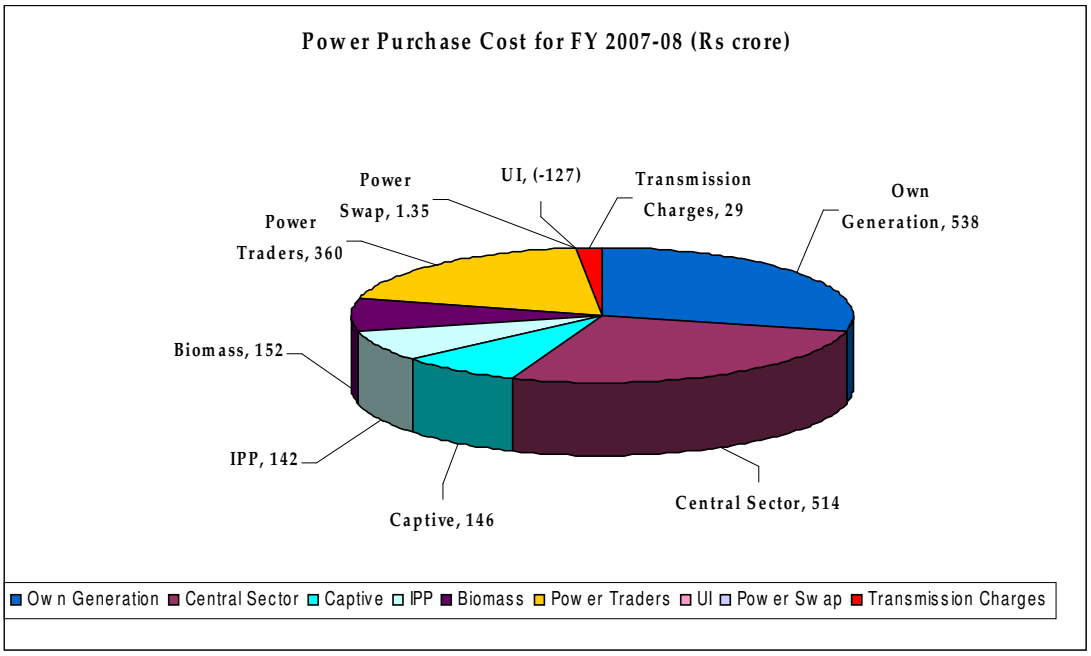
The summary of the total power purchase and cost as projected by CSEB and approved by Commission is given below:

Table 4.42

Summary of Power Purchase Expenses for FY 2007-08

Sl.	Station	Petition			Approved		
		Quantum	Total Cost	Average Rate	Quantum	Total Cost	Average Rate
		MU	Rs. Cr.	Rs./Unit	MU	Rs. Cr.	Rs./Unit
I	**Central Sector Stations**						
1	KSTP	1,526	202	1.32	1,504	202	1.35
2	VSTP I	39	15	3.89	36	15	4.12
3	VSTP II	33	6	1.76	29	5	1.87
4	VSTP III-Unit1	337	66	1.96	343	66	1.94
5	VSTP III-Unit 2	292	57	1.96	306	54	1.76
6	Kawas GPP	22	9	4.19	17	8	4.70
7	Jhanor (Gandhar) GPS	22	7	3.10	19	6	3.27
8	FSTPP-EP	64	10	1.64	62	11	1.75
9	KhTPS-EP	35	6	1.76	37	7	1.91
10	TSTPS-EP	39	3	0.81	41	4	0.87
11	KhTPS-II	52	10	1.96	34	7	2.04
12	Sipat Stage –I	251	49	1.96	255	49	1.94
13	Sipat Stage – II	144	28	1.96	0	0	0.00
14	KAPP	9	2	2.45	9	2	2.45
15	TAPP 3&4	157	43	2.78	274	76	2.78
	Total Central Sector	**3,021**	**515**	**1.70**	**2,966**	**514**	**1.73**
II	**Captive**						
1	JSPL(30 MW)	171	42	2.48	85	20	2.32
2	JSPL(70MW)	452	112	2.47	226	52	2.30
3	BALCO	419	65	1.56	90	14	1.56
4	Others	290	60	2.07	290	60	2.07
	Total Captive	**1331**	**279**	**2.10**	**691**	**146**	**2.11**
III	**Biomass**						
1	Existing Stations	257	68	2.65	463	127	2.75
2	New Stations	0	0	0	89	25	2.79
	Total Biomass	**257**	**68**	**2.65**	**552**	**152**	**2.76**
IV	**IPPs**						
1	Jindal Power Ltd.	350	98	2.80	140	39	2.80
2	Other IPPs	379	100	2.64	389	103	2.64
	Total-IPPs	**729**	**198**	**2.72**	**529**	**142**	**2.68**
V	Traders	236	176	7.45	761	360	4.73
VI	UI over-drawal	116	46	3.97	418	139	3.34
VII	UI under-drawal	10	4.00	4.00	(895)	(267)	2.98
	Net-UI	**106**	**42**	**3.96**	**(477)**	**(127)**	**2.67**
VII	Power Swap	28	22		(43)	1.35	
VIII	Transmission Charges		22			29	
IX	**Total**	**5,709**	**1,323**	**2.32**	**4,978**	**1,216**	**2.44**





4.9.12 Regulation of purchase of power

The proviso under Section 62(1)(a) of the Electricity Act, 2003, and also clause 9(1) of Guidelines for power purchase and power procurement process, 2005, issued by the Commission provides that for short-term power purchase, the Commission shall specify a price band for cost of power for the forthcoming year for different periods of the day, i.e., for peak, off- peak and normal hours. In view of this, the upper price ceiling for purchase from the traders at C.G. periphery for the period 1st November 2007 to 31st March 2008 would be as follows:

Peak period	-	Rs. 6.27/kWh
Off peak period	-	Rs. 5.75/kWh
Round the clock	-	Rs. 5.12/kWh

The rates specified above are 10% higher than the weighted average rates for different periods of the day as per the Letter of Intents placed by the Board, for the recent three months (i.e. August, September and October 2007)

The Commission directs CSEB to ensure that the rate of energy purchase from traders from November 2007 to March 2008 should not be higher than the maximum ceiling rate as approved by the Commission. In case of exceptional circumstances, the Commission may consider the higher rate of energy purchase on request.

The Commission has passed an order in petition no.17 of 2005(M) on February 6, 2006 in the matter of power purchase and related dispensation in respect of captive generating plants. Para 9.5 of this order stipulates:

"The Commission decides that the procurement of power from CPPs by the CSEB for up to one year period may be on the basis of competitive bidding as per the guidelines fixed by the Central Government under Section 63 of Electricity Act, 2003, with in the maximum ceiling price for purchase of power fixed by the Commission in the tariff order. The Board will have the flexibility of negotiating rates on the basis of bidding. However, for purchase of 25 MW and above from one source, the tariff will be fixed by the Commission as per the provisions of Section 62 (1) of the Act."

Accordingly the maximum ceiling price for purchase of power from CPPs for FY 2007-08 would be Rs. 2.80 per unit. The rate of Rs. 2.80 per unit is the maximum rate and the Board is advised to negotiate this rate. The terms and conditions for power purchase from CPPs shall remain same as per the instructions of the Commission. The above ceiling rate and the terms as applicable to CPPs will also be applicable to IPPs up to March 31, 2008.

For FY 2008-09, the Board is directed to submit power procurement plan as mandated in Clause 6 of the Guidelines for Power Purchase and Power Procurement Process by December 31, 2007. For the revision in the ceiling rates for purchase of power from traders, CPPs and IPPs for FY 2008-09 the Board should submit their proposal along with the short term power procurement plan. The CSEB is directed to take approval from the Commission for short-term

power procurement plan and revised ceiling rate for purchase of power from traders, CPPs and IPPs for FY 2008-09.

4.9.13 Merit order for purchase

For purchase of power at reasonable rates, it is necessary to adopt the merit order of purchase. The merit order of purchase is stipulated based on the variable cost of power purchase per unit, from individual sources. However, the energy to be purchased from biomass based non-conventional energy plants is to be excluded as the Board is required to purchase power, as per the order of the Commission, to the tune of 5% of its requirement from these sources. Also, the power purchase from Nuclear Power Corporation (NPC) has been excluded from the merit order, as the NPC stations cannot be backed down, and the energy has to be absorbed when it is generated. Also the power to be purchased from JSPL, BALCO, Jindal Power Limited and other IPPs has been excluded from the merit order for purchase on the basis of the PPA/single part tariff. The details of power purchase by the Board from different sources are discussed above. The stations/sources are listed in table below in the merit order for purchase by the Board:

Table 4.43

Merit Order for Power Purchase from various sources

Sl.	Power Purchase Source	Energy Charge (Rs./kWh)
1	KSTPS	0.61
2	TSTPS-EP	0.64
3	VSTP III-Unit1	1.00
4	VSTP III-Unit 2	1.00
5	KhTPS-II	1.00
6	Sipat Stage –I	1.00
7	VSTP II	1.00
8	VSTP I	1.04
9	FSTPP-EP	1.18
10	KhTPS-EP	1.27
11	Jhanor (Gandhar) GPS	1.72
12	Others-Captives	2.07
13	Kawas GPP	3.86
14	Traders	4.73

4.10 OPERATIONAL EXPENDITURE

As per the Commission's Regulations on Terms and Conditions for Determination of Tariff, for generation and transmission, the Commission would be guided by the principles as laid down in Section 61 (a) to (h) of the Act, the National Electricity Policy, National Tariff Policy and follow the principles and methodologies specified by the CERC in their Terms and Conditions of Tariff Regulations, 2004. The Commission has examined the Annual Revenue Requirements of the Board in respect of the generation and transmission functions based on the principles laid down in the CERC Regulations. The ARR in respect of the distribution function has also been examined as per the guidelines laid down in the NTP and the Commission's Regulations on tariff.

As an integrated utility which is yet to be restructured, the CSEB has submitted as part of its ARR, costs relating to employees, administrative and general expenses, repair and maintenance expenses, depreciation expenses, interest and finance expenditure, liability towards income tax and reasonable return for the Board as a whole, and has also allocated these costs to generation, transmission and distribution functions on a certain basis. The ARR in respect of these expenses has accordingly been examined for the Board as a whole, and has been further allocated to the three functions on the basis of justifiable rationale.

Operation and Maintenance (O&M) Expenses

CSEB has projected operation and maintenance (O&M) expenses under the following heads:

- Employee Expenses
- Repairs & Maintenance Expenses
- Administration & General Expenses

The expenses projected by CSEB and the expenses approved by the Commission under each of these heads, are discussed below:

4.10.1 Employee Expenses

CSEB has projected employee expenses for the three functions, viz., generation, transmission and distribution together and has allocated the expenses to each function on the basis of number of employees working in each. The employee expenses comprise salaries and wages, dearness allowance, other allowances and terminal benefits in the form of pension and gratuity.

The Board has projected a 2.8% increase in the basic pay due to regular increments and promotion of employees, as well as a 2.8% in other allowances on account of

general inflation. An increase of 8% in the DA rate, over the existing rate of 35%, has been considered on account of inflation, resulting in an average rate of 39% for DA as a percentage of the basic salary. The Board has considered an interim relief of 12.5% against the pending wage revision, which is yet to be finalised, but is due with effect from December 2005. CSEB has provided for Rs. 205 crore towards contribution to pension fund on the basis of actuarial analysis.

The total employee expenses projected is Rs. 686 crore, net of capitalisation, for FY 2007-08, as shown in the table below:

Table 4.44

Employee Expenses projected by CSEB (Rs. Crore)

Sl.	Particulars	FY 2006-07	FY 2007-08
		Provisional	Petition
1	Basic Pay	165.44	170.08
2	Additional Pay	83.69	86.07
3	Dearness Allowance	69.38	99.9
4	Other Allowances	23.42	24.07
5	Wage Revision	27.08	79.46
6	Other allowance and benefits	43.69	46.45
7	Contribution to gratuity and pension fund	175.07	206.25
8	**Total**	**587.77**	**712.28**
9	**Less: Capitalisation**	**-22.05**	**-26.12**
	Total	**565.72**	**686.16**

The Board has allocated the employee expenses to each function, on the basis of the number of employees in each function, in the following ratio, viz., 26.56% to generation function, 8.18% to transmission function, and 65.26% to distribution function as shown in the table below:

Table 4.45

Function wise allocation of Gross Employee Cost (Rs. Crore)

Sl.	Function	Proportion of employees	Share of employee expenses
1	Generation	26.56%	189.18
2	Transmission	8.18%	58.26
3	Distribution	65.26%	464.83
	Gross Total	100.00%	712.28

Commission's views

The increase of 2.8% in basic salary and other allowances considered by the Board appears reasonable, in view of the prevailing inflation rates, and has been accepted by the Commission. The average DA rate of 39% considered by the Board also appears reasonable, and is accepted by the Commission. As regards the provision

for wage revision, the Board had projected an expenditure of Rs. 67.6 crore towards this head for FY 2006-07, which was approved by the Commission. However, the Board has spent only Rs. 27.08 crore under this head. In view of this, the Commission feels that it will not be appropriate to provide for wage revision to the extent sought by the Board, and allows provision towards interim relief of Rs. 27.08 crore for FY 2007-08 on the basis of last year's expenditure. Once the actual wage revision takes place, the actual impact will be known, and adjusted in due course.

The expenditure booked towards providing subsidised electricity to the Board's employees has not been considered under employee expenditure, to avoid the duplication of the impact under revenue from sale of electricity from the domestic category. The increase of 2.8% projected by the Board for other terminal benefits like provident fund has been accepted by the Commission. In accordance with the Commission's ruling in the previous order in the context of contribution to gratuity and pension fund, the Commission has considered contribution of Rs. 1 lakh per employee to the fund created for this purpose. All payments of gratuity and pension must be made from this fund only. Also, the Board should ensure that the amounts are contributed to the fund as booked under the accounts, and invested appropriately, so that the funds can be a self-generating fund, such that in future, no provisioning will have to be made towards the fund. Further, the Board should update the actuarial valuation to account for the fact that the employees who have joined after January 1, 2004, are not eligible for pension, as they are covered under the new pension scheme, and hence, no provision for pension has to be made for such employees.

The Commission has approved gross employee expenditure of Rs. 625.3 crore, as against Rs. 712.3 crore projected by the Board, as given in the table below, which is a 6.4% increase over the actual employee expense incurred in FY 2006-07:

Table 4.46

Employee Expenses for CSEB (Rs. Crore)

Sl.	Particulars	FY 2006-07		FY 2007-08	
		Approved	Provisional	Petition	Approved
1	Basic Pay	262.59	165.44	170.08	170.08
2	Additional Pay		83.69	86.07	86.07
3	Dearness Allowance	63.02	69.38	99.9	99.90
4	Other Allowances	26.60	23.42	24.07	24.07
5	Wage Revision	67.63	27.08	79.46	27.08
6	Other allowance and benefits	42.55	43.69	46.45	45.91
7	Contribution to gratuity and pension fund	175.00	175.07	206.25	172.14
	Total	**637.39**	**587.77**	**712.28**	**625.25**

The Commission has allocated the above employee expenditure to different functions on the basis of the number of employees in each function, as submitted by the Board, as given in the following table:

Table 4.47

Function-wise allocation of Gross Employee Cost (Rs. Crore)

Sl.	Function	Proportion of employees	Projected by CSEB	Approved by Commission
1	Generation	26.56%	189.18	166.07
2	Transmission	8.18%	58.26	51.15
3	Distribution	65.26%	464.83	408.04
	Gross Total	**100.00%**	**712.28**	**625.25**

Although the employee expenditure as discussed above has been approved, **the Commission is of the view that the Board's employee expenses amounting to 63 paise per unit of sale, is very high, as compared to the employee expenses of other electricity utilities in the country**. A comparison of the performance of electricity utilities in nine States has been undertaken by The Energy Resources Institute (TERI), on behalf of the Ministry of Power, which is based on data for FY 2004-05 and FY 2005-06, and does not include Chhattisgarh. However, a study of the findings presented in the report indicates that the overall employee cost of CSEB (for generation, transmission and distribution functions) is higher than the overall employee cost of Jharkhand, Madhya Pradesh, Maharashtra and West Bengal. The Board should take urgent steps to rationalise the expenditure on

employees by benchmarking the same across efficient utilities in the country in the public as well as private sector.

4.10.2 Administration & General (A&G) Expenses

CSEB has projected gross A&G expenses of Rs. 66.57 crore for FY 2007-08, by considering a 10% increase over the actual A&G expenses in FY 2006-07. The A&G expenses comprise rent, rates and taxes, travel and conveyance expenses, consultancy and legal fees, insurance and other administration expenses. CSEB has stated that its projections a 10% increase in A&G expenses are reasonable in view of the fact that the Board has added number of facilities and services for the comfort of customers, and to offset the impact of inflation. The Board has also provided for additional expenditure of Rs. 2.05 crore on account of consultancy charges towards the contract for study on determination of T&D losses and voltage-wise and category-wise cost of supply.

The function-wise allocation of A&G expenses by CSEB is shown in the table below:

Table 4.48

Function wise allocation of A&G expenses (Rs crore)

Function	CSEB Projection
Generation	28.88
Transmission	14.89
Distribution	22.80
Total	**66.57**

Commission's views

The increase of 10% in A&G expenses considered by the Board does not appear to be reasonable, in view of the prevailing inflation rates, especially over and above the already high level of A&G expenses. The Commission has hence, approved the A&G expenses by considering a 4.5% increase over FY 2006-07 levels, in line with the average inflation rates.

However, the Commission has not considered the expenses towards insurance, as CSEB clarified during the technical validation session that the Board did not actually have any insurance policy, and was not booking actual expenditure towards this head, on account of a policy prevailing in erstwhile MPEB to create an internal insurance fund. Also, the Commission has considered only Rs. 75 lakh towards the consultancy fee payable for the study on T&D losses and cost of supply, as the study has been awarded only recently and is of 14 months duration,

and the entire fees will not be payable in FY 2007-08. The Commission has approved gross A&G expenditure of Rs. 60.7 crore, as against Rs. 66.6 crore projected by the Board, as given in the table below:

Table 4.49

A&G Expenses for CSEB (Rs. Crore)

Particulars	FY 2006-07		FY 2007-08	
	Approved	Provisional	Petition	Approved
Administration Expenses				
Rents & Taxes		9.90	10.85	10.34
Insurance		1.26	1.38	0.00
Revenue Stamp Expenses Account		0.02	0.02	0.02
Telephone, Postage, Telegram & Telex Charges		2.50	3.05	2.61
Technical Fees		1.65	1.65	1.72
Consultancy Charges		5.94	8.57	6.96
Other professional charges		0.53	0.54	0.55
Conveyance & Travel Expense		11.71	12.88	12.23
Total of Administrative expenses		**33.50**	**38.94**	**34.44**
Other Charges		**13.73**	**14.97**	**14.45**
Legal Charges		**1.99**	**2.29**	**2.08**
Auditors fees		**0.90**	**1.04**	**0.94**
Material related expenses		**8.44**	**9.33**	**8.82**
Total	**47.12**	**58.56**	**66.57**	**60.73**

The Commission has allocated the above A&G expenditure to different functions in the same proportion as proposed by the Board, as given in the following table:

Table 4.50

Function-wise allocation of Gross A&G Cost (Rs. Crore)

Sl.	Function	Projected by CSEB	Approved by Commission
1	Generation	28.88	26.35
2	Transmission	14.89	13.58
3	Distribution	22.80	20.80
	Total	**66.57**	**60.73**

Although the Commission has approved the A&G expenditure as discussed above, it is observed that **the Board's A&G expenses amounts to 6 paise per unit of sale, is high, as compared to the A&G expenses of some of the electricity utilities in the country**.

4.10.3 Repair and Maintenance (R&M) Expenses

CSEB has projected gross R&M expenditure of Rs. 242.75 crore for FY 2007-08, which is an increase of 10% over FY 2006-07 levels for the generation and transmission functions, and 15% for distribution function. The Board has also included the amount of Rs. 30 crore towards one-time distribution transformer maintenance, expenditure which had already been approved for FY 2006-07 by the Commission. The head-wise R&M expenditure projected by the Board for FY 2007-08 is given in the table below:

Table 4.51

Table: R&M expenditure projected by CSEB for FY 2007-08

Particulars	Amount (Rs. Crore)
Plant and Machinery	194.01
Building	16.46
Civil Works	7.90
Hydraulic Works	0.94
Lines, Cables Net Works etc.	16.75
Vehicles	6.70
Furniture and Fixtures	0.08
Office Equipments	2.36
Station Supplies	0.00
Any other items (Capitalisation)	-2.44
Total	**242.75**

The table below shows the function wise allocation of R&M expenses proposed by the Board, on the basis of the Net Fixed Assets of each function:

Table 4.52

Function-wise allocation of R&M expenses (Rs. Crore)

Function	CSEB Projection
Generation	161.40
Transmission	13.08
Distribution	68.27
Total	**242.75**

Commission's views

The increase of 10% in R&M expenses considered by the Board does not appear to be reasonable, in view of the prevailing inflation rates, especially over and above the already high level of R&M expenses. The Board's R&M expenditure works out to around 6.7% of the Gross Fixed Assets (GFA), in comparison to the prevailing levels of around 2.5 to 3% of GFA in utilities elsewhere in the country.

Moreover, the expenditure towards one-time R&M of distribution transformers of Rs. 30 crore has already been passed through in the tariff for FY 2006-07, and hence, cannot be considered again. All the generating units at Korba East have also been refurbished and hence, should not require high R&M expenditure. During the technical validation session, CSEB informed that the high level of R&M expenditure booked under generation function in FY 2006-07 could be on account of booking certain capital related expenditure, to the tune of around Rs. 33 crore, under revenue (R&M) expenditure. Further, during the technical validation session, CSEB communicated that R&M expenditure was being booked once the material was purchased by the stores, which is incorrect, as R&M expenditure should be booked only after the material has been issued from the stores.

The Commission has hence, allowed R&M expenses equivalent to 5% of GFA, which is also high, for all the three functions for FY 2007-08. The function-wise break-up of R&M expenses projected by the Board and expenditure approved by the Commission for FY 2007-08, on the basis of the opening GFA, is given in the table below:

Table 4.53

Function-wise allocation of Gross R&M Expense (Rs. Crore)

Sl.	Function	Opening GFA	Projected by CSEB	Approved by Commission
1	Generation	1321	161.4	66.05
2	Transmission	494	13.08	24.70
3	Distribution	1033	68.27	51.65
	Total	**2848**	**242.75**	**142.4**

The Commission has approved gross R&M expenditure of Rs. 142.4 crore, as against Rs. 242.8 crore projected by the Board, as given in the table above, which is a 21% increase over the approved R&M expense for FY 2006-07, excluding the one-time R&M expenditure on distribution transformers. **The Commission reiterates that within the overall limit of Rs. 66 crore of R&M expenses for generation function, the expenditure on building and civil works should not exceed 10%.**

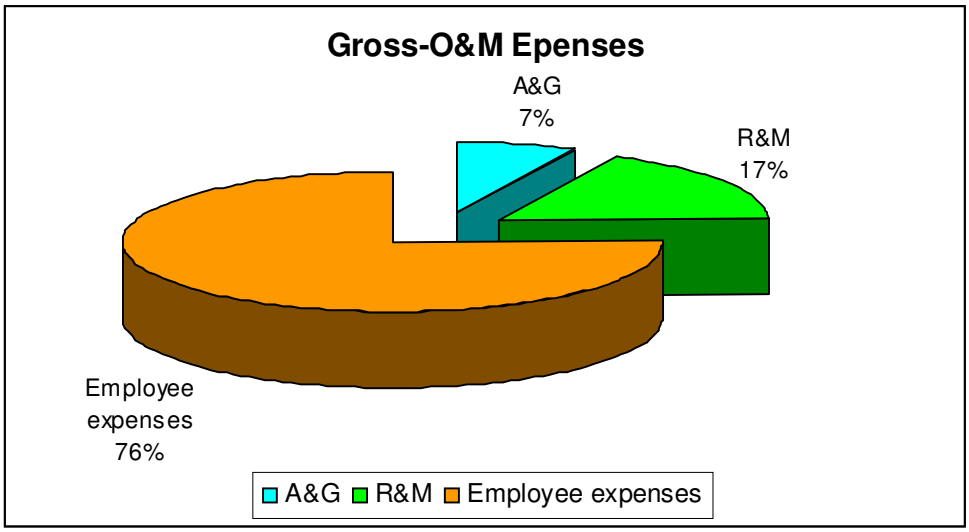
Operation and Maintenance (O&M) Expenses

The O&M expense is the summation of the employee expenses, A&G expenses and R&M expenses as shown in the table below:

Table 4.54

Function-wise allocation of Gross O&M Expenditure (Rs. Crore)

Sl.	Function	Projected by CSEB	Approved by Commission			
			Employee	A&G	R&M	Total
1	Generation	379.46	166.07	26.35	66.05	258.46
2	Transmission	86.23	51.15	13.58	24.7	89.43
3	Distribution	555.90	408.04	20.80	51.65	480.49
	Total	**1021.60**	**625.25**	**60.73**	**142.40**	**828.38**



4.11 Capital Investment Plan for FY 2007-08

CSEB has submitted the capital investment plan for generation, transmission and distribution functions of the Board for FY 2007-08 at Rs. 3278.51 crore as detailed in table below:

Table 4.55

Capital Investment Plan (Rs. Crore)

Sl.	Function	Expenditure in FY 2006-07	Projected for FY 2007-08
1	Generation	694.53	1847.00
2	Transmission	351.46	459.00
3	Distribution	379.23	972.51
	Total	**1425.22**	**3278.51**

The projected investment in generation is mainly on the new generating plants such as Korba East Extension (2 X 250 MW), expected to be commissioned during FY 2007-08, Korba West Extension (2 X 300 MW), expected to be commissioned in FY 2010-11, Marwa (2 X 500 MW), expected to be commissioned in FY 2011-12, and

the renovation and modernization of the existing plants for life extension. The projected capital expenditure in generation function on different projects and the proposed financing of the same is given in the table below:

Table 4.56

Projected capital expenditure and financing plan for generation function

(Rs. Crore)

Name of Project & Capacity	Total Project Cost	Projected Expenditure in FY 2007-08	Equity	Debt	Year of completion
Korba East 2X250 MW	2410	800	160	640	2008
Korba West 2X300 MW	2598	460	92	368	2011
Marwa 2X 500 MW	4498	225	45	180	2012
Mini Hydel 0.85 MW	2	2			2008
Renovation	--	298	60	238	---
JV	-	62	62	-	---
Total	**-**	**1847**	**421**	**1426**	**-**

The investment in transmission is for meeting the requirements of loss reduction, construction of new transmission lines, augmentation of transformer capacity, and construction of evacuation facilities for the upcoming generation plants along with some normal development works. The projected capital expenditure in transmission function on different projects and the proposed financing of the same is given in the table below:

Table 4.57

Projected capital expenditure and financing plan for transmission function

(Rs. Crore)

Project Particulars	Investment in FY 2007-08	Equity	Debt
Power Evacuation	214	45	169
Normal Development	245	65	180
Total	**459**	**110**	**349**

The investment in distribution covers a number of works under various schemes like:

- Accelerated Power Development & Reform Programme (APDRP)
- Rural electrification and agriculture pump energisation
- Atal Jyoti Yojana funded by 100% State Government grant
- System Improvement

- Normal development and civil works

The projected capital expenditure in distribution function on different projects and the proposed financing of the same is given in the table below:

Table 4.58

Projected capital expenditure and financing plan for distribution function

(Rs. Crore)

Sl.	Particulars	GoI Grant	GoC Grant	APDRP Loan	Loan from FI/Bank	Own funds	Total
1	APDRP	12.5	-	-	-	137.5	150.0
2	Sub-transmission (N) Works	-	-	-	-	80.0	80.0
3	Rural Electrification	-	36.7	-	-	22.5	59.2
4	Pump Electrification	-	114.8	-	-	35.2	150.0
5	Atal Jyoti Yojana	-	100.0	-	-	0.0	100.0
6	Normal Development Works	-	-	-	-	90.0	90.0
7	RGGVY	309.0	34.3			0.0	343.3
	Total	**321.5**	**285.8**	**0.0**	**0.0**	**365.2**	**972.5**

The summary of the financing plan projected by the Board for undertaking the projected capital expenditure, as given in the table below:

Table 4.59

Summary of Financing Plan for Capital Expenditure Programme (Rs. Crore)

Sl.	Function	FY 2007-08			
		Grants from State & Central Govt.	Long-term loans	Internal Resources	Total
1	Generation		1426.00	421.00	1847.00
2	Transmission		349.00	110.00	459.00
3	Distribution	607.28		365.23	972.51
	Total	**607.28**	**1775.00**	**896.23**	**3278.51**

The long-term loans amount to around 54% of the total projected capital expenditure during FY 2007-08, with grants from State and Central Governments contributing 19% and equity (internal resources) contributing the balance 27%.

Projected Capitalisation during FY 2007-08

CSEB has projected the following level of capitalisation of investment in FY 2007-08 for different functions:

Table 4.60

Projected Addition to GFA in FY 2007-08 (Rs. Crore)

Sl.	Function	Projected by CSEB
1	Generation	2410
2	Transmission	200
3	Distribution	200
	Total	**2810**

Commission's views

The Board's capital expenditure plans, the funding for the same, preparedness for undertaking the same, orders placed, etc., were discussed with the CSEB's officers, to assess whether the high level of capital expenditure indicated by the Board for FY 2007-08 could be undertaken, and whether the required funds are tied up. Though the Board has indicated that most of the funds for generation and transmission capital expenditure have already been tied up by the Board, the Commission is of the view that capital expenditure on the Marwa project is unlikely to be made during FY 2007-08. Hence, for determining the capital related costs like depreciation and interest, the Commission has considered neither the projected expenditure on Marwa generation project nor the projected expenditure on the associated transmission infrastructure. The balance capital expenditure projected by the Board in the generation and transmission function, has been considered by the Commission, without any modification.

As regards distribution capital expenditure, the Commission is of the view that the Board would find it difficult to undertake the significantly higher level of capital expenditure indicated in the petition. However, since there is no impact on the tariff, on account of absence of interest bearing long-term loans and entire funding of distribution capital expenditure through own funds and grants from the State and Central Governments, the Commission has accepted the high level of capital expenditure under distribution function as projected by the Board.

Accordingly, the sources of financing and the capitalisation schedule, which largely comprises capitalisation of Korba (E) Extension projects, scheduled for November 2007 and February 2008, have been considered by the Commission, with modification only to the extent of exclusion of the Marwa project.

While the Commission has considered the schemes and expenditure largely as proposed by the Board in its petition, **the Board is yet to submit its five-year capital investment plan and business plan, which will give a clear indication on the future capital expenditure plan of the Board, and facilitate prioritisation of**

the capital investment. The Board should submit its five year business plan without further delay.

4.12 Interest and Finance charges

CSEB has projected Rs. 419.69 crore under interest and finance charges for FY 2007-08. The break-up of the interest and financing charges is as given in the table below:

Table 4.61

Interest and Finance charges projected by CSEB (Rs. Crore)

Particulars	Projected
Government Loans	75.45
Public Bonds	16.38
Debentures	21.52
LIC Loans	17.29
REC Loans	181.00
Loans From Commercial Bank –SPA	0.44
Loans from CSS for Renovation	7.68
Loans from PF Corporation	59.00
Other Sources	14.66
Financing Charges	26.27
Interest on Working Capital	0.00
Total	**419.69**

The Board has submitted that in the distribution of assets and liabilities of the erstwhile MPEB between CSEB and residual MPEB, the liabilities were allocated based on GoI's orders. While transferring these liabilities, certain portion of overdue interest and principal has also been transferred. CSEB has submitted that it is unable to service these loan liabilities because the matter is pending before Hon'ble High Court and the decision on the petition filed by Government of Madhya Pradesh is still awaited. On receipt of the final decision in this case, CSEB will take necessary steps for settlement of above liabilities with the respective lenders.

CSEB has submitted that the main reason for the increase in interest expenditure is the capitalization of the new thermal power plant at Korba East Extension, which will enable the Board to reduce the incidence of costly power purchase, and reduce the overall cost of supply. As regards interest on working capital, the Board has submitted that it has its own resources to fund the working capital requirements. In order to provide efficient services at the cheapest possible cost, CSEB is not charging interest on working capital from its consumers.

For allocating the loans to the different functions, CSEB has considered the ratio of (Net Assets + CWIP) as the basis, except in case of LIC - HFL housing loan, which has been allocated on the basis of the employee ratio. On the above basis, the interest and finance charges have been allocated to generation, transmission and distribution functions in the ratio of 72.3%, 12.6%, and 15.1%, respectively, as shown in the table below:

Table 4.62

Allocation of gross interest and finance charges (Rs. Crore)

Function	Allocation
Generation	303.50
Transmission	52.85
Distribution	63.34
Total	**419.69**

Commission's views

During the technical validation sessions, the Commission directed the Board to submit the details of the interest computation, the actual loan agreements and the actual rate of interest for loans being taken by the Board. Analysis of the loans and interest shows that the interest expenditure projected by the Board comprises:

- Interest of Rs. 15 crore on perpetual World Bank loan
- Interest of Rs. 21.52 crore on public bonds
- Interest of Rs. 16.38 crore on SLR bonds

In the past years, CSEB has kept the payment of interest on these loans and bonds in abeyance, due to reasons mentioned in the petition. However, the accumulated liability towards the past dues of such interest has been provided for in the accounts of the Board by charging to revenue through tariff to the extent of Rs. 120.80 crore for bonds and about Rs. 75 crore for perpetual World Bank Loan. The Commission is of the view that it will be prudent to allow this interest expenditure, since it is due, but not being paid due to extraneous circumstances. The Commission hence, allows the interest expenditure on this account. **However, CSEB is directed to ensure that an amount equal to the past and current interest dues is kept apart and is invested in Government securities till it is paid, and the interest earned on the same be accounted for in the subsequent ARR petitions.**

CSEB has considered an interest rate of 12% on the new loans being taken to fund the capital expenditure in the generation and transmission business. The interest of 12% is on the higher side, though the tranche-wise details submitted by the Board indicate that some of the recent tranches are being released at 12% interest. However, bulk of the disbursements have been made at an interest rate of around 11%, and hence, the Commission has considered an interest rate of 11% on the new loans taken during the year, for determining the interest expenditure in FY 2007-08. In case of any variation in the interest rate vis-à-vis the approved interest rate, the same will be considered at the time of truing up of the interest expenditure, since interest cost is a pass-through expense. The weighted average rate of long-term interest approved by the Commission amounts to 8.8%, as compared to the Board's projected weighted average interest rate of 9.1%. Further, as discussed in the section on capital expenditure and capitalisation, the Commission has not considered the interest expenditure on Marwa project, hence, the projected interest expenditure on the same amounting to Rs. 11.01 crore, has also not been considered in the interest expenditure as well as the interest capitalised.

The financing charges projected by the Board include the interest on the consumers' security deposit at the rate of 6%, which has been made mandatory under the provisions of Regulation 8 of CSERC (Security Deposit) Regulations, 2005. The Commission hence, accepts the Board's projection of finance charges at Rs. 26.3 crore for FY 2007-08. Since the Board has not sought any interest on working capital requirement, the Commission has not allowed any interest expenditure on this account. The expenditure on interest and finance charges sought by the Board and approved by the Commission is given in the table below:

Table 4.63

Interest and Finance Charges for FY 2007-08 (Rs. Crore)

Sl.	Particulars	CSEB Projection	Approved by Commission
1	Government Loans	75.45	75.45
2	Public Bonds	16.38	16.38
3	Debentures	21.52	21.52
4	LIC Loans	17.29	17.29
5	REC Loans	181.00	162.84
6	Loans From Commercial Bank – SPA	0.44	0.44
7	Loans from CSS for Renovation	7.68	7.68
8	Loans from PFC	59.00	54.3
9	Other Sources	14.66	13.44
10	Financing Charges	26.27	26.27
11	Interest on Working Capital	0.00	0.00
	Total	**419.69**	**395.61**

As regards the allocation of the interest expenditure to the different functions, the Commission agrees with the rationale adopted by the Board for allocation of old loans, since the actual incidence of the loan and matching asset cannot be identified. However, for the loans taken recently, at least from FY 2005-06 onwards, the corresponding assets against which the long-term loans have been taken can be clearly identified, and should accordingly be allocated to the corresponding function. Hence, the Commission has applied the ratio indicated by the Board for existing loans prior to FY 2006-07, and from FY 2006-07 onwards, the function-wise loans and interest expenditure have been identified. The computation undertaken by the Commission to allocate the interest and finance charges to different functions is given in the table below:

Table 4.64

Allocation of gross interest and finance charges approved (Rs. Crore)

Sl.	Function	CSEB Ratio	Existing Loans	New loans	Total	Revised ratio
1	Generation	53.80%	84.42	189.06	**273.48**	69.13%
2	Transmission	20.90%	32.79	49.64	**82.43**	20.84%
3	Distribution	25.30%	39.70	0.00	**39.70**	10.03%
	Total	100.00%	156.91	238.70	**395.61**	100.00%

The contribution of the generation function to the interest and finance charges is the highest, which is logical given the huge loans being taken by the Board for undertaking the generation capacity addition and the renovation and modernisation schemes. On the other hand, the contribution of distribution function to the interest and finance charges is the lowest, which is in line with the analysis done earlier, which shows that distribution capital expenditure is being funded largely by grants from State and Central Governments and from internal resources, without any loans.

4.13 Capitalization of interest and O&M expenses

The O&M expenses incurred towards addition of capital assets has to be capitalised and added to the asset value, and charged off through depreciation over the life of the asset. Similarly, the interest expenditure during the construction period (IDC) has to be capitalised and added to the asset value.

The Board has projected capitalisation of the individual heads of O&M expenses on the basis of past trends. As regards capitalisation of interest expenditure, the Board submitted detailed computations of the IDC and the assumptions used by the Board to determine the capitalised interest expenditure. The Board has

projected a total capitalisation of Rs. 232 crore, comprising interest capitalisation of Rs. 199 crore, and the balance made up of capitalised O&M expenses.

Commission's views

The Commission has accepted the methodology used by CSEB to determine the level of capitalisation of O&M expenses and interest expenses. Since the gross O&M expenses approved by the Commission are lower than that projected by the Board, the amount of capitalisation is also correspondingly lower. Similarly, since the Commission has considered a lower interest rate of 11% to determine the interest expenditure, the amount of IDC is also correspondingly lower.

The amount of capitalisation projected by the Board and the capitalisation approved by the Commission for FY 2007-08 is given in the following table:

Table 4.65

Capitalisation of O&M and Interest Expenses (Rs. Crore)

Sl.	Function	Projected by CSEB	Approved by Commission
1	Employee expenses	26.12	22.93
2	A&G expenses	3.29	3.04
3	R&M expenses	3.81	2.52
4	Interest during construction	199.24	177.24
	Total	**232.46**	**205.73**

The capitalisation of interest expenditure against each function has been determined based on the actual incidence of the capitalisation and the asset against which the loan and interest have been identified, as submitted by the Board. The capitalisation of employee, A&G and R&M expenses has been allocated to different functions in the same proportion as the base expenses. The function-wise break up of interest and O&M expenses capitalized is as shown in the table below:

Table 4.66

Allocation of interest & O&M expenses capitalized approved (Rs. Crore)

Sl.	Function	Generation	Transmission	Distribution	Total
1	O&M Expenses	8.58	2.99	16.92	28.49
2	Interest during construction	142.85	20.91	13.48	177.24
	Total	**151.43**	**23.90**	**30.40**	**205.73**

4.14 Depreciation

CSEB has claimed depreciation of Rs. 87.6 crore for FY 2007-08, on the gross fixed assets. The details of opening gross fixed assets, assets added during the year, accumulated depreciation, and depreciation during the year, as submitted by the Board is given in the following table:

Table 4.67

Depreciation expenditure projected by CSEB (Rs. Crore)

Sl.	Particulars		FY 2005-06	FY 2006-07	FY 2007-08
1	**Gross Block**	Opening Gross Fixed Assets	1912	2634	2848
2		Addition during Year	722	214	2810
3		Closing Gross Fixed Assets	2634	2848	5658
4	**Depreciation**	Accumulated Depreciation at beginning of year	1272	1312	1355
5		Addition during year	40	42	88
6		Accumulated Depreciation at end of year	1312	1355	1442
7	**Average Depreciation Rate**		**1.77%**	**1.55%**	**2.06%**
8	**Closing Accumulated Depreciation as % of Opening GFA**		**68.64%**	**51.44%**	**50.65%**

The calculation of depreciation along with the function wise break-up submitted by the Board is as given in the table below:

Table 4.68

Function-wise depreciation projected by CSEB for FY 2007-08 (Rs. Crore)

Particulars		Total CSEB	Generation	Transmission	Distribution
Gross Block	Opening	2848.00	1321.00	494.00	1033.00
	Addition	2810.00	2410.00	200.00	200.00
	Closing	5658.00	3731.00	694.00	1233.00
Accumulated Depreciation	Opening	1369.00	725.00	132.00	511.00
	Addition	109.00	63.00	13.00	33.00
	Closing	1478.00	788.00	145.00	545.00
Capital Work in Progress (CWIP)	Opening	3067.00	1798.00	815.00	454.00
	Addition	-1860.00	-1779.00	-316.00	235.00
	Closing	1207.00	18.00	499.00	689.00
Consumer Contribution & Grants etc.	Opening	949.00	0.00	0.00	949.00
	Addition	318.00	0.00	0.00	318.00
	Closing	1267.00	0.00	0.00	1267.00
Consumer Contribution & Grants etc. in CWIP	Opening	311.00	0.00	0.00	311.00
	Addition	114.00	0.00	0.00	114.00
	Closing	425.00	0.00	0.00	425.00
Consumer Contribution in Fixed Assets	Opening	637.00	0.00	0.00	637.00
	Addition	204.00	0.00	0.00	204.00
	Closing	841.00	0.00	0.00	841.00

Particulars		Total CSEB	Generation	Transmission	Distribution
Depreciation Amount on	**Fixed Assets**	**87.58**	**62.89**	**13.19**	**11.51**
	Cons. Cont. etc	21.62	0.00	0.00	21.62
	Total	**109.21**	**62.89**	**13.19**	**33.13**

CSEB has submitted that its assets are very old, and hence, for a number of assets that were added several years earlier, the cumulative depreciation has reached 90% and no further depreciation is chargeable on them. The Board has added that it has considered depreciation on the assets capitalized during the year on pro-rata basis for the days of operation in accordance with the Commission's Tariff Regulations. Hence, the depreciation chargeable in FY 2007-08 is higher than that in previous years, on account of the addition of the generation assets of Korba East Extension to the Gross Fixed Assets, during the year, though the average depreciation rates are lower.

Commission's views

The average depreciation rate as projected by the Board for generation, transmission and distribution functions are 2.49%, 2.22%, and 1.02%, respectively, as compared to the average depreciation rates of 3.35%, 3.50%, and 3.63%, respectively, allowed by the Commission in its tariff order for FY 2006-07. The average depreciation rate for the current year is lower on account of the depreciation for part of the year, on large lumpy additions to the gross fixed assets, which are being considered for computation of the average depreciation rate.

The Board has also excluded the amount of consumer contribution, while computing the depreciation expenditure, which is consistent with the Commission's Tariff Regulations. The Commission has examined the computations of depreciation submitted by the Board, and accepts the depreciation expenditure projected. However, the depreciation projected by the Board is based on the premise that the two generation units at Korba East Extension would be commissioned by November 2007 and February 2008, respectively. If there is any delay in the commissioning of the projects, then the corresponding depreciation expenditure will also reduce, and will have to be trued up accordingly. The depreciation expenditure approved by the Commission for CSEB is Rs. 87.6 crore, comprising Rs. 62.9 crore, Rs. 13.2 crore, and Rs. 11.5 crore for generation, transmission, and distribution functions, respectively.

4.15 Provision for Bad debts and Other Debits

The Board has projected a total expenditure under this head of Rs. 107.31 crore for FY 2007-08, comprising provision for bad debts at Rs. 105.99 crore, and other debits of Rs. 1.90 crore. The Board has projected an increase of 33% in the provision for bad debts, as compared to the bad debts provisioned in the books of accounts, to address the risks due to the increase in arrears, and other inherent risks associated with the function of distribution and sale of electricity. CSEB has stated that a few debt recovery cases are in the final stages in the courts of law to recover arrears of about Rs. 40 crore as land revenue, and arrears of around Rs. 74 crore, may necessarily have to be written off. As regards other debits, CSEB has submitted that other debits comprise miscellaneous losses, cost of trading activities, and net prior period expenses.

Commission's views

Regulation 23 of the Commission's Tariff Regulations stipulate that the provision for bad and doubtful debts of the distribution licensee shall be allowed up to 1% of the receivables subject to actual writing off of bad and doubtful debts. Accordingly, the Commission approves a provision of Rs. 29.40 crore, which is 1% of the approved revenue of CSEB for FY 2007-08. The Commission clarifies that this is only a provisioning, out of which the actual bad debts will be written off. There is no merit in CSEB's submission that the provisioning for bad debts should be allowed at higher levels, since it expects to actually write off bad debts of around Rs. 74 crore shortly. As CSEB has been provisioning for bad debts over the years, the actual bad debts will have to be written off from out of this provisioning over the past, and cannot be recovered again from the paying consumers this year. Moreover, any additional recovery of revenue through recovery of arrears or otherwise, against the provisioning for bad debts, will necessarily have to be considered as income as and when they are realised.

As regards other debits, the Commission approves the expenses of Rs. 1.90 crore claimed by the Board. Thus, the total provision for bad debts and other debits approved by the Commission is Rs. 31.30 crore as against Rs 107.31 crore projected by the Board.

4.16 Provision for Taxes

CSEB has claimed Rs. 9.75 crore as provision for income tax for FY 2007-08, comprising income tax of Rs. 4.01 crore, Rs. 2.17 crore, and 3.57 crore for generation, transmission and distribution functions, respectively.

Commission's views

Regulation 27 of the Commission's Tariff Regulations stipulate that income tax, if actually liable to be paid, shall be limited to tax on return on equity allowed, excluding incentives. In the tariff order for FY 2006-07, the Commission had directed the Board to claim the 100% income tax exemption for ten years beginning from FY 2005-06, in accordance with Clause (iv) of sub-section (4) of section 80-IA of the Income Tax Act, 1961, with effect from April 1, 2005, which provides for income tax exemption to utilities, which undertake substantial renovation and modernisation of the existing network of transmission or distribution lines at any time during the period beginning April 1, 2004 to March 31, 2005.

Accordingly, CSEB has claimed this exemption, and has sought the Commission's approval for only the Fringe Benefit Tax (FBT) of Rs. 9.75 crore payable by the Board, which has enabled the Board to minimise the tax liability, and hence, the tariff applicable to the consumers. The Commission hence, approves the tax liability for CSEB as a whole for FY 2007-08, as well as the allocation of the same to the generation, transmission and distribution functions, as projected by CSEB. Further, in the Commission's tariff order for FY 2006-07, the Commission had ruled that the income tax allowed for FY 2006-07 and FY 2005-06 was subject to the condition that the Board would seek to avail 100% exemption from Income Tax for ten years beginning from FY 2005-06, and in case the Income Tax authorities allowed the Board's claim, and refunded the actual income tax paid by CSEB, then the amount of excess income tax paid would be considered as an over-recovery in terms of Clause (4) of Regulation 27 of the Commission's Tariff Regulations, for deduction from the ARR of the Board's next tariff petition. **This directive is reiterated, and the Board should make all efforts to expeditiously get the refund from the Income Tax authorities.**

4.17 Reasonable Return

CSEB has stated that though Regulation 12 of the Commission's Tariff Regulations deals with the debt:equity ratio of the capital expenditure, and Regulation 29 deals with the Return on Equity, there is no express provision under these Regulations that deals with the return on equity employed in the ongoing projects, which constitute a sizeable proportion. CSEB has submitted that since major generation and transmission projects normally require more than an year to complete, ignoring such huge investments for years together does not appear to be reasonable and conducive particularly when interest on borrowings for the same purpose is allowed as pass through under tariff. CSEB has added that such

discriminatory approach will discourage equity investment by utilities and encourage high cost borrowings for funding projects, which will not be in the ultimate interest of consumers of electricity as well as the commercial interest of utilities. CSEB has further submitted that the amount of equity invested by it in CWIP is also for the benefit of consumers and carries associated risks. Further, there may be a few assets, which actually have been put to use, however, due to accounting issues have not been capitalized. The investment in such assets is also eligible for return. CSEB has submitted that while calculating the return on equity, it has computed return upto 30% of equity employed by the Board and interest on balance equity over and above 30%, employed in the ongoing projects also. CSEB has claimed a reasonable return of Rs. 290.36 crore for FY 2007-08, and allocated the same to generation, transmission and distribution functions on the basis of the ratio of the opening net fixed assets for FY 2007-08, as given in the table below:

Table 4.69

Reasonable Return projected by CSEB for FY 2007-08 (Rs. Crore)

Function	Projected
Generation	129.36
Transmission	67.26
Distribution	93.73
Total Reasonable Return	**290.36**

Commission's views

Regulation 2 of Regulation 29 of CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006 provides that the reasonable return on equity has to be computed on the amount of paid up equity share capital and internal resources created out of free reserves to the extent utilized for meeting the capital expenditure. For this purpose, the debt-equity ratio has been considered in the manner provided in Regulation 12, i.e., in case of investments made prior to April 1, 2005, the debt-equity ratio has been accepted on the basis of un-audited Annual Accounts furnished by CSEB in their tariff petition and in case of capital investments made on or after April 1, 2005, the normative debt-equity ratio of 70:30 has been considered.

The reasonable return on equity @ 14% has been allowed on the full equity as on April 1, 2005, and on the normative equity (30%) employed in the capital expenditure made on or after April 1, 2005. On the amount of equity employed on or after April 1, 2005, over and above 30% of the normative equity, the reasonable

return has been allowed at a rate equivalent to the weighted average rate of interest of 8.5% paid by CSEB on its loans.

The Commission does not agree with the Board's submission that the equity investment in capital work in progress (CWIP) is also eligible for return on equity. The Board's submission that interest on borrowings for CWIP is passed through in tariff is also incorrect, as the interest during construction is not allowed as revenue expenditure, and is capitalised and added to the asset base, to be depreciated, once the asset is put to use. Thus, the treatment given to equity investment and borrowings for CWIP are entirely consistent and there is no differential treatment being given, as alleged by the Board. Further, the rationale given by the Board that equity investments are cheaper than borrowings is also fallacious, as equity investment is associated with higher risks and is eligible for higher returns @14%, whereas overall borrowings cost to the Board is only 8.5% on an average, and around 11% for fresh borrowings.

For the purpose of calculation of allowable reasonable return, equity employed in the capitalized gross fixed assets only has been considered and the equity employed in the capital work in progress (CWIP) has not been considered, since the CWIP has not been put to use in the business and is hence, not eligible to earn any return on investments, in accordance with well accepted financial principles. However, though the Commission's Tariff Regulations provide for computing Return on Equity only on the opening GFA, the Commission has allowed RoE on the normative equity component (i.e., 30%) of capital investments capitalised during the year, on a pro-rata basis for the number of days of operation during the year. For generation assets, the Commission has considered the actual projected COD of the two new units at Korba East Extension, viz., November 1, 2007 and February 1, 2008. For transmission and distribution assets, since it is not possible to estimate the exact date of capitalisation, the Commission has considered 50% of the projected capitalisation as per usual convention, for computing the return on equity.

The calculation of reasonable return on equity is shown in the table given below:

Table 4.70

Computation of Reasonable Return on Opening Equity for FY 2007-08 (Rs. crore)

Particulars	Up to 31.03.05	FY 2007-08	
		From 01.04.05 to 31.03.07	Total, as on 31.03.07
Capital Expenditure			
GFA	1910.45	937.32	2847.77
CWIP	1195.5	1871.12	3066.62
Sub-total	3105.95	2808.44	5914.39
Less: Consumer Contribution /Capital Grants	-441.04	-657.56	-1098.6
Capital Cost of Project	2664.91	2150.88	4815.79
Means of Finance			
Debts	1546.4	1006.37	2552.77
Debt %	58%	47%	53%
Equity			
Equity Share capital	23.12	0.00	23.12
Reserves/Surplus	1024.67	730.44	1755.11
Internal Accruals	1307.65	47.12	1354.77
Net Worth	2355.44	777.56	3133
Investments	998.53	-327.07	671.46
Other Assets	1.46	8.79	10.25
Net Current Assets	236.95	-48.68	188.27
Net Equity invested in capex	1118.5	1144.52	2263.02
Equity%	42%	53%	47%
Return @14% on Rs. 1118.5 crore, on the total net equity invested in capex till 31.3.05	156.59		156.59
Return on equity employed in capex on or after 1.4.05 (Rs. 1144.52 crore) @ 14% on Rs. 645.26 crore normative equity, i.e., 30% of capital cost of the project		90.34	90.34
@ 8.5% on Rs. 499.26 crore (1144.52-645.26) equity employed in capex over and above the normative equity		42.44	42.44
Gross Total Return on Equity for FY 2007-08 on the basis of above total net equity invested in capital expenditure including CWIP	**156.59**	**132.77**	**289.36**
s: out of the above gross total, Return on equity portion attributable to CWIP (289.36/5914.39) x 3066.62			**150.04**
Reasonable Return on equity allowable for FY 2007-08 for the whole CSEB on the net equity employed in capital expenditure excluding the portion attributable to CWIP (289.36/5914.39) x 2847.77			**139.33**

Table 4.71

Computation of Reasonable Return on Equity on Projects to be capitalised during FY 2007-08 (Rs. crore)

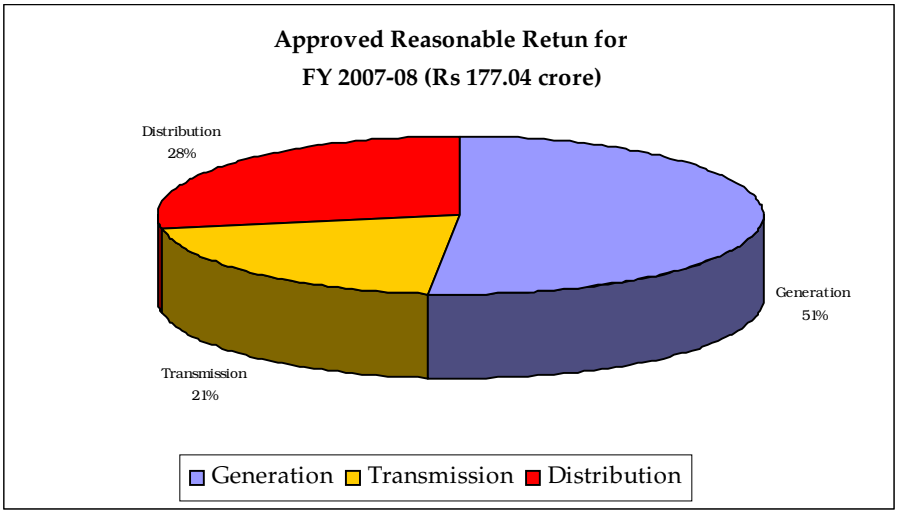
Particulars	Cost	Date of COD	Days of operation	Equity	Return
Generation					
Unit 1	1205	1-Nov	152	361.5	21.02
Unit 2	1205	1-Feb	60	361.5	8.30
Total	2410				29.32
Distribution & Transmission					
Distribution	200	30-Sep	183	60	4.20
Transmission	200	30-Sep	183	60	4.20
TOTAL CSEB					**37.72**

Thus, the total reasonable return allowed by the Commission for FY 2007-08 is Rs. 177.04 crore (139.33 + 37.72). The reasonable return for the opening GFA has been allocated on the basis of the ratio of the net fixed assets, while the reasonable return for the assets capitalised during the year have been allocated to the identified functions. The function-wise reasonable return is given in the table below:

Table 4.72

Function-wise allocation of Reasonable Return (Rs. Crore)

Function	CSEB Petition	Approved by Commission
Generation	129.36	91.39
Transmission	67.26	36.48
Distribution	93.73	49.18
Total Reasonable Return	**290.36**	**177.04**



4.18 Non-tariff Income

CSEB has projected non-tariff income of Rs. 205.36 crore for FY 2007-08. Non tariff income comprises mainly of income from all sources other than sale of electricity, viz., interest on fixed deposits, meter rent, delayed payment charges, miscellaneous receipts, income from trading, etc. CSEB has projected a reduction of 18% in the meter rent for FY 2007-08 from the previous year's level, due to the reduction ordered by the Commission in the meter rent. The interest on fixed deposits has been projected to increase by 8% over FY 2006-07 levels. The delayed payment charges have been projected to increase by 5% in FY 2007-08 over the previous year. The Board has not projected any increase in income from trading (other than electricity). Income from other activities has been projected to increase at 9% over the previous year. The income from miscellaneous charges has been reduced due to the Commission's recent order on miscellaneous and general charges. The Board has projected the income from parallel operation charges and open access charges at the same level as in FY 2006-07, at Rs. 25 crore and Rs.0.90 crore, respectively. Overall, the Board has projected a 6% reduction in the non-tariff income over FY 2006-07 levels.

The non tariff income of CSEB is as shown in the table below:

Table 4.73

Non-tariff income projected by CSEB for FY 2007-08 (Rs. Crore)

Particulars	FY 2005-06	FY 2006-07	FY 2007-08
Interest on Fixed Deposit	73.57	29.96	32.36
Meter Rent	24.57	22.57	18.47
Delayed Payment Charges	43.54	45.78	48.07
Misc. Receipts	43.88	43.98	47.78
Income From Trading (other than electricity)	47.36	27.80	27.80
Misc. Charges From Consumers	45.30	46.23	28.77
Other	2.46	1.94	2.11
Total	**280.67**	**218.26**	**205.36**

The Board has allocated the above projected non-tariff income for FY 2007-08 to the generation, transmission and distribution functions in the ratio of 19.8%, 9.5% and 70.7%, respectively, on the basis of the incidence of the income.

Commission's views

The Commission has accepted the Board's projection of non-tariff income for FY 2007-08, except for the following two changes:

- The income from miscellaneous receipts has been projected to decrease by around Rs. 20 crore, on account of revision in supply arranging charges by the Commission's order in the matter, issued in August 2007, since the full impact of the reduction would not have been felt in FY 2007-08
- The income from delayed payment charges has not been considered under non-tariff income, in accordance with the judgment of the Hon'ble ATE dated October 4, 2007, in Appeal 223 of 2006, in the case of M P Electricity Consumers' Society vs. M P Vidyut Vitaran Companies, MPERC and GoMP, wherein the Hon'ble ATE has ruled "*On a consideration of contentions of all parties, we are inclined to agree with the decision of the Commission to not include delayed payment surcharge revenue in the ARR in view of the fact that the working capital amount has been reduced to the bare minimum, 100% collection is not happening as of now, and therefore, to meet its cash requirements, the Discoms will have to borrow from Banks to compensate for the outstanding payments from consumers*."

Accordingly, the non-tariff income considered by the Commission for FY 2007-08 is Rs. 137.3 crore, which has been allocated to the different functions, on the basis of the incidence, as shown in the table below:

Table 4.74

Table: Function-wise allocation of Non-tariff income for FY 2007-08 (Rs. Crore)

Function	CSEB Petition	Approved by Commission
Generation	40.69	30.82
Transmission	19.58	14.66
Distribution	145.09	91.81
Total Non-tariff income	**205.36**	**137.29**

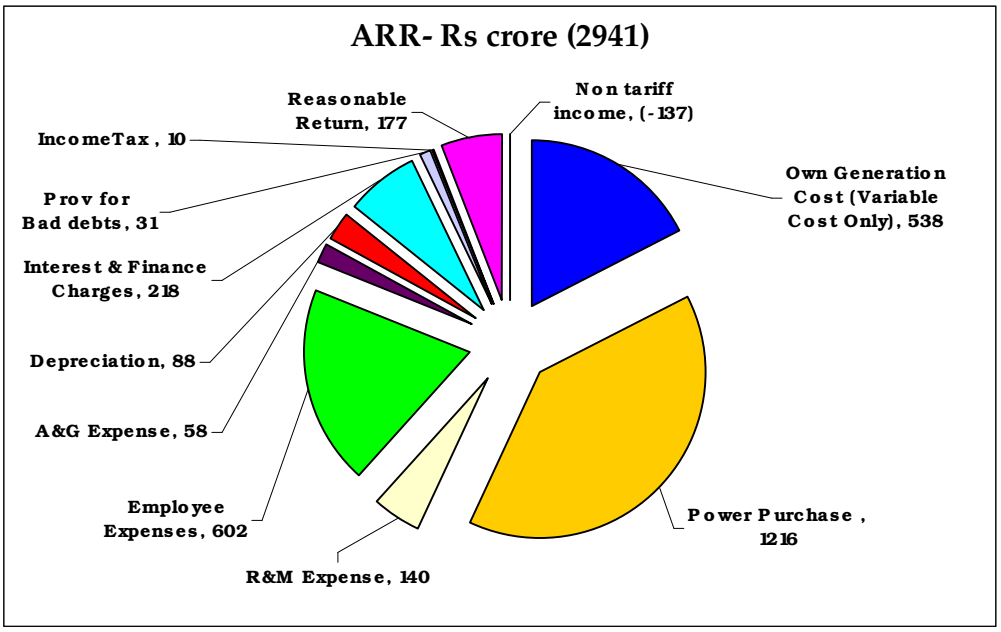
4.19 Annual Revenue Requirement of CSEB for FY 2007-08

The Annual Revenue Requirement (ARR) of CSEB is the summation of all the expenditure heads and the reasonable return discussed above, less the non-tariff income. The ARR projected by the Board in its petition for FY 2007-08 and the ARR approved by the Commission is given in the table below:

Table 4.75

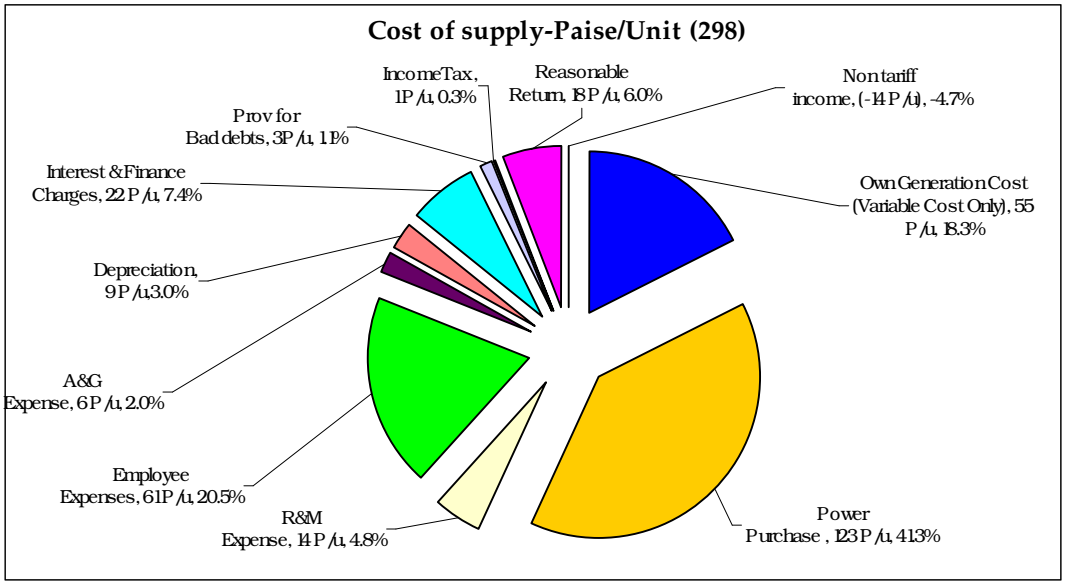
Annual Revenue Requirement of CSEB for FY 2007-08 (Rs. Crore)

Sl.	Particulars	FY 2006-07		FY 2007-08	
		Approved by Commission	Provisional Actuals	CSEB Petition	Approved by Commission
1	Own Generation Cost (Variable Cost Only)	471	501	542	538
2	Power Purchase	1113	1045	1323	1216
3	R&M Expense	147	192	243	142
4	Employee Expenses	638	587	712	625
5	A&G Expense	47	59	67	61
6	Depreciation	61	42	88	88
7	Interest & Finance Charges	287	196	420	396
8	Less: Interest & other expenses capitalised	-95	-66	-232	-206
9	Other Debits (incl. Provisioning for Bad debts)	30	81	107	31
10	Income Tax/ Fringe Benefit Tax	160	164	10	10
11	**Total Expenditure**	**2860**	**2801**	**3278**	**2901**
12	Add: Reasonable Return	162	256	290	177
13	Less: Non tariff income	282	218	205	137
14	**Aggregate Revenue Requirement**	**2740**	**2838**	**3363**	**2941**
15	Sales (MU)	8575	8622	9726	9874
16	**Average Cost of Supply (Rs./kWh)**	**3.20**	**3.29**	**3.46**	**2.98**



The Commission has approved the ARR of Rs. 2941 crore for FY 2007-08, as compared to the Board's projection of Rs. 3363 crore. The average cost of supply works out to Rs. 2.98 per kWh, as compared to CSEB's projection of Rs. 3.46 per kWh.

This cost of supply is the average cost of supply for all consumer categories and all the voltage levels. The component-wise cost of supply per unit, as approved by the Commission is depicted the table pie-chart below:



The ARR approved by the Commission for FY 2007-08 is higher than the ARR approved by the Commission for FY 2006-07 by Rs. 201 crore. A closer analysis shows that the increase in total expenditure is only around Rs. 40 crore, and the increase in the ARR, is largely due to the reduction in the non-tariff income. The increase in own generation cost and power purchase cost, due to the increase in quantum of generation and power purchase as well as the increase in fuel prices and rate for purchase from traders, has been largely offset by the significant reduction in income tax liability, largely on account of the Commission's advice to the Board to avail of the income tax holiday for a period of ten years, under the provisions of the Income Tax Act.

4.20 ANNUAL REVENUE REQUIREMENT OF GENERATION FUNCTION

In the previous Sections, the allocation of different expenses and reasonable return to the Generation function has been discussed. The summary ARR of the

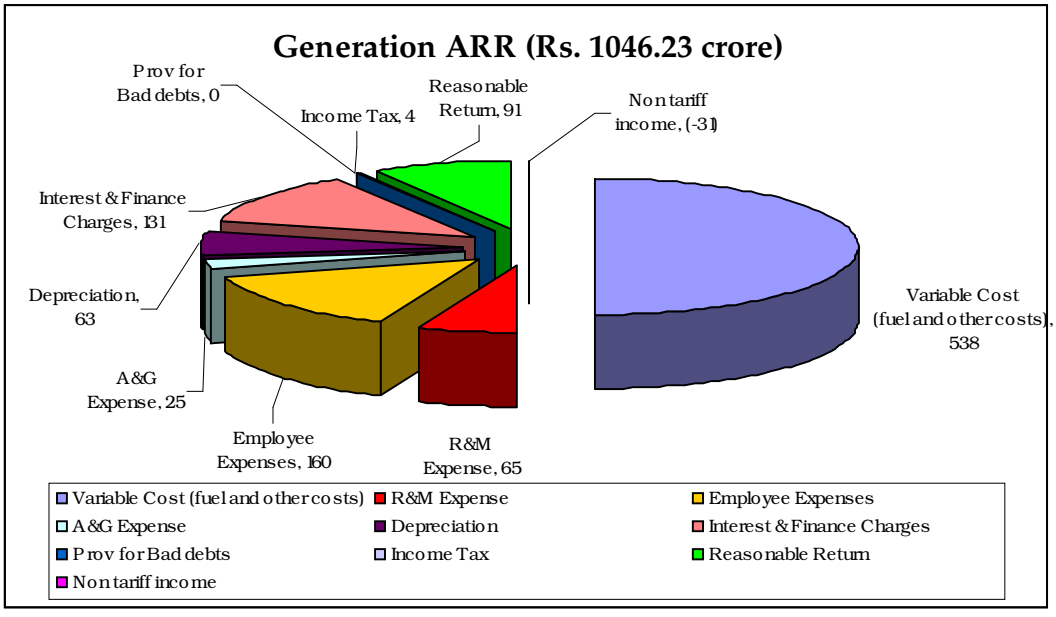
Generation function as projected by the Board and as approved by the Commission in this order is given in the table below:

Table 4.76

ARR for Generation Function for FY 2007-08 (Rs. Crore)

Sl.	Particulars	FY 2007-08	
		CSEB Petition	Approved by Commission
1	Variable Cost (fuel and other costs)	542.43	538.22
3	R&M Expense	161.40	66.05
4	Employee Expenses	213.90	166.07
5	A&G Expense	28.88	26.35
6	Depreciation	62.90	62.90
7	Interest & Finance Charges	303.50	273.48
8	Less: Interest & other expenses capitalised	-193.00	-151.43
9	Other Debits	0.02	0.02
10	Income Tax/Fringe Benefit Tax	4.01	4.01
11	**Total Expenditure**	**1124.04**	**985.66**
12	Add: Reasonable Return	129.36	91.39
13	Less: Non tariff income	40.69	30.82
14	**Aggregate Revenue Requirement**	**1212.71**	**1046.23**

The Commission has approved the ARR for the Generation function of CSEB as Rs. 1046.23 crore, as compared to Rs. 1212.71 crore projected by the Board. The primary difference is on account of the reduction in R&M expenses, employee expenses, and reasonable return.



The above ARR is for the generation function as a whole. However, the Commission is of the view that at least for the new units, the station-wise/unit-wise ARR and tariff should be known, rather than being grouped under the

generation ARR. This will facilitate specification of station-wise tariffs in future for the generation business, once the CSEB is unbundled into separate Companies. Hence, the Commission has also separately indicated the fixed costs and the variable costs of the two new units at Korba East Extension, as discussed below:

Table 4.77

Fixed and Variable Cost and tariff for new units of Korba East Extension

Particulars	Unit of Measurement	Unit-I	Unit-II
Capacity	MW	250	250
Opening GFA	Rs. Crore	1205	1205
Days of Operation	Days	152	60
Net Generation post COD	MU	664	262
O&M Expenses	Rs. Crore	12.15	4.80
Interest on LT Loans	Rs. Crore	28.38	11.19
Depreciation	Rs. Crore	18.02	7.11
Return on Equity	Rs. Crore	21.02	8.3
Total Fixed Charge	**Rs. Crore**	**79.56**	**31.40**
Fixed Charge per Month	**Rs. Crore/Month**	**15.91**	**15.70**
Variable Cost	Rs. Crore	37.75	14.90
Variable Cost/Unit	**Rs./Unit**	**0.57**	**0.58**
FC per Unit	**Rs./Unit**	**1.20**	**1.20**
Fixed + Variable Cost	**Rs./Unit**	**1.77**	**1.78**

For determining the fixed cost of the new units, the Commission has used the following assumptions:

- The O&M expenses have been considered on the basis of the CERC norm of Rs. 11.70 lakh/MW for FY 2007-08, proportionate to the number of days of operation
- The interest on loans have been considered as submitted by the Board for each unit
- Depreciation has been computed on the basis of CERC norms for the number of days of operation, considering the GFA of each unit
- Return on equity has been considered at the rate of 14% considering the GFA of each unit as above, and considering normative equity of 30%, for the number of days of operation

4.21 GENERATION TARIFF

Based on the approved ARR for the generation business as discussed above, the generation tariff projected by the Board and approved by the Commission is given in the table below:

Table 4.78

Generation Tariff for FY 2007-08

Sl.	Particulars	FY 2006-07	FY 2007-08	
		Approved by Commission	CSEB Petition	Approved by Commission
1	**Aggregate Revenue Requirement (Rs. Crore)**	968	1213	1046
2	Gross Generation (MU)	9374	10071	10622
3	Net Generation (MU)	8517	9148	9659
4	Auxiliary Consumption (%)	9.13%	9.16%	9.07%
5	**Average Generation Tariff (Rs./kWh)**	**1.14**	**1.33**	**1.08**

The average (pooled) generation tariff approved by the Commission for CSEB's generation function is Rs. 1.08 per kWh, as compared to Rs. 1.33 per kWh projected by the Board.

4.22 ANNUAL REVENUE REQUIREMENT OF TRANSMISSION FUNCTION

The allocation of different expenses and reasonable return to the Transmission function has been discussed in the previous sections. The summary ARR of the Transmission function as projected by the Board and as approved by the Commission in this order is given in the table below:

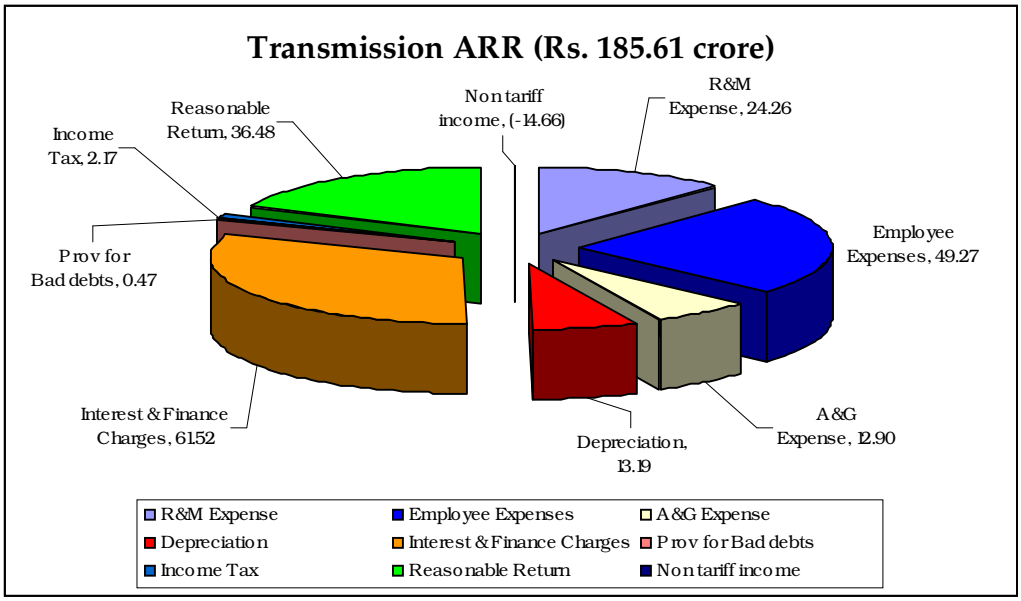
Table 4.79

ARR for Transmission Function for FY 2007-08 (Rs. Crore)

Sl.	Particulars	FY 2007-08	
		CSEB Petition	Approved by Commission
1	R&M Expense	13.08	24.70
2	Employee Expenses	55.57	51.15
3	A&G Expense	14.89	13.58
4	Depreciation	13.19	13.19
5	Interest & Finance Charges	52.85	82.43
6	Less: Interest & other expenses capitalised	-10.96	-23.90
7	Other Debits	0.47	0.47
8	Income Tax/ Fringe Benefit Tax	2.17	2.17
9	**Total Expenditure**	**141.26**	**163.79**
10	Add: Reasonable Return	67.26	36.48
11	Less: Non tariff income	19.58	14.66
12	**Aggregate Revenue Requirement**	**188.95**	**185.61**

The total ARR of the transmission function of CSEB approved by the Commission is Rs. 185.61 crore, as compared to Rs. 188.94 crore, which is a very small reduction

in the overall ARR. However, there are significant differences in the individual heads such as R&M expenses, which have been allowed as 5% of GFA, interest expenses, which have been allocated to the transmission function on the basis of actual loans taken for the function rather than allocated on the basis of GFA, and the reasonable return, which has been approved at lower levels, as the return on CWIP has not been considered.



4.23 TRANSMISSION COST

The transmission cost proposed by the Board and approved by the Commission on the basis of the ARR of the transmission function and the energy wheeled for the distribution function is given in the table below:

Table 4.80

Transmission Cost for FY 2007-08

Sl.	Particulars	FY 2006-07	FY 2007-08	
		Approved by Commission	CSEB Petition	Approved by Commission
1	**Aggregate Revenue Requirement**	165.41	189	186
2	Energy available for transmission (MU)	12955	14858	14637
3	Energy delivered to distribution (MU)	12446	14244	14047
4	Transmission Loss (%)	3.93%	4.13%	4.03%
5	**Transmission Cost (paise/kWh)**	**13**	**13**	**13**

4.24 TRANSMISSION CHARGES FOR OPEN ACCESS CUSTOMERS

The approved transmission charges payable for use of the transmission network by long-term and short-term open access customers, computed in accordance with

the Regulation 9 of the CSERC (Intra-State Open Access in Chhattisgarh – First Amendment) Regulations, 2007, is given in the table below:

Table 4.81

Transmission Charges for Open Access Customers for FY 2007-08

Sl.	Particulars	Unit	Formula	Approved by the Commission for FY 2006-07	Approved by the Commission for FY 2007-08
1	ARR of Transmission function	Rs. Crore		165.41	185.61
2	Maximum Capacity	MW		2100	2454
3	Transmission Charges				
a	Long-term open access customers	Rs./ MW/ month	LT_TC = [Transmission ARR/Max_CAP]/12	65639	63030
b	Short-term open access customers	Rs./ MW/ day	ST_TC = [0.25x(Transmission ARR/Max_CAP)]/365	540	518

The transmission charges have thus, been approved by the Commission as Rs. 63030 per MW/month for long-term open access customers and Rs. 518 per MW per day for short-term open access customers, to be paid in cash. The technical losses will be reckoned as 4.03% to be deducted from the energy input, for computing transmission charges in kind.

4.25 ANNUAL REVENUE REQUIREMENT OF DISTRIBUTION FUNCTION

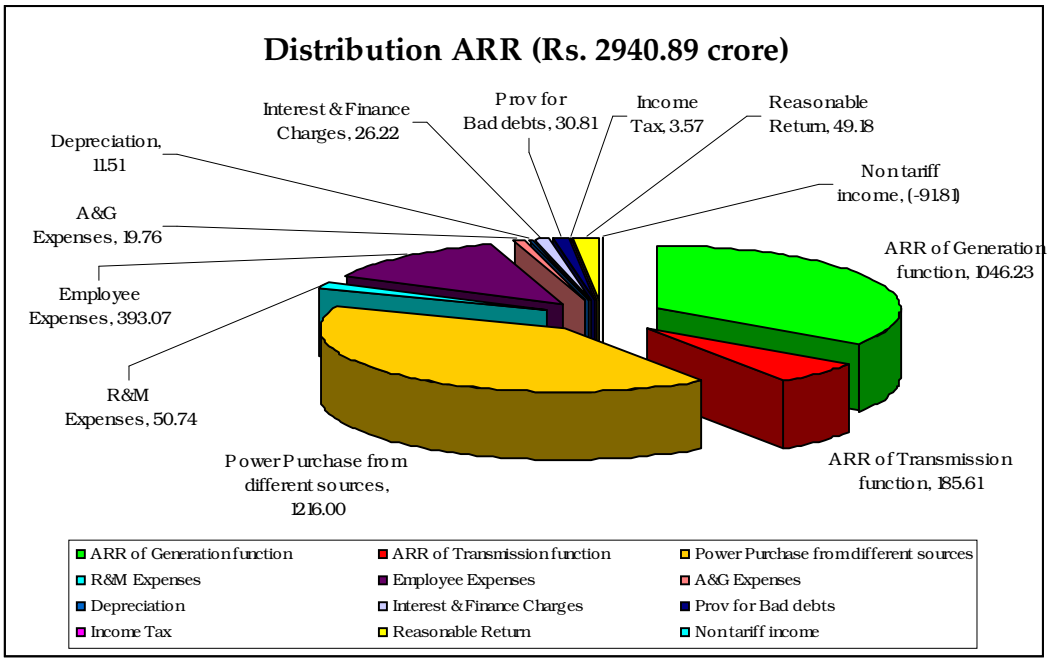
The allocation of different expenses and reasonable return to the distribution function of CSEB has been discussed in the previous sections. The summary ARR of the Distribution function as projected by the Board and as approved by the Commission in this order is given in the table below:

Table 4.82

ARR for Distribution Function for FY 2007-08 (Rs. Crore)

Sl.	Particulars	FY 2007-08	
		CSEB Petition	Approved by Commission
1	ARR of Generation function	1212.71	1046.23
2	ARR of Transmission function	188.95	185.61
3	Power Purchase from different sources	1322.57	1216.00
4	R&M Expenses	68.26	51.65
5	Employee Expenses	442.65	408.04
6	A&G Expenses	22.80	20.80
7	Depreciation	11.51	11.51
8	Interest & Finance Charges	63.33	39.70
9	Less: Interest & other expenses capitalised	-28.50	-30.40
10	Other Debits (incl. Prov for Bad debts)	106.65	30.81
11	Income Tax/Fringe Benefit Tax	3.57	3.57
12	**Total Expenditure**	**3414.50**	**2983.52**
13	Add: Reasonable Return	93.73	49.18
14	Less: Non tariff income	145.09	91.81
15	**Aggregate Revenue Requirement**	**3363.14**	**2940.89**

The Commission has approved the ARR for the Distribution function of CSEB as Rs. 2940.9 crore, as compared to Rs. 3363.14 crore projected by the Board, which includes the ARR of the generation and transmission functions in entirety. The primary difference is on account of the reduction in ARR of generation function, power purchases expenses, employee expenses, interest expenses, provision for bad debts, and reasonable return, which is only partly offset by the reduction in non-tariff income.



4.26 WHEELING CHARGES FOR DISTRIBUTION OPEN ACCESS CUSTOMERS

The wheeling charges for the distribution open access customers has been determined from the distribution ARR approved by the Commission as discussed above, and in accordance with the methodology adopted by the Commission in the tariff order for FY 2006-07, as discussed below.

The approved distribution (wires) cost is the cost of the distribution system on a stand-alone basis, after excluding the costs of the generation function, transmission function, and the power purchase costs, as given in the table below:

Table 4.83

Approved ARR for the Distribution Wires Business of CSEB (Rs. Crore)

Sl.	Particulars	FY 2007-08
		Approved by Commission
1	R&M Expenses	51.65
2	Employee Expenses	408.04
3	A&G Expenses	20.80
4	Depreciation	11.51
5	Interest & Finance Charges	39.70
6	Less: Interest & other expenses capitalised	-30.40
7	Other Debits (incl. Prov for Bad debts)	30.81
8	Income Tax/Fringe Benefit Tax	3.57
9	**Total Expenditure**	**535.68**
10	Add: Reasonable Return	49.18
11	Less: Non tariff income	91.81
12	**Aggregate Revenue Requirement**	**493.05**

The wheeling charges have to be determined on the basis of the ARR of Rs. 493 crore approved above, less the interest on consumers' security deposit, and considering the energy input to the 33 kV system as given in the table below:

Table 4.84

Wheeling Charges for open access at 33 kV voltage level

Sl.	Particulars	Units	Approved by Commission for FY 2006-07	Approved by Commission for FY 2007-08
1	Energy input to transmission system	MU	12955	14637
2	Transmission Losses	%	509	4.03%
3	EHV Sales (as approved by Commission)	MU	2927	3043
4	Energy input to 33 kV distribution system	MU	9519	11004
5	Total distribution cost at 33 kV	Rs. Crore	493.46	493.05
6	Distribution cost for wires business (excl. interest on consumer security deposit)	Rs. Crore	472.53	472.20

Sl.	Particulars	Units	Approved by Commission for FY 2006-07	Approved by Commission for FY 2007-08
7	Distribution cost for 33 kV voltage level [assuming 35% of (6)]	Rs. Crore	165.39	165.27
8	Wheeling Charges for 33 kV voltage level	Paise/kWh	17	15

The distribution system loss at 33 kV shall continue to be considered as 6%, to be borne in kind and debited to the energy account of the open access customers. The loss level has been retained as 6% in the absence of any study submitted by the Board.

4.27 REVENUE ESTIMATION AND GAP

The income of CSEB comprises revenue from sale of electricity and non-tariff income. The non-tariff income has been deducted while estimating the revenue requirement of the Board, hence, only the projected category-wise revenue is discussed below.

4.27.1 Income from existing tariff

The income from sale of electricity to the Board's consumers is based on the tariff applicable for each consumer category and the estimated sales to the category. The Board has estimated the revenue from existing tariff at Rs. 3104.3 crore based on the projected category-wise sales as submitted in the petition.

Commission's views

The Commission has estimated the revenue from sale of electricity on the basis of the prevailing tariff applicable for each consumer category and the category-wise sales projected by the Commission, as discussed in earlier sections of the order. The Commission has continued with the approach of estimating the revenue from demand charges in case of HT categories, by considering billing demand as 75% of contract demand. This is the minimum guaranteed revenue to the Board, as per the billing demand definition, and it is likely that the Board will earn higher revenue through demand charges as the recorded demand of several consumers may be higher than the minimum prescribed level of 75%. However, the actual revenue earned by the Board will get accounted for under the truing up exercise. The consumer category-wise revenue estimated by the Board and the Commission is given in the following table:

Table 4.85

Table: Estimated Category-wise Revenue from Existing Tariff for FY 2007-08

(Rs. Crore)

Sl.	Consumer Category	CSEB Petition	Estimated by Commission (with approved sale)
	LT Category		
1	BPL category	52.96	52.10
2	Other Domestic	273.82	266.50
3	Non-Domestic	152.77	147.40
4	Public Utilities	24.33	22.47
5	Industry	163.19	160.81
6	Agriculture		
	a) Metered consumers	22.73	21.58
	b) Un-metered consumers	41.58	41.51
7	Temporary Supply	35.52	27.95
	Sub-total LT Category	**766.90**	**740.32**
	HT Category		
1	Railway Traction	284.44	278.79
2	Cement Industries	114.24	111.66
3	Coal Mines & Heavy Industries	732.57	747.78
4	Steel Industries	799.79	781.48
5	Other Industries	207.96	193.96
6	Low load factor Industries	42.93	42.17
7	Bulk Supply & Residential	76.58	72.17
8	General (Non-industrial)	68.54	67.24
9	Public Water Works	7.99	7.92
10	Irrigation	2.33	2.27
11	Temporary Supply		
	Sub-total HT Category	**2337.37**	**2305.44**
	Total Revenue	**3104.27**	**3045.76**

As can be seen from the above table, in every category the revenue estimated by the Board is different from the revenue estimated by the Commission, even in case of categories, where the sales projected by the Board have been accepted by the Commission. This difference is on account of the poor commercial database of the Board (R-15) which does not record sales and revenue information in accordance with the categories and slabs defined by the Commission in the tariff order, on account of which the Board has to allocate the revenue to different categories and consumption slabs on the basis of certain assumptions. For the purpose of this order, the Commission has computed the revenue on the basis of the projected sales and the applicable tariffs, without making any adjustments. Hence, there is a difference between the Commission's estimates and the estimates submitted by the Board. The actual revenue will of course, be accounted for at the time of truing

up of the revenue. **However, this is a very sad state of affairs, when the Board does not even know the actual category-wise sales and revenue and has to make assumptions to assess the same. Such lack of seriousness shown by the Board, despite the Commission's repeated exhortations in this regard, in such an important area is very unfortunate, and deserves to be treated appropriately.**

4.28 TRUING UP FOR FY 2005-06 AND FY 2006-07

Background

The utility makes certain estimates and projections of expenses and revenue, while submitting the ARR and tariff petition. The Commission also makes certain assumptions while approving the expenses and revenue, on the basis of data available at that point in time. However, the actual expenses and revenue can be higher or lower than the amounts projected/approved by the Commission in its order, due to variation in controllable factors such as efficiency parameters like T&D loss, station heat rate, auxiliary consumption, transit loss, etc., as well as variation in uncontrollable parameters like fuel cost, taxes and duties, change in consumer and sales mix, etc. In a cost-plus regulatory regime, the utility is entitled to recover the actual costs and the reasonable return, subject to efficiency parameters and prudence check by the Commission, and should neither be subjected to the risk of under-recovery nor be in a position to earn additional return, due to fluctuations in uncontrollable factors, which have no bearing to the efficiency of the utility. The only way to ensure this is to institute a mechanism for truing up the actual expenses and revenue vis-à-vis the expenses and revenue considered in the Commission's order, subject to prudence check.

The Hon'ble Appellate Tribunal for Electricity (ATE) has ruled in Appeal No. 77, 78 and 79 of 2006 dated December 13, 2006, in the matter of SOUTHCO, WESCO and NESCO vs. OERC that "*truing up is an essential exercise required to be undertaken by the Regulator on a regular basis, where in actuals are compared with those approved and necessary results flow from it*."

Also, the ATE in its judgment in Appeal No. 133 of 2005 dated May 2, 2006, in the matter of M P Electricity Consumers Society vs. M P Electricity Regulatory Commission & Ors, has ruled that "*It is well known that tariff determination is undertaken by a Regulatory Commission for future and is based on estimates and projections. By the time tariff is worked out for the next tariff period, the actual revenue generated on the basis of the tariff fixed by the Commission for earlier period would be known. On the basis of the actual data or near actual data, the truing up exercise must be*

undertaken by the Commission…The Commission shall afford an opportunity of hearing to the Appellant before arriving at any determination in the truing up exercise. The truing up exercise shall be undertaken by the Commission expeditiously and shall be concluded within three months from the date the data is supplied by the Distribution Companies to the Commission. The distribution companies shall be duty bound to supply the data to the Commission within three weeks from the date of the receipt of a copy of this order"

The Commission, vide letter ref: 03/Tariff/02/03/2007/251 dated February 23, 2007, advised the Board that "*while considering the application for 2007-08, the Commission would like to do truing up exercise with reference to the years 2005-06 and 2006-07 so that the effect of this could be given in the tariff determination for the year 2007-08. Hence, you are advised to facilitate the Commission by supplying the required firm information in details regarding all expenses and revenue, etc. for the years 2005-06 and 2006-07 along with the tariff application so as to effect the true up of ARRs.*"

CSEB's Submission

Accordingly, the Board has submitted the provisional truing up analysis for FY 2005-06 and FY 2006-07, in its ARR and tariff petition for FY 2007-08, by comparing the provisional expenditure booked in the accounts of the Board vis-à-vis the expenses approved by the Commission for the respective years.

Table 4.86

Provisional Truing Up analysis submitted by CSEB for FY06 and FY07 (Rs. Crore)

PARTICULARS	FY 2005-06		FY 2006-07	
	Tariff Order	Actuals (Provisional)	Tariff Order	Actuals (Provisional)
Power Purchase Expenses	1622.98	900.22	1113.16	1045.33
Generation Cost (Variable cost only)	454.26	459.00	471.00	500.89
Employee Expenses	470.38	631.47	638.16	587.33
R&M Expenses	145.00	143.25	147.30	191.90
A&G Expenses	55.92	61.83	47.12	58.61
Depreciation	111.14	40.18	61.00	42.43
Interest & Finance Charges	224.88	236.89	286.90	195.51
Less: Int. & Other Expenses Capitalised	-84.12	-53.83	-94.99	-66.07
Other Debits (Incl. provision of Bad Debts)	72.13	150.91	30.22	80.83
Tax & Other Misc.- net prior credit	88.62	189.88	160.20	163.89
TOTAL EXPENSES	**3161.19**	**2759.80**	**2860.17**	**2800.65**
Reasonable Return	176.44	176.44	162.02	255.60

PARTICULARS	FY 2005-06		FY 2006-07	
	Tariff Order	Actuals (Provisional)	Tariff Order	Actuals (Provisional)
Less: Other Non Tariff Income	-204.21	-280.67	-282.00	-218.26
Annual Revenue Requirement	**3133.42**	**2655.57**	**2740.09**	**2837.99**
Revenue	3133.42	2697.45	2740.09	2853.77
State Government Subsidy	0.00	26.72	0.00	0.00
Surplus / Deficit	**0.00**	**68.60**	**0.00**	**15.78**

The Board has thus, reported a revenue surplus of Rs. 68.6 crore and Rs. 15.8 crore, in FY 2005-06 and FY 2006-07, respectively.

CSEB has however, submitted that the Balance Sheets of the Board have not been finalized so far, because the matter of apportionment of certain liabilities from erstwhile MPEB to the successor MPSEB and CSEB is still sub-judice and pending before the Hon'ble Supreme Court. Further, the process of getting the yearly accounts audited is in process, but the accounts of FY 2005-06 and FY 2006-07 have not been audited so far. CSEB has accordingly proposed that the truing up should be undertaken by the Commission only after the audited accounts for these years are available, and has cited MPERC's tariff order in case of MP Power Generating Co Ltd., for FY 2007-08, wherein the MPERC has ruled that

"... Considering the fact that the Petition for truing up of the Generation Tariff for FY06 has to be based on the Audited Statements of Accounts for FY06, the Commission has accepted the request…It is a settled position that truing up can be done only when the audited financial statements are available…The Petitioner is directed to file the Petition for truing up so as to enable the Commission to scrutinize and true up the data and to accommodate any uncontrollable variations when the audited Statements of Accounts for FY06 are available."

Commission's views

In the above background, the Commission has decided to institute the truing up mechanism to address this issue. The truing-up exercise is undertaken generally at three levels, viz.,

1. Considering the actual expenses and revenue vis-à-vis the approved expenses and revenue (surplus earned/net revenue gap)
2. In addition to (1) above, apply efficiency norms specified by the Commission for T&D losses and generation efficiency

3. In addition to (1) and (2) above, apply prudence check for all the expense heads.

Truing up under the approach (1) discussed above shows an over-recovery of Rs. 84.38 crore in FY 2005-06 and FY 2006-07 combined. However, in CSEB's case, the accounts for FY 2005-06 and FY 2006-07 are still provisional, and are undergoing continuous modification. For instance, the 'actual' expenses in FY 2005-06 as reported in the ARR and tariff petition for FY 2006-07 are different from the provisional accounts now submitted by the Board for FY 2005-06. Considering this kind of variation in the 'actual' expenses, the Commission feels that it may not be appropriate to true up the reported over-recovery of Rs. 84.38 crore, on the basis of data of the prevalent quality, since the data is subject to change and may undergo revision.

As regards truing up under approach (2) above, by considering CSEB's performance on parameters such as T&D losses and generation norms, the Commission has accepted the T&D losses as submitted by the Board for FY 2006-07, as the base level, for specifying the T&D loss reduction target for FY 2007-08. Since the Commission has accepted the actual performance of CSEB as the reference level, it may not be appropriate to undertake truing up of the extra expenditure on purchase of power, on account of the higher loss levels reported by the Board. The Commission has also accepted the actual transit loss level for the generating stations as reported by the Board for FY 2006-07, and has stipulated the loss reduction target for FY 2007-08, in relation to this base level of transit loss. CSEB's performance vis-à-vis the auxiliary consumption and secondary oil consumption norms, is comparable, and no truing-up of the expenses on account of these parameters may be required. However, in the context of station heat rate, the performance of CSEB has been lower than the relaxed norms stipulated by the Commission in its tariff orders for FY 2005-06 and FY 2006-07. The cost impact of this under-performance has been assessed as Rs. 31.5 crore. The Commission has decided to true up this amount at the time of final truing up, rather than truing up at this stage.

Truing up under approach (3) is not advisable in the absence of approved accounts, since the prudence of the expenditure will have to be assessed on the basis of details of each expenditure head, as reported under the audited accounts.

Though the Commission has decided not to true up the surplus reported by CSEB for FY 2005-06 and FY 2006-07 under the provisional accounts, the Commission

observes that the Board has estimated the reasonable return for FY 2006-07, on the basis of erroneous computation, which includes return on amount of capital work in progress (CWIP), resulting in showing a higher reasonable return of Rs. 255.60 crore, against the approved reasonable return of Rs. 162.02 crore. Hence, the Commission has undertaken the revised computation of reasonable return in accordance with the methodology specified in the previous order, which is in line with the Commission's Tariff Regulations, as given in the table below:

Table 4.87

Revised computation of Reasonable Return for FY 2006-07 (Rs. Crore)

Particulars	Up to 31.03.05	FY 2006-07	
		rom 01.04.05 to 1.03.06	otal, as on 1.03.06
Capital Expenditure			
GFA	1910.45	723.1	2633.55
CWIP	1195.5	667.71	1863.21
Sub-total	3105.95	1390.81	4496.76
Less: Consumer Contribution /Capital Grants	-441.04	-138.42	-579.46
Capital Cost of Project	2664.91	1252.39	3917.3
Means of Finance			
Debts	1546.4	390.58	1936.98
Debt %	58%	31%	49%
Equity			
Equity Share capital	23.12	0	23.12
Reserves/Surplus	1024.67	452.21	1476.88
Internal Accruals	1307.65	176.08	1483.73
Net Worth	2355.44	628.29	2983.73
Investments	998.53	-91.32	907.21
Other Assets	1.46	6.43	7.89
Net Current Assets	236.95	-148.64	88.31
Net Equity invested in capex	1118.5	861.82	1980.32
Equity%	42%	69%	51%
Return @14% on Rs 1118.5 crore, on the total net equity invested in capex till 31.3.05	156.59		156.59
Return on equity employed in capex on or after 1.4.05 (Rs. 861.81crore) @ 14% on Rs.. 374.70 crore normative equity, i.e., 30% of capital cost of the project		52.60	52.60
@ 8.5% on Rs. 487.11 crore (861.81-374.70) equity employed in capex over and above the normative equity		41.32	41.32
Gross Total Return on Equity for FY 2007-08 on the basis of above total net equity invested in capital expenditure including CWIP	**156.59**	**93.92**	**250.51**

Particulars	Up to 31.03.05	FY 2006-07	
		rom 01.04.05 to 1.03.06	otal, as on 1.03.06
Less: out of the above gross total, Return on equity portion attributable to CWIP (250.45/4496.76) x 1863.21			**103.80**
Reasonable Return on equity allowable for FY 2006-07 for the CSEB on the net equity employed in capital expenditure excluding the portion attributable to CWIP (250.45/4496.76) x 2633.55			**146.71**

Thus, the Board has considered excess reasonable return of Rs. 108.8 crore, while determining the provisional revenue surplus of Rs. 15.8 crore in FY 2006-07. The Commission has hence, trued up this excess provisioning of reasonable return, and set off this amount against the revenue requirement approved by the Commission for FY 2007-08, while determining the category-wise tariffs for FY 2007-08. As the Commission has deducted excess reasonable return of Rs. 108.8 crore for FY 2006-07, this will change the provisional revenue surplus as submitted by the Board. However, as discussed in earlier sections, the Commission would like to undertake a true-up exercise for FY 2005-06 and FY 2006-07 next year on the basis of provisional accounts approved by the Board.

4.29 REVENUE GAP/SURPLUS

The revenue gap is the difference between the revenue earned by the Board at the existing tariffs and the annual revenue requirement for FY 2007-08, after accounting for the amount of truing up, as given in the table below:

Table 4.88

Revenue Gap/Surplus in FY 2007-08 (Rs. Crore)

Sl.	Particulars	FY 2007-08	
		CSEB Petition	Approved by Commission
1	Aggregate Revenue Requirement	3363	2941
2	Less: Revenue at existing tariffs	3104	3046
3	Revenue Deficit/(Surplus) for FY 2007-08	259	(105)
4	Less: Revenue surplus under truing up for FY 2006-07	0	109
5	**Deficit/(Surplus)**	**259**	**(214)**

Thus, the Commission has estimated a revenue surplus of Rs. 214 crore against the Board's projection of revenue gap of Rs. 259 crore. The revenue surplus estimated by the Commission has to be adjusted through reduction in tariffs to different consumer categories, while ensuring that the objective of reducing the cross-

subsidy between consumer categories is reduced. The Commission's tariff philosophy and the approach adopted to achieve this objective is discussed in the following chapter. The tariffs have been determined in relation to the average cost of supply of Rs. 2.98 per kWh.

CHAPTER 5 TARIFF PRINCIPLES AND DESIGN

5.1 TARIFF PRINCIPLES

As has already been mentioned earlier, in determining the revenue requirement and the retail tariff of CSEB for FY 2007-08, the Commission has been guided by the provisions of the Electricity Act 2003 (the Act), the National Electricity Policy (NEP), the National Tariff Policy (NTP), CERC (Terms and Conditions of Tariff) Regulations, as well as the CSERC (Terms and Conditions of Determination of Tariff) Regulations, 2006. Section 61 of the Act lays down the broad principles guiding determination of retail supply tariff, viz., the tariff should "progressively reflect the cost of supply of electricity" and also "reduce cross subsidies" within the period to be specified by the Commission. The Act lays special emphasis on safeguarding of consumers' interest and also requires that the costs should be recovered in a reasonable manner. The Act mandates that tariff determination should be guided by factors which "encourage competition, efficiency, economical uses of resources, good performance and optimum investment". The NTP, notified by Government of India in January 2006, provides comprehensive guidelines for determination of tariff as also working out the revenue requirements of power utilities. The Commission has followed these guidelines, as far as possible.

The NTP mandates that the Multi-year tariff (MYT) framework be adopted for determination of tariff from April 1, 2006 (para 5). However, the Commission is not in a position to introduce MYT regime in the State mainly because of lack of requisite base data. In the tariff order for FY 2006-07, the Commission had proposed that MYT would be introduced from FY 2008-09, for which the MYT Petition would have to be filed by November 30, 2007. However, even now, the MIS and regulatory reporting system of the licensee is very inadequate for any such exercise. The accounts of the Board have been audited only up to year 2001-02. Without audited accounts for the previous years, the firm base data would not be available for MYT. Apart from above, the amount of expenditure and revenue reported by CSEB are often changing; the consumer categories recorded in the commercial data base are different from that prescribed by the Commission in its orders; there has been no study to assess voltage-wise losses and costs; and meters have not been provided to all distribution transformers and consumers. Technical and commercial losses are yet to be segregated and quantified voltage-wise. Moreover, the tariff order for FY 2007-08 is being issued only in October 2007, with the revised tariffs to be made effective from November 1, 2007, on account of the delayed submission of the tariff petition by the Board. Under these conditions, the Commission is of the view that it would not be practicable to implement the MYT

framework for 2008-'09. The Commission, taking into account all these factors, has decided to introduce MYT from FY 2009-10. **The Board is directed to submit the MYT Petition for the first control period of three years starting from FY 2009-10 (April 1, 2009), latest by November 30, 2008, to enable the Commission to undertake the regulatory process and issue the order in time so that the revised tariffs are applicable for the entire financial year starting from 2009-10. The Board has to submit the Business Plan for the next five years (beginning 2008-09) along with the capital investment plan most urgently as the first step in the implementation of MYT.**

In this order, the Commission has carried forward the process of rationalization of tariff in order to ensure that the tariffs reflect, as far as practicable, the cost of supply. The mandate of the NTP that tariff should be within plus/minus 20% of the average cost of supply by 2010-11 has been the guiding principle. It has, however, not been possible for the Commission to lay down the road map for reduction of cross-subsidy mainly because of lack of data regarding cost of supply at various voltage levels. The CSEB has only recently appointed a consultant for ascertaining voltage-wise losses and cost of supply. It is expected that the report of the consultant will be available in around 12 to 14 months time. Hence, the road map for reduction of cross-subsidy shall be addressed in the MYT order after the report of the consultant engaged for this task by the Board, is available. However, the Commission has made an attempt to reduce the cross-subsidy further, both in absolute and percentage terms, in this third tariff order.

For determining the cross-subsidy, the Commission has taken into account the average cost of supply, in the absence of relevant data for working out voltage-wise or consumer category-wise cost of supply. The Commission has followed the cost plus method for regulated Rate of Return, as mentioned earlier.

5.2 TARIFF DESIGN

The Board had proposed category-wise retail tariffs designed to earn additional revenue of only Rs. 64.4 crore, as against a revenue gap of 258.9 crore estimated by the Board. However, on detailed scrutiny of the revenue requirement proposed by the Board, the Commission has arrived at a more realistic revenue requirement, which will not only be met from the revenues at existing tariffs, but will leave a surplus of Rs. 105 crore, as determined in Chapter 4 of this order. The Commission has, therefore, proceeded to rationalize and reduce the tariffs on the above basis, to match the revenue surplus of Rs. 214 crore (Rs. 105 crore revenue surplus, Rs. 109

crore arrived at by truing up ROE for the year 2006-07). Based on the approved ARR, the average cost of supply has been worked out at Rs.2.98 per kWh as against Rs.3.46 per kWh projected by the Board and Rs. 3.20 per kWh estimated by the Commission for FY 2006-07.

As the difference between the approved ARR and revenue at existing tariffs, has resulted in a revenue surplus, the tariffs have to be reduced. The reduction has been passed on in this order to various categories of consumers in different proportion, so that the reduction for the subsidising categories is higher than the reduction for the subsidised categories, both in absolute and percentage terms. The percentage reduction for individual consumer categories is different, depending on various factors mentioned below, including the effect of the regrouping of the consumer categories. The process of rationalisation of consumer categories, which was initiated in the previous two tariff orders of the Commission, has been carried forward in this order also.

Efforts have been made to rationalize the HT tariffs, as far as practicable, keeping in view the representations the Commission received from various consumer groups. The Commission has rationalised the HT categories, to reflect the nature of supply, under the following groupings:

EHV : 220 KV and 132 KV

HV : 33 KV and 11 KV

The revised consumer categorisation reflects the purpose of supply as well as the voltage of supply, and the tariffs have been designed accordingly.

The Commission has received several objections against the Board's proposal to increase the minimum billing demand from the present 75% to 85% of the contract demand. Considering the objectors' plea and also in the absence of relevant data on revenue, the Commission has decided to retain the present minimum billing status.

5.3 LT TARIFF

At present there are 6 categories with 14 sub-categories in LT tariff. The numbers of sub-categories have been brought down to 12 in this order.

5.3.1 Domestic

The domestic categories have been classified into two sub-groups, namely, BPL consumers and other consumers. Consumers covered under BPL category are either metered or unmetered. Metered tariff for BPL consumers has been retained at Rs. 1.50 per unit. For unmetered BPL consumers, the flat rate has been retained at Rs. 50 per month per connection. In this category, public toilets and working women's hostel have now been included.

The average tariff of this category is marginally above 50% of the average cost of supply.

For other domestic consumers the slabs shall be as follows :

- 0-200 units
- 0-500 units
- 0-700 units
- above 700 units

Since, these slabs are non-telescopic, the tariff for a particular slab shall apply to all the units consumed in that slab. The slab of 0- 400 units have been modified to 0-500 units. The tariff for consumers consuming above 700 units has been increased to bring it closer to cost of supply considering the paying capacity of the consumers who consume more energy.

The minimum fixed charge of Rs. 30 for single phase and Rs. 100 per month for three phase connections have not been changed, and would be continued at the level fixed in the last tariff order. The overall tariff in this category has been reduced by 8.42%.

5.3.2 Non-Domestic

The slabs for non-domestic consumers have been kept unchanged, and are as follows:

- 0-500 units
- above 500 units

The applicability of these slabs are non-telescopic, which means that billing shall be done for all the energy consumption in the slab.

However, to rationalize the fixed charges for non-domestic consumers a uniform rate of Rs. 50 per KW per month has been fixed for both single phase and three phase connections. Earlier, for single phase connections having connected load up to 2 KW the charges were Rs. 50 per connection per month and for three phase consumers Rs. 60 per KW per month.

Further, the energy charges for the slab of 0 – 500 units has been reduced by 5 paise per unit, whereas, the energy charges of the slab of 0 – above 500 units have been reduced by 25 paise per unit. The overall tariff of non- domestic categories have been reduced by 5.68%.

5.3.3 Agriculture

Agriculture tariff has traditionally been highly subsidized. The Commission's tariff philosophy provided that the tariff of this category be increased in such a way that it reaches at least 50% of the cost of supply by FY 2010.

a) The present average tariff for irrigation pumps for different capacities is only 20 to 40% of the average cost of supply, which has been maintained up to 5 HP. There is no change in tariff for metered pump consumers as well as unmetered pump connections.
b) Un-metered flat rate tariff shall be applicable to pumps up to 5 HP who opt for flat rate tariff only.
c) This tariff will also be applicable to agriculture pumps used for drip and sprinkler irrigation systems for crops, nursery, horticulture crops (growing vegetables and fruits), floriculture (growing flowers), growing of medicinal/herbal plants and jatropha plantation.
d) The Board has suggested incentives at the rate of 10 paise per unit to metered agriculture consumers and Rs. 6 /HP/month to flat rate consumers, who installed energy efficient pump with PVC water conducting system. In the course of technical validation, the CSEB has not explained the modalities of implementation of the scheme. While the intent behind the scheme is very good and the Commission appreciates it, but implementation of scheme seems prima facie to be difficult. The Commission will consider such scheme any time submitted by the Board with the details worked out .

5.3.4 Agriculture Allied Services

This special tariff for poultry, hatchery, fishery, cattle breeding farms, tree plantation, tissue culture, seri-culture and aqua-culture, laboratories and food processing units etc., was introduced in the last tariff order in the interest of consumers. This has been retained in the present order and its energy charge has been reduced by 10 paise per unit. The average tariff for this consumer category is marginally below the cost of supply calculated at 18% load factor.

5.3.5 L.T. Industries

a) Low tariffs for flourmills, hullers and power looms up to 15 HP load have been maintained. This has also been extended to the masala grinders upto 15 HP.

b) The tariff for industries having loads above 25 to 100 HP have now been reduced. The energy charges for these industries have been reduced by 25 paise per unit. This has been done to reduce the cross-subsidy.

c) Since all industries having connected load above 100 HP have not so far been converted to HT as per the mandate in the last tariff order, the tariff for such existing industries shall be 25% over the tariff LV-5.2.2.

d) Considering the request of the consumers, the existing demand based tariff has been continued. The energy charges for these industries have been reduced by 40 paise per unit. This has been done to keep it close to the other slabs in the LT industrial tariff categories.

5.3.6 Public Utilities

This tariff is applicable to both public street lights and public water works and no change in this category has been made. The tariff in this category is well below the average cost of supply.

5.3.7 L.T. Temporary supply

The tariff is maintained at one and half times of the respective categories. All temporary connections including agricultural connections, shall be metered and only metered tariff will be applicable to such connections. There shall be no unmetered temporary LT connection.

5.4 HT TARIFF

In this tariff order the Commission has framed the HT tariff categories based on the purpose of use and the supply voltage in accordance with the provisions of the Act. Thus the categories have been segregated to EHV and HV category. Presently, HT tariff has 10 categories and 23 sub-categories. Though the number of categories has been increased, sub categories have been reduced to 17.

5.4.1 EHV Categories

5.4.1.1 Railway Traction

The method of billing for Railway traction was changed from KWh to KVAh, with the consent of the Railways, in the first tariff order passed by this Commission for

the year 2005-06. This has been maintained. In this order there is a reduction of 15 paise/KVAh in the energy charge for this consumer category. This has resulted in a reduction of almost 4.23% in the tariff for this category.

5.4.1.2 Heavy Industries

All connections having contract demand of more than 20 MVA are in this category. The tariff of heavy industry has been reduced on an average by 6.01%.

5.4.1.3 Steel Industries

A separate tariff has been designed for steel industries availing supply at 132/220 KV, with a maximum contract demand of 20 MVA. In the approved tariff, demand charge has been rationalized and made uniform for all EHV categories. The energy charges have also been reduced which has resulted in decrease in average unit rate of this tariff category by approximately 1.72%.

5.4.1.4 Coal Mines, Cement industries and Other EHV consumers

To rationalize the number of EHV categories both coal mines and cement industries have been merged to form a single category. This will also be applicable to all the remaining EHV consumers. This has resulted in the reduction of energy charge for cement industries by 15 paise/unit, whereas the energy charges for coal mines has increased only by 5 paise/unit as a result of merger.

5.4.2 HV Categories

5.4.2.1 Steel industries

A separate tariff for steel and related industries availing supply at 33 KV has been designed with uniform demand charges of Rs. 310/KVA for industries availing supply at 33 KV. Energy charges have been reduced resulting in overall decrease in average unit rate by approximately 3.16%. The provision for load factor incentive for industries operating above 70 % load factor has been retained.

5.4.2.2 Coal Mines, Cement industries

To rationalize tariff categories both coal mines and cement industries have been merged to form a single HV category as in the case of EHV. This has resulted in some reduction in the energy charge for cement industries, whereas the energy charges for coal mines is at the prevailing rate only. The average rate for this category has been reduced by 0.21%.

5.4.2.3 Other industries

This tariff is for other industries not covered in the above categories. The energy charge for this category has been reduced by 10 paise per unit which has resulted in reduction of average unit rate by 3.11%.

5.4.2.4 Low load factor industries

This tariff is an optional tariff for HV-1 and HV-3 industries operating on single shift basis and having low load factor. The demand charge for such industries has been kept at half of the other industry categories. No change in the tariff for this category of consumers has been made.

5.4.2.5 Residential Purpose

The demand charges and energy charges for this category of consumers have been rationalized and there is an overall reduction of 3.6%.

5.4.2.6 General purpose non-industrial

For this category of consumers, the energy charges have been reduced so as to give about 3.33% relief.

5.4.2.7 Public water works & Irrigation

This is a subsidized tariff category. With the merger of irrigation, the average unit rate for this category has increased marginally. The tariff however, continues to be below the average cost of supply.

5.4.2.8 HT Temporary supply

This tariff is not proposed to be changed and will be continued at one and half times the normal tariff of the respective category of all HT connections other than the generators availing start up power.

5.4.3 Start-up Power

This tariff is applicable for those consumers who avail supply for start-up of generators at 220/132/33/11 KV including biomass based generators, hydro generators and captive power plants. Start-up power tariff shall be applicable to all the generators who are not co-located with industrial load. A new condition has been introduced in the start-up tariff that there should not be any direct electrical connectivity between the generating plant and an industry. This has been done to ensure that there is no scope for flow of this cheaper power from the generator to the industries

5.5 TOD TARIFF

The NTP (para 8.4) provides that the time differentiated tariff be introduced on priority for large consumers (say, consumers with demand exceeding 1 MW) within one year, in order to flatten the peak load curve and implement energy conservation measures. At present, Time of the Day (ToD) tariff is applicable in the CSEB, but it is optional. The Commission has observed that the power shortage during evening peak hours goes up to 500 MW, which is nearly 20% of the maximum demand. To meet the increased load during evening peak hours, CSEB is required to purchase costly power which is also not generally available, to meet the entire requirement. As a result of this, there is no option before the CSEB except to resort to load shedding. In order to meet this situation and to flatten the load curve during peak hours to the extent possible, compulsory ToD tariff has been introduced in this order. Since, there was no proposal from the CSEB to make it compulsory for all industries, the Commission notified its intention to introduce compulsory ToD tariff for all HT industries, in order to get comments / objections / suggestions from the stakeholders. There has been no comment / objection to this proposal from EHT / HT industrial consumers. The Board only proposed to make changes in the timing of the off-peak and normal period from 11:00 A.M. to 05:00 P.M. and 11:00 P.M. to 11:00 A.M. respectively. The Commission, on close examination of the monthly load curve of last one year, has observed that the timing suggested by the Board does not match with the load curve. Moreover, generally full load is drawn during the day time and hence peak hours load is likely to shift to an extent to night hours only.

5.6 POWER FACTOR INCENTIVE AND PENALTY

No change in the present principle and methodology of power factor incentive and penalty has been made in this order.

5.7 LOAD FACTOR INCENTIVE

The load factor incentive for steel industry has been maintained only to the tariff category HV- 1. However, this incentive shall be available to the industries operating above 70% load factor, and not 60% as earlier**.**

5.8 MONTHLY MINIMUM CHARGE

The monthly minimum charges for all the HT consumers have been made uniform. Thus, for the EHV consumers availing supply at 132/220 KV, the minimum monthly energy charges equivalent to a load factor of 15% have been done away with. Thus all the HT consumers have to pay monthly minimum charges uniformly to the extent of demand charges on the contract demand only.

5.9 MISCELLANEOUS AND GENERAL CHARGES

The Commission vide order dated 10.08.07 passed in petition 40/2006(M), has prescribed miscellaneous and general charges which shall be applicable during FY 07-08 and beyond till these are revised by the Commission. Hence, there is no need for determination of miscellaneous charges in this order.

5.10 VARIABLE COST ADJUSTMENT FORMULA (VCA)

The Commission had approved a Variable Cost Adjustment (VCA) formula in its tariff order for the year 2005-06. On the request of the Board this formula was modified in the last tariff order for the year 2006-07 (Chapter 6). The Commission had then decided that the formula may be reviewed as the Commission deemed fit. In course of the year 2006-07 CSEB did not submit any application for VCA in spite of reminders by the Commission. In its tariff application for 2007-08, CSEB has not submitted any VCA formula. There appears to be no ground, even otherwise, for any modification in the formula already laid down by the Commission. The Commission, therefore, proposes to continue with this formula. So far as the last two tariff orders are concerned, truing-up exercise shall be undertaken, thus obviating any VCA at this stage.

5.11 REVENUE FROM APPROVED TARIFFS

The expected consumer category-wise revenue from the approved tariffs given in the tariff schedule, and the average tariff for FY 2007-08, is given in the table below:

Table 5.1

Estimated Revenue from Approved Tariff for FY 2007-08

Sl.	Consumer Category	Approved Sales (MU)	Estimated Revenue at approved tariff (Rs. Crore)	Average Billing Rate (Rs./kWh)
	LT Category			
1	BPL category	331.00	52.1	1.57
2	Other Domestic	1356.00	239.69	1.77
3	Non-Domestic	322.00	138.81	4.31
4	Public Utilities	120.00	22.47	1.87
5	Industry	412.00	153.42	3.72
6	Agriculture			
	a) Metered consumers	184.00	27.08	1.47
	b) Un-metered consumers	620.00	39.58	0.64
7	Temporary Supply	115.00	26.53	2.31
	Sub-total LT Category	**3460.00**	**699.68**	**2.02**
	EHV Category			
1	Railway Traction	694.08	267.22	3.85
2	Heavy Industries	1675.24	603.16	3.60
3	Steel Industries	279.89	79.99	2.86
4	Coal Mines, Cement Industries & Other EHV Consumers	391.41	153.45	3.92
	HV Category			
5	Steel Industries	2215.41	678.32	3.06
6	Coal Mines & Cement Industries	140.39	66.53	4.74
7	Other HT Industries	499.75	188.1	3.76
8	Residential	237.43	69.55	2.93
9	Public Water Works/Irrigation	41.46	10.23	2.47
10	General Purpose (Non-industrial)	149.39	65	4.35
11	Low load factor Industries	87.23	40.28	4.62
12	Start-up Power tariff	2.81	1.89	6.73
	Sub-total EHV and HV Category	**6414.49**	**2223.72**	**3.47**
	Total Revenue	**9874.49**	**2923.4**	**2.96**

5.12 TREATMENT OF SURPLUS

As mentioned in Chapter 4, the Commission has assessed that the Board would have a surplus of Rs.214 crore during the year 2007-08, Rs.105 crore by way of excess revenue from the existing tariff and Rs.109 crore from truing-up of ROE for the year 2006-07. The estimated revenue from the approved tariffs, as above, results in a reduction of revenue of about Rs.123 crore. The application of

compulsory TOD tariff on HT consumers is likely to result in some loss to the Board, which is estimated to be about Rs.75 crore. This, however, is an estimation and is not based on accurate data. In fact, it would be relevant to mention here that the revenue from different categories of consumers, as estimated above, are also not very accurate going by the manner in which the statement R-15 is being prepared in the Board. The Commission has separately commented on this issue elsewhere in this order. The estimate as above still leaves some surplus, of about Rs.16 crore. This margin has been kept to meet any contingency which may arise because of rationalization of HT tariff categories. In case there is a surplus at the end of the year, it will be taken care of by the truing-up exercise.

5.13 CROSS-SUBSIDY

An element of cross-subsidy is inherent in the present tariff structure. The tariffs of different consumer categories in relation to the cost of supply (COS) has been such that the tariff for some categories of consumers, mainly HT consumers, are higher than the COS while the tariffs for others are lower. The subsidy among consumer classes is the element of the cross-subsidy. The level of cross-subsidy with the tariff determined in this order is given in the table below:

Table 5.2

Cross-subsidy with existing and revised tariffs

Particulars		Sales in MU	Existing Tariff	Revised Tariff	Cost of Supply Rs./Unit	Cross Subsidy (Rs/Unit)		Tariff as % of avg CoS	
			Rs./Unit	Rs./Unit		At Existing Tariff	At Revised Tariff	At Existing Tariff	At Revised Tariff
LT Consumers	BPL Consumers	331.00	1.57	1.57	2.98	-1.41	-1.41	53%	53%
	Other Domestic	1355.94	1.97	1.77	2.98	-1.01	-1.21	66%	59%
	Non-domestic	321.56	4.58	4.32	2.98	***1.60***	***1.34***	154%	145%
	Agriculture	803.65	0.83	0.83	2.98	-2.15	-2.15	28%	28%
	Industry	412.34	3.90	3.72	2.98	***0.92***	***0.74***	131%	125%
	Public Utilities (PWW & SL)	119.33	1.88	1.88	2.98	-1.10	-1.10	63%	63%
	Temporary	115.49	2.42	2.30	2.98	-0.56	-0.68	81%	77%
	Sub Total: LT	**3459.30**	**2.15**	**2.02**	**2.98**	**-0.83**	**-0.96**	**72%**	**68%**
EHV Consumers	Railway Traction	694.08	4.02	3.85	2.98	***1.04***	***0.87***	135%	129%
	Heavy Industries	1675.24	3.83	3.60	2.98	***0.85***	***0.62***	128%	121%
	Steel Industries	279.89	2.91	2.86	2.98	-0.07	-0.12	98%	96%

Particulars		Sales in MU	Existing Tariff	Revised Tariff	Cost of Supply Rs./Unit	Cross Subsidy (Rs/Unit)		Tariff as % of avg CoS	
			Rs./Unit	Rs./Unit		At Existing Tariff	At Revised Tariff	At Existing Tariff	At Revised Tariff
	Coal Mines, Cement Indusries & Other EHV Consumers	391.41	3.92	3.92	2.98	***0.95***	***0.94***	132%	132%
HV Consumers	Steel Industries	2215.41	3.16	3.06	2.98	***0.18***	***0.08***	106%	103%
	Coal Mines & Cement Industries	140.39	4.75	4.74	2.98	***1.77***	***1.76***	159%	159%
	Other HT Industries	499.75	3.86	3.74	2.98	***0.89***	***0.76***	130%	126%
	Residential	237.43	3.04	2.93	2.98	***0.06***	-0.05	102%	98%
	Public water works/Irrigation	41.46	2.40	2.47	2.98	-0.58	-0.51	80%	83%
	General (Non-Industrial)	149.39	4.50	4.35	2.98	***1.52***	***1.37***	151%	146%
	Low Load factor	87.23	4.62	4.62	2.98	***1.64***	***1.64***	155%	155%
	Start up Power	2.81	6.74	6.74	2.98	***3.76***	***3.76***	226%	226%
	Sub Total: HT	**6414.49**	**3.59**	**3.47**	**2.98**	***0.62***	***0.49***	**121%**	**116%**
Total		**9873.79**	**3.09**	**2.96**	**2.98**	***0.11***	**-0.02**	**104%**	**99%**

As can be seen from the above table, though the tariffs of the subsidised categories have also been reduced, the Commission has reduced the cross-subsidy between categories.

5.14 CROSS-SUBSIDY SURCHARGE

The Commission has determined the cross-subsidy surcharge to be paid by the open access customers, in accordance with its Open Access Regulations and the methodology adopted in the tariff order for FY 2006-07, as shown in the table below:

Table 5.3

Cross-subsidy surcharge for open access customers (Rs./kWh)

Sl.	Consumer Category	EHV Consumers	HV Consumers
1	Average rate of subsidising category consumers	3.63	3.36
2	Average cost of supply	2.98	2.98
3	**Cross-subsidy surcharge**	**0.65**	**0.38**

The cross-subsidy surcharge has thus, been reduced from the previous year's levels of 68 paise/kWh and 55 paise/kWh for EHV and HV respectively, for customers seeking open access.

5.15 REDUCTION IN CROSS-SUBSIDY SURCHARGE

The Act mandates that the Commission reduces the cross-subsidy over a period of time. The NTP also reiterates that cross-subsidy should be brought down in such a manner the tariffs are within ± 20% of the COS latest by the year 2010-11.

Although the Commission has not been able to lay any road map for reduction in cross-subsidy, because of lack of base-line data, there has been consistent effort to reduce cross-subsidy by way of reduction in the COS and reduction in the tariffs for subsidizing categories of consumers. The COS has gone down from Rs.3.45 per unit in 2005-06 to Rs.3.20 per unit in 2006-07 and this year it has been brought down to Rs.2.98 per unit. The tariffs for HT subsidizing consumers have also been brought down in this tariff order resulting in reduction in cross-subsidy. The cross-subsidy surcharge as given in the table above has been reduced in case of HT consumers substantially from Rs.0.55/kWh to Rs.0.38/kWh. For EHV consumers the reduction is from Rs.0.68/KWh to Rs.0.65/KWh.

CHAPTER 6 TARIFF SCHEDULE

The detail schedules of approved tariff are as given in this part:

6.1 TARIFF SCHEDULE FOR LOW TENSION (LT) CONSUMERS

This tariff schedule is applicable to all LT consumers as follows:

a) Single-phase, 230 Volts upto a maximum load of 120W for BPL consumers availing supply for light and fan; and

b) Single-phase, 230 Volts upto a maximum load of 2 KW, and three phase, 400 volts, for load upto 75 KW/ 100 HP.

6.1.1 LV-1: DOMESTIC

1. Applicability

This tariff is applicable to domestic light and fan and power used for all domestic appliances, in a residential premises, orphanages, homes for old/physically handicapped people and homes for destitutes; Dharamshalas; student hostels; working women's hostels; Ashrams; Schools and hospitals (including X-rays etc.) run by charitable trusts; Government hospitals/ dispensaries, (excluding private clinics and nursing homes); Government Schools; farm houses; mosques; temples; churches, gurudwars ; religious and spiritual institutions; water works and street lights in private colonies and cooperative societies; post office at residence of a villager; residential premises of advocates, doctors, artists, weavers, bidi makers, stitching and embroidery workers including their chambers; public toilets; fractional HP motors used for Shailchak by Kumhars in their residences.

2. Tariff

	Category of consumers	**Unit Slab (Non-Telescopic)**	**Fixed Charge (In Rupees)**	**Energy Charge (Rs. per unit)**	**Minimum Fixed Charge**
	LV-1: Domestic				
1.1 1.1.1 1.1.2	BPL consumers Un-metered Metered	 - 0 - 30 units	 Rs. 50/Connection/M 0.75 per unit	 - 0.75	 Nil
1.2	Other Consumers Metered	0 - 200 units 0 - 500 units 0 - 700 units 0 - Above 700 units	0.90 per unit 1.00 per unit 1.20 per unit 1.50 per unit	0.70 0.95 1.25 1.40	Single phase-Rs.30/- p.m. Three phase-Rs.100/- p.m.

Notes:

i. The existing un-metered BPL consumers shall be billed according to BPL tariff 1.1.1 till they are metered. In case the connected load at any time is found more than 120 Watts, then the consumer will cease to be covered under LT tariff 1.1.1 and thereafter monthly billing shall be done according to LT tariff 1.2 for his consumption assessed on 35% load factor.

ii. If the consumption of a metered BPL consumer (1.1.2) exceeds 30 units per month or the connected load at any time is found more than 120 Watts, then the consumer will cease to be covered under LT Tariff 1.1.2 applicable to BPL category and thereafter, monthly billing shall be done according to Tariff 1.2 for his consumption.

iii. If a portion of the dwelling is used for the conduct of any business other than those specified above, the entire consumption shall be billed under Non-domestic tariff LV-2.

6.1.2 LV-2 NON-DOMESTIC

1. Applicability

This tariff is applicable to light and fan and power to shops, show rooms, business houses, offices, educational institutions (except those included in LV-1 and LV-5), public buildings, town halls, clubs, gymnasium and health clubs, meeting halls, places of public entertainment, circus, hotels, cinemas, railway stations, private clinics and nursing homes, X-rays plants, diagnostic centres, pathological labs, carpenters and furniture makers, juice centres, hoardings and advertisement services, public libraries and reading rooms, typing institutes, internet cafes, STD/ISD PCO's, FAX/ photocopy shops, tailoring shops, photographers and colour labs, laundries, cycle shops, compressors for filling air, single phase toy making industry, nickel plating on small scale, restaurants, eating establishments, Government circuit houses/rest houses, guest houses, marriage gardens, welding transformer and lathe machines for repair works and services, book binders, petrol pumps and service stations.

2. Tariff

Category of consumers	Unit slab (Non-telescopic)	Fixed Charge	Energy charge (Rs. per unit)
LV-2: Non-Domestic	0 - 500 units 0- Above 500 units	Rs. 50/KW/ month	3.70 4.00

Note: All existing L.T. non-domestic connections above 100 H.P. were directed to avail H.T. supply by 31.12.2005.If they have not switched on to HT supply so

far, 25% additional charge on the total amount of monthly bill (fixed and energy charge and also VCA charge, if any) shall be levied.

6.1.3 LV-3 L.T. AGRICULTURE

1. Applicability

This tariff is applicable to agricultural pump used for irrigation including by drip and sprinkler system, for crops, nursery, horticulture crops (growing vegetables and fruits), floriculture (growing flowers), growing of herbs/medicinal plants and mushroom, jatropha plantation, chaff cutters, winnowing machines, sugarcane crushers used on agricultural land, lift irrigation pumps of State Government or its agencies; water drawn by agriculture pumps used by labour, cattle, and farm houses in the premises of agriculture farms for drinking purposes only.

3. Tariff

	Category of consumers	**Fixed Charge**	**Energy Charge (Rs. per unit)**
	LV-3: L.T. Agriculture		
3.1	Metered Supply	Rs. 20 /HP / Month	1.00
3.2	Flat Rate Supply Upto 5 HP	Rs. 65 / HP / Month	Nil

One 40W incandescent bulb/CFL of appropriate wattage not exceeding 20 W is permitted at or near the motor pump set in the power circuit.

Notes:

i. Existing connections up to 5 HP load shall have the option of being billed on actual consumption in meter or on flat rate. However, all connections which were hitherto not in agriculture tariff category but have now come under it, will be billed on metered tariff only.

ii. All existing connections above 5 HP load not provided with meters were required to switch over to metered supply as early as possible. If they have not switched over to metered supply so far monthly billing of such consumer shall be done according to LT tariff 3.1 for consumption assessed on 18% load factor.

iii. All new agriculture connections shall be served only with meters and connections above 5 HP load shall be billed on the basis of actual consumption recorded in the meter as per L.T. tariff 3.1.

iv. All new connections of above 5 HP shall be served only after installation of capacitor of specified rating.

v. All existing connections of above 5 HP motors shall be required to provide capacitors of specified rating failing which they shall be required to pay surcharge of 30 paise per unit. For flat rate consumers, the surcharge shall be levied on the basis of assessed units taking 18% L.F.

6.1.4 LV- 4 L.T. AGRICULTURE ALLIED SERVICES

1. Applicability

This tariff is applicable to pump connections, other equipments and light and fan for tree plantation, fisheries, hatcheries, poultry farms, dairy, cattle breeding farms, sericulture, tissue culture and aquaculture laboratories and food processing units.

2. Tariff

Category of consumers	Fixed Charge	Energy Charge (Rs. per unit)
LV-4: L.T. Agriculture allied services	Rs. 40 per HP per month or Rs. 54 per KW per month	2.40

Notes:

i. Existing unmetered connections, if any, shall be provided with meters as early as possible and till then those shall be billed as per LT tariff LV-4 taking 18 % Load Factor.

ii. All new connections shall be served only with meters and connections shall be billed on the basis of actual consumption recorded in the meter as per L.T. tariff LV-4.

iii. All existing connections shall be required to provide capacitors of specified rating failing which they shall be required to pay surcharge of 30 paise per unit.

iv. All new connections shall be served only after installation of capacitor of specified rating.

6.1.5 LV-5 L.T. INDUSTRY

1. Applicability

These tariffs are applicable to light and fan and power for flour mills, hullers, grinders for grinding masala, power looms, rice mills, dal mills, oil mills, ice factories, cold storage plants, ice candies; workshops & laboratories of engineering

colleges, ITIs & polytechnics and industrial institutions; and workshops where manufacturing takes place i.e. conversion of raw material to finished good.

2. Tariff

	Category of consumers	Fixed Charge	Energy Charge (Rs. per unit)	Minimum charge
	LV-5: L.T. Industry			
5.1	Flour mills, Hullers, power looms, grinders for grinding masalas up to 15 HP	Rs.20/HP/ Month	2.00	The minimum charge shall be the fixed charge on connected load (CL) or sanctioned load (SL), whichever is higher plus the energy charge for 25 units per month per HP of the CL or SL, whichever is higher
5.2	Other Industries			
5.2.1	Up to 25 HP	Rs.50/HP/Month	2.50	
5.2.2	Above 25 HP up to 100 HP	Rs.80/HP/Month	3.00	
5.3	Demand based Tariff for demand between 15 and 75 KW	Rs.125/KW/Month	3.00	Demand charge on 75% of contract demand or RMD, which ever is higher

Notes:

i. *Consumers having connected load/ sanctioned load above 100 HP were required to avail H.T. supply by 31.12.2005. Such consumers, who have not yet changed over to HT connection shall be billed 25% additional charges on tariff 5.2.2 till they switch over to HT connection.*

ii. Demand based tariff – 5.3 is applicable for maximum contracted demand between 15 KW and 75 KW. Total connected load in this tariff shall not be more than 150 HP.

6.1.6 LV-6 PUBLIC UTILITIES

1. Applicability

These tariffs are applicable to public utilities such as water supply schemes, sewage treatment plants and sewage pumping installations, crematorium, traffic signals and lighting of public streets including public parks and archaeological and other monuments when requisition for supply is made by Public Health Engineering Department, local bodies, Gram Panchayats or any organization made responsible by the Government to maintain these services.

2. Tariff

Category of consumers	Fixed charge	Energy charge (Rs. per unit)
LV-6: Public utilities Public street light and water works	Rs. 30/HP/Month or Rs. 40/KW/Month	1.75

6.1.7 LT TEMPORARY SUPPLY

1. Applicability

This tariff is for connections of temporary nature. The applicability shall be as given in the respective category rate schedule.

Temporary supply cannot be demanded by a prospective consumer as a matter of right but will normally be arranged by the licensee when a requisition is made giving due notice subject to technical feasibility.

2. Tariff

Fixed charge and energy charge to be billed at one and half times the normal tariff as applicable to the corresponding consumer categories.

Notes:

i. Estimated energy consumption charge is payable in advance before serving the temporary connection subject to replenishment from time to time and adjustment in the last bill after disconnection.

ii. No temporary connection including agricultural connections shall be served without a meter. Agricultural connections shall be billed one and half times of metered supply tariff (LV-3.1).

iii. Meter hire shall be charged as per the schedule of miscellaneous charges.

iv. Connection and disconnection charge shall be paid as per the schedule of miscellaneous charges.

v. Variable cost adjustment charge, if any, shall be levied at one and half times the prevailing rate in addition to above rates.

vi. No rebates/concessions under any head shall be applicable to temporary connections.

vii. A month for the purpose of billing of temporary supply shall mean 30 days from the date of connection or for part thereof.

viii. The billing demand shall be the contract demand/ connected load requisitioned by the consumer or the highest recorded maximum demand, whichever is higher, during the period of supply commencing from the month of connection ending with billing month. In case the connected load or

recorded maximum demand is found more than the connected load / contract demand, the billing shall be done on the basis of enhanced connected load or recorded maximum demand from the date of connection and this billing shall be continued till the load is reduced.

ix. Any expenditure made by the licensee for providing temporary supply upto the point of supply, shall be paid for by the consumer as per prescribed procedure.

x. Temporary connections shall not be served unless suitable capacitors, wherever applicable, are installed so as to ensure power factor of not less than 0.85 lagging.

xi. Surcharge at 2% per month on the outstanding amount of the bill shall be payable in addition from the date of bill, if the bill is not paid by the consumer within the period prescribed

6.1.8 TERMS AND CONDITIONS OF L.T. TARIFF

1) The energy will be supplied to the consumer ordinarily at a single point for the entire premises of the consumer.

2) No new L.T. connection above 75 KW/100HP connected load shall be served except under tariff 5.3 where connected load upto 150 HP is allowed.

3) All existing L.T. connections with connected load above 75 KW/100HP which have not availed H.T. supply so far, shall be levied 25% additional charge on the tariff of LV-2 or 5.2.2 (whichever is applicable) on total amount of monthly energy bill comprising of fixed charge/demand charge, energy charge, minimum charge and VCA charge, if any.

4) The connected load under the foregoing tariffs would mean the connected load entered in the agreement executed with the consumer even in cases where the actual connected load is less than the load entered in the agreement. Connected load or contact/maximum demand in fraction shall be rounded off to the next whole number.

5) All the consumers under the foregoing tariffs, except the installations having only lights and fans in the connected load, shall maintain an average power factor not less than 0.85 in any month.

6) For the purpose of tariff LV-5.3, the maximum demand of the consumer in each month shall be twice the largest amount of Kilo Watt hours delivered at the point of supply of the consumer during any consecutive thirty minutes in that month.

7) Power Factor Surcharge

a) Every L.T. consumer, (except agriculture connection having load upto 5 HP) whose connected load includes induction motor/s of capacity of 3 HP and above, shall arrange to install low tension suitable capacitors of appropriate capacity at his cost across the terminals of his motor/s. The consumer shall ensure that the capacitors installed by him are properly matched with the actual requirement of the motors so as to ensure power factor of 85% and above.

b) All LT installations having welding transformer will be required to install suitable capacitor(s) so as to ensure power factor of not less than 85%. Consumers not complying with the above shall have to pay surcharge of 75 (seventy-five) paise per unit on the entire monthly consumption, provided the load of the welding transformer(s) exceeds 25% of the total connected load.

c) All LT industrial consumer, agriculture allied, agriculture (except agriculture connection having load upto 5 HP) and public water works who fail to provide LT capacitor of specified rating and fail to maintain power factor not less than 0.85 in any month shall pay surcharge of 30 (thirty) paise per unit on the entire consumption of the month.

d) All LT domestic/non-domestic consumers with connected load of 50 KW or above, shall install capacitor of suitable capacity so as to ensure power factor of 85% and above. Consumers shall pay surcharge of 30 (thirty) paise per unit on the entire consumption of the month on account of poor power factor.

e) Any LT consumer, who fails to provide LT capacitors as specified hereinbefore, or does not keep them in proper working order, shall be required to pay the surcharge as applicable. However, if meter capable of recording power factor indicates power factor of 0.85 or above, the power factor surcharge shall not be levied, even if capacitors of specified rating are not installed or not kept in proper working order.

f) For the purposes of computing the connected load in KW or HP of welding transformers, a power factor of 0.6 shall be applied to the maximum current of KVA rating of such welding transformers.

g) No new supply to LT installations with welding transformers will be given unless suitable capacitors have been installed so as to ensure power factor of not less than 0.85.

h) No new connection to LT installations (except agriculture connections upto 5 HP) with induction motor(s) of capacity 3 HP and above will be given unless suitable capacitors to improve the power factor are installed

i) The decision of the Executive Engineer of the Board as to the adequacy or otherwise of the power factor improvement device installed shall be binding on consumers.

j) Wherever there is facility in the meter for recording the cumulative power factor in the month, the power factor recorded in the meter shall be considered for billing L.T. consumers.

k) Levy of power factor surcharge as indicated above shall be without prejudice to the rights of the Board to disconnect the consumer's installation if steps are not taken to improve the power factor by installing capacitors.

8) Excess Supply

i. The foregoing tariffs, except Domestic (LV-1) and Demand based tariff consumers (LV-5.3) are applicable to the extent of the connected load indicated in the agreement executed between the Board and the consumer. In case the load of any consumer, except the domestic and demand based tariff consumers, is found at any time in excess of the load in the agreement, the consumer shall have to pay charges at tariffs (fixed and energy charge including minimum charge) corresponding to the excess load at the rate of one and half times of the normal tariff (inclusive of variable cost adjustment charge, if any), for the previous six months, including the month in which the existence of excess load is detected.

ii. The consumers availing supply at tariff LV-5.3 should at all times restrict their actual maximum demand to the contract demand. In case the actual maximum demand in any month exceeds the contract demand, the said tariff (LV–5.3) shall apply only to the extent of the contract demand and corresponding units of energy. The demand in excess of contract demand and corresponding units of energy (hereinafter referred to as "excess supply") shall be treated as power supplied and availed of separately for billing purposes. The excess supply so availed, in any month, shall be charged at the rate of <u>one and half times</u> the normal tariff applicable to the

consumer and while doing so, other terms and conditions (viz. tariff minimum, charges for low power factor, etc.) of tariff shall also be applicable on the said excess supply. For the purpose of billing of excess supply, the billing demand and the units of energy shall be determined as under:

a) Billing demand: The demand in excess of the contract demand in any month shall be the billing demand.
b) Units of Energy: the units of energy corresponding to KW of the portion of the demand in excess of the contract demand shall be:-

$$EU = TU \left[1- \frac{CD}{MD} \right]$$

Where,

EU – denotes excess units;
TU – denotes total units supplied during the month;
CD – denotes contract demand, and
MD – denotes actual maximum demand.

iii. The excess supply availed in any month shall be charged along with the monthly bill and shall be payable by the consumer therewith.
iv. The above excess billing at one and half times the normal tariff, as the case may be, shall be applicable to consumers without prejudice to the Board's right to discontinue the supply in accordance with the provisions contained in the Chhattisgarh State Electricity Supply Code.

9) Delayed Payment Surcharge

If bills are not paid by the consumers within the period (due date) prescribed, a surcharge of 1.5% per month subject to a minimum of Rs.5/- per month on the total amount of monthly bill (including outstanding arrears) will be payable in addition, from the billing date.

10) Meter Hire

Meter hire shall be charged as per the schedule of miscellaneous charges. Part of a month shall be reckoned as full month for the purpose of billing.

11) Rounding off

All bills will be rounded off to the nearest rupee.

12) Applicability of tariff

In case of any dispute about applicability of tariff to a particular LT category, the decision of the Commission shall be final and binding.

13) VCA Charge

Variable Cost Adjustment charge, if any, shall be levied in addition to energy charge on all the categories except agriculture and BPL domestic consumers.

14) Tax or Duty

The tariff does not include any tax or duty, etc. on electrical energy that may be payable at any time in accordance with any law in force. Such charges, if any, shall be payable by the consumer in addition to tariff charges.

15) Contrary to the agreement

All conditions prescribed herein shall be applicable to the consumer notwithstanding the provisions, if any, in the agreement entered into by the consumer with the licensee, to the contrary.

6.2 TARIFF SCHEDULE FOR EXTRA HIGH TENSION (EHT) CONSUMERS

This tariff schedule is for consumers who avail supply at 220/132 KV.

6.2.1 EHV-1: RAILWAY TRACTION

1. Applicability

This tariff is applicable to the Railways for traction loads only availing two phase supply.

2. Tariff

Category of consumer	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KVAh)
EHV-1:Railway Traction	300	2.60

3. Determination of Demand

The maximum demand of the supply in each month shall be four times the largest number of Kilo Volt Ampere hours (KVAh) delivered at the point of supply during any consecutive 15 minutes during the month as per the sliding window principle of measurement of demand.

Provided that if as a result of an emergency in the consumer's installation or in the transmission lines supplying energy to the said traction sub-station, extra load is taken by the consumer with prior intimation to the licensee, the period of such emergency shall not be taken into account for the purpose of working out the maximum demand.

Provided further that if as a result of emergency in the traction sub-station (TSS) or in the transmission line supplying power, load of the TSS or part thereof is transferred to adjacent TSS, the maximum demand (MD) for the month shall not be taken as less than the average MD recorded for the previous three months during which no emergency had occurred.

4. The condition of power factor incentive/penalty shall not be applicable as the energy charges are billed on KVAh.

6.2.2 EHV-2: HEAVY INDUSTRIES

1. Applicability

This tariff is applicable to the industries with a contract demand of above 20 MVA for power, ventilation, lights, fans, coolers etc. which shall mean and include all energy consumed in factory; lighting in the offices, stores, canteens, compound lighting, etc. and consumption for residential and general use therein.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
EHV-2: HEAVY INDUSTRIES	300	3.05

3. Determination of Demand

The maximum demand in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

6.2.3 EHV-3 STEEL INDUSTRIES

1. Applicability

This tariff is applicable to steel industries having contract demand upto 20 MVA, such as mini steel plants, rolling mills, sponge iron plants, ferro alloy units, steel

casting units, wire drawing units with or without galvanizing unit, and combination thereof, for power, lights and fans, coolers, etc. which shall mean and include all energy consumed in factory, offices, stores, canteen, compound lighting, etc. and the consumption for residential and general use therein.

2. Tariff

Category of Consumers	Demand Charges (Rs./KVA/month)	Energy Charges (Rs./KWh)
EHV- 3: Steel Industries	300	2.25

3. Determination of Demand

The maximum demand of the supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

6.2.4 EHV-4: COAL MINES, CEMENT INDUSTRIES & OTHER EHV CONSUMERS

1. Applicability

This tariff is applicable to coal mines, cement industries and all other EHV consumers including those who are not covered under categories EHV-1 to EHV-3 and consumers availing HV-8 Tariff for start up power.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
EHV-4: Coal mines, Cement Industries & other EHV consumers	300	3.30

3. Determination of Demand

The maximum demand of the supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

6.3 TARIFF SCHEDULE FOR HIGH TENSION (HT) CONSUMERS

This tariff schedule is for consumers who avail supply at 33 or 11 KV.

6.3.1 HV-1 STEEL INDUSTRIES

1. Applicability

This tariff is applicable to steel industries such as mini steel plants, rolling mills, sponge iron plants, Ferro alloy units, steel casting units, wire drawing units with or without galvanizing unit and combination thereof, for power, lights and fans, coolers, etc. which shall mean and include all energy consumed in factory, offices, stores, canteen, compound lighting, etc. and the consumption for residential and general use therein.

2. Tariff

Category of Consumers	Demand Charges (Rs./KVA/month)	Energy Charges (Rs./KWh)
HV-1: Steel Industries at 33 KV	310	2.30

3. Determination of Demand

The maximum demand of the supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

4. Load factor Incentive

If the load factor is over 70% on contract demand (CD), a load factor incentive of 25 paise /unit on the entire consumption shall be allowed. For estimating load factor for the purpose of load factor incentive, average power factor of 0.9 shall be taken.

6.3.2 HV-2: COAL MINES & CEMENT INDUSTRIES

1. Applicability

This tariff is applicable to the coal mines and cement industries for power, ventilation, lights, fans, coolers etc. which shall mean and include all energy consumed for coal mines and cement industries; lighting in the offices, stores, canteens, compound lighting, etc. and consumption for residential and general use therein.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-2: Coal Mines and Cement Industries at 33 KV	310	3.35

3. Determination of Demand

The maximum demand in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

6.3.3 HV-3: OTHER H.T. INDUSTRIES

1. Applicability

This tariff is applicable to all other industries not covered under categories HV-1 and HV-2.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV 3.1: Other H.T. Industries at 33 KV	310	2.90
HV 3.2: Other H.T. Industries at 11 KV	320	3.00

3. Determination of Demand

The maximum demand of supply in each month shall be two times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 30 minutes during the month as per sliding window principle of measurement of demand. However, for fluctuating loads of industries such as electro-chemical, electro-thermal and gas manufacturing units etc., the maximum demand for supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

6.3.4 HV-4: LOW LOAD FACTOR INDUSTRIES

1. Applicability

This tariff is applicable to all HT industries covered under HV-1 and HV-3 working during day time only, between 6:00 A.M. and 6:00 P.M. as an optional

tariff for power, lights, fans, coolers, etc. which shall mean and include all energy consumed in factory, offices, stores, canteen, compound lighting, etc. and residential use therein. This tariff will be applicable to a consumer who opts for it.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV 4.1: Low load factor industries at 33 KV	155	3.30
HV 4.2 : Low load factor industries at 11 KV	160	3.40

3. Determination of Demand

The maximum demand of supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

4. Conditions for low load factor industries

This tariff is applicable to HT industries, which use power during day time between 6:00 A.M. and 6:00 P.M. In case, they draw any power beyond the specified period, the energy consumed shall be charged at one hundred and thirty percentages (1.3 times) the normal rate of energy charge applicable to the consumer as per the following table:

Period of use	Normal rate of Demand Charge plus
(i) Normal period (Between 6:00 a.m. and 6:00 p.m.)	Normal rate of Energy Charges
(ii) Beyond above period (Between 6:00 p.m. and 6:00 a.m. next day)	130% of normal rate of Energy Charge

For the purpose of billing of additional energy charge, the CSEB/ licensee shall ensure installation of time of day meters.

The supply availed beyond specified period in any month shall be charged along with the monthly bill and shall be payable by the consumer.

6.3.5 HV-5: RESIDENTIAL PURPOSE

1. Applicability

This tariff shall be applicable primarily for supply to townships including townships of industries.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV 5.1: Residential at 33 KV	310	2.35
HV 5.2 : Residential at 11 KV	320	2.45

3. Determination of Demand

The maximum demand of supply in each month shall be two times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 30 minutes during the month as per sliding window principle of measurement of demand.

6.3.6 HV-6: GENERAL PURPOSE NON-INDUSTRIAL

1. Applicability

This tariff is applicable for supply to establishment like Railways (other than traction), hospitals, offices, hotels, educational institutions, other institutions etc. having mixed load or non industrial and/or non residential load.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV 6.1: General Purpose Non-Industrial at 33 KV	310	3.35
HV 6.2: General Purpose Non-Industrial at 11 KV	320	3.45

3. Determination of Demand

The maximum demand of supply in each month shall be two times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 30 minutes during the month as per sliding window principle of measurement of demand.

6.3.7 HV-7: PUBLIC WATER WORKS AND IRRIGATION

1. Applicability

This tariff is applicable to public utility water supply schemes, sewerage treatment plants and sewerage pumping installations run by P.H.E. Department, local bodies, Gram Panchayat or any organization made responsible by the Government to supply/maintain public water works/ sewerage installation including energy used for lighting pump house. This tariff is also applicable to agriculture pump

connections, irrigation pumps of lift irrigation schemes of State Government or its agencies/co-operative societies, including energy used for lighting pump house.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV 7.1: Public Water Works & Irrigation at 33 KV	150	2.00
HV 7.2: Public Water Works & Irrigation at 11 KV	160	2.10

3. Determination of Demand

The maximum demand of supply in each month shall be two times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 30 minutes during the month as per sliding window principle of measurement of demand.

6.4 HV-8 : START-UP POWER TARIFF

This tariff is applicable for those consumers who avail supply for start-up of generators at 220/132/33/11 KV.

1. Applicability

The tariff shall also be applicable to start-up power required by any generator.

2. Tariff

Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-8 : Start-up power tariff	150	3.20

3. Determination of Demand

The maximum demand of supply in each month shall be four times the largest number of Kilo Volt Ampere hours delivered at the point of supply during any consecutive 15 minutes during the month as per sliding window principle of measurement of demand.

4. Conditions for start-up power consumers

i. Start-up power tariff shall be applicable to **all the generators who are not co-located with industrial load. Also there should not be any direct electrical connectivity between the generating plant and an industry** so

that there is no scope for flow of power from the generator to the industries.

ii. Contract demand shall not exceed 10% of the capacity of the highest capacity unit of the generating station.

iii. The power drawal shall be restricted to within 10% load factor in each month. In case the load factor in a month is recorded beyond 10 %, the demand charge shall be charged at double the normal rate.

6.5 TEMPORARY CONNECTION at EHV & HV

1. Applicability

This tariff is applicable to all EHV and HV connections [other than the consumers availing Start up power Tariff (HV-8)] of temporary nature at 220/132/33/11 KV.

2. Tariff

One and half times of the normal Tariff applicable for that category with demand, energy and VCA charge.

Notes:

a) Estimated energy consumption charge is payable in advance before serving the temporary connection subject to replenishment from time to time and adjustment in the last bill after disconnection

b) The billing demand shall be the contract demand requisitioned by the consumer or the highest recorded maximum demand, which ever is higher, during the period of supply commencing from the month of connection ending with billing month. In case the recorded maximum demand is found more than the contract demand, the billing shall be done on the basis of enhanced recorded maximum demand from the date of connection and this billing shall be continued till the period of sanction.

c) The prevailing VCA charge, if any, at the time of availing supply shall not be further adjusted.

d) Any expenditure made by the CSEB/licensee up to the point of supply shall be paid by the consumer as per prescribed procedure.

e) The consumer shall pay rent for the metering system.

f) Connection and disconnection charges shall be paid separately.

g) No rebates/concessions under any head shall be applicable to temporary connections.

h) Month for the purpose of billing of temporary supply shall mean 30 days from the date of connection or for part thereof.

i) Other terms and conditions of the relevant category of tariff shall also be applicable except load factor incentive.

j) Surcharge at 2% per month on the outstanding amount of the bill shall be payable in addition from the date of bill, if the bill is not paid by the consumer within the period prescribed.

k) Temporary connection shall not be served unless suitable capacitors are installed so as to ensure power factor of not less than 0.90.

6.6 TIME OF DAY TARIFF

This tariff is applicable to all HT industrial consumers. Under the Time of Day (TOD) Tariff, electricity consumption and maximum demand in respect of HV industries for different periods of the day, i.e. normal period, peak load period and off-peak load period, shall be recorded by installing a TOD meter. The maximum demand and consumption recorded in different periods shall be billed at the following rates on the tariff applicable to the consumer:

Period of Use	Normal rate of Demand Charge plus
(i) Normal period (5:00 a.m. to 6:00 p.m.)	Normal rate of Energy Charges
(ii) Evening peak load period (6:00 p.m. to 11:00 p.m.)	130% of normal rate of Energy Charge
(iii) Off-peak load period (11:00 p.m. to 5:00 a.m of next day)	85% of normal rate of Energy Charge

Applicability and Terms & Conditions of TOD tariff:

i. TOD tariff which was hitherto optional shall now be applicable to all EHV and HV industries covered in EHV-2, EHV-3, EHV-4 and HV-1, HV-2 and HV-3 categories.

ii. In the event of applicability of TOD tariff to a consumer, the terms and conditions of the applicable tariff (such as monthly tariff minimum charge, etc.) shall continue to apply.

iii. In case, the consumer exceeds the contract demand, the demand in excess and the corresponding energy shall be billed one and half times of the normal tariff applicable for the day time i.e., 5.00 a.m. to 6.00 p.m. irrespective of the time of use.

6.7 TERMS AND CONDITIONS OF EHV, HV & HV-8 TARIFF

All the foregoing EHV, HV & HV-8 tariffs are subject to the conditions prescribed hereunder:

1. The foregoing tariffs for different supply voltage are applicable for loads with contract demand as below:

Supply Voltage	Minimum	Maximum
11 KV	60 KVA	300 KVA
33 KV	60 KVA	10000 KVA
132 KV	4000 KVA	40000 KVA
220 KV	15000 KVA	150000 KVA

Deviation, if any, in respect of the above provisions on account of technical reasons may be permitted with the approval of the Commission.

2. Point of Supply

Power will be supplied to consumers ordinarily at a single point for the entire premises. In certain categories like coal mines, power may be supplied at more than one point on the request of consumer subject to technical feasibility. But in such a case, metering and billing will be done separately for each point of supply.

HT consumers who have already availed one LT connection also for the purpose of standby light and fan shall be billed at Non-domestic LV-2 tariff for the L.T. connection.

3. Billing demand

The billing demand for the month shall be the actual maximum KVA demand of the consumer recorded during the month or 75% of the contract demand or 60KVA, whichever is higher. The billing demand shall be rounded off to the nearest integral figure, the fraction of 0.5 or above will be rounded to the next higher figure and the fraction of less than 0.5 shall be ignored.

4. Minimum Charge

The demand charge on contract demand (CD) is a monthly minimum charge whether any energy is consumed during the month or not.

5. Power Factor Incentive/Penalty

a) If the average monthly power factor of the consumer increases above 95%, he shall be paid an incentive at the following rate :

For each one percent increase by which his average monthly power factor is above 95%, upto unity power factor	-	One percent (1%) of the total amount of the bill under the head 'energy charge'

b) If the average monthly power factor of the consumer falls below 90%, he shall pay a penalty in addition to his normal tariff, at the following rate:

For each one percent by which his average monthly power factor falls below 90% upto 85%	-	One percent (1%) of the total amount of the bill under the head 'energy charge'

c) If average monthly power factor of the consumer falls below 85%, he shall pay a penalty in addition to his normal tariff at the following rate :

For each one percent by which his average monthly power factor falls below 85%	-	Two percent (2%) of the total amount of the bill under the head 'energy charge'

d) Should the power factor fall below 70%, the Board shall have the right to disconnect the consumer's installation. Power may be restored only after steps are taken to improve the same to the satisfaction of the Board/licensee. This is, however, without prejudice to the levy of penal charges for low power factor in the event of supply not being disconnected.

e) For this purpose, the "average monthly power factor" is defined as the ratio of total 'Kilo Watt hours' to the total 'Kilo Volt Ampere hours' recorded during the month. This ratio will be rounded off to two figures, 5 or above in the third place after decimal being rounded off to the next higher figure in the second place before decimal.

f) Notwithstanding the above, if the average power factor of a new consumer is found to be less than 90% at any time during the first 6 (six) months from the date of connection, he shall be entitled to a maximum period of six months to improve it to not less than 90% subject to following conditions;-

i. This period of six months shall be reckoned from the date on which the average power factor was found, for the first time, to be less than 90%.

ii. In all cases, the consumer will be billed the penal charges for low power factor, but in case he maintains the average power factor in subsequent three months (thus in all four months) at not less than 90%, the charges on account of low power factor billed during the said six months period, shall be withdrawn and credited in next monthly bills.

iii. The facility, as mentioned herein, shall be available not more than once to new consumers whose average power factor is less than 90% at any time during six months from the date of connection. Thereafter the charges on account of low average power factor, if found less than 90%, shall be payable as by any other consumer.

6. VCA Charge

Variable cost adjustment (VCA) charge, if any, shall be levied in addition to energy charge.

7. Rounding off

All bills will be rounded off to the nearest rupee.

8. Meter Hire

Meter hire shall be charged as per Schedule of Miscellaneous Charges. Part of a month will be reckoned as full month for the purpose of billing.

9. Delayed Payment Surcharge

Surcharge at 1.5% per month on outstanding amount of the bill up to 30 days and 2.0% per month thereafter will be payable in addition, from the date of the bill, if the bill is not paid by the consumer within the period prescribed.

10. Additional Charge for Exceeding Contract Demand

The consumers should at all times restrict their actual maximum demand to the contract demand. In case the actual maximum demand in any month exceeds the contract demand, the foregoing tariffs shall apply only to the extent of the contract demand and corresponding units of energy. The demand in excess of contract demand and corresponding units of energy (hereafter referred to as "excess supply") shall be treated as power supplied and availed separately for billing purposes. The excess supply so availed, if any, in any month shall be charged at one and half times of the normal tariff applicable to the consumer and while doing so other provisions of electricity tariff (such as tariff minimum charge, low power factor charge, etc.) will also be applicable on aforesaid excess supply, unless otherwise provided specifically for any category.

For the purpose of billing of excess supply, the billing demand and the units of energy shall be determined as under:-

i. **Billing Demand / Contract Demand:**

The demand in excess of the contract demand in any month shall be the billing demand/ contract demand of the excess supply.

ii. **Units Energy:**

The units of energy corresponding to KVAs of the portion of the demand in excess of the contract demand shall be:

$$EU = TU \left[1- \frac{CD}{MD}\right]$$

Where,

EU -denotes excess units;

TU-denotes total units supplied during the month;

CD-denotes contract demand; and

MD- denotes actual maximum demand.

The excess supply availed in any month shall be charged alongwith the monthly bill and shall be payable by the consumer.

The billing of excess supply at one and half times of the normal tariff applicable to consumer is without prejudice to the Board's right to discontinue the supply in accordance with the provisions contained in the Chhattisgarh State Electricity Supply Code.

iii. No rebates/incentive is payable on such excess supply.

11. Additional Charge

The existing consumers having contract demand exceeding the maximum limit as prescribed in clause 6.7 (1) with the approval of competent authority shall be levied additional charges at the rate of 5% on energy charges of the respective consumer category.

12. Tax or Duty

The tariff does not include any tax or duty, etc. on electrical energy that may be payable at any time in accordance with any law / State Government Rules in force. Such charges, if any, shall be payable by the consumer in addition to tariff charges.

13. Dispute on applicability of tariff

In case of any dispute on applicability of tariff on a particular category of HT industry/ consumer, the decision of the Commission shall be final and binding.

14. Conditions contrary to the Agreement

Notwithstanding the provisions, if any, contrary to the agreement entered into by the consumer with the Board/ licensee, all conditions prescribed herein shall be applicable to the consumer.

6.8 PARALLEL OPERATION CHARGES

Rs. 10 per KVA per month on the installed capacity of captive power plant (CPP), as fixed by the Commission in its order passed on dated 06.02.06 in petition No. 17 of 2005(M) is payable by all CPPs, unless revised by the Commission.

6.9 OPEN ACCESS CHARGES:

The Commission vide order dt. 15.02.2006 passed in petition no. 03/2006(M) had determined open access charges for the first time. Subsequently these charges were revised in Tariff order for FY 2006-07. By this order the rates of some of these charges are revised and the following charges are approved by the Commission for the FY 07-08:

(a) Transmission Charge	i) 4.03 % in kind which will be deducted from the energy input. ii) Rs. 63030 per MW or part thereof per month for long-term open access; and Rs. 518 per MW or part thereof per day for short-term open access.
(b) Wheeling Charges	i) 6% in kind which will be deducted from the energy input at 33 KV. ii) 15 paise/ Unit in cash.
(c) Operating Charges	Rs. 1000/day or part thereof.
(d) Reactive Energy Charges	27 paise/ KVARh.
(e) Cross Subsidy Surcharge	i) For EHT consumers – 65 paise/unit ii) For HT consumers – 38 paise/unit

6.10 SCHEDULE OF MISCELLANEOUS AND GENERAL CHARGES

The Commission vide order dt. 10.08.07 passed in petition 40/2006(M) has prescribed miscellaneous and general charges as detailed below there, shall be applicable during FY 07-08 also till these are revised by the Commission:

Sl. No	Particulars	Approved Charges effective from 1.9.2007
A.	**Meter Hire Charges**	**(Per Month)**
1.	Single phase meters	Rs. 10/-
2.	3- Phase LT meters	
a.	10-40 Amp meters	Rs. 25/-
b.	20-100 Amp meters	Rs 50/-
3.	3 Phase LT CT meter	Rs. 70/-
4.	11 KV Metering System	Rs. 720/-
5.	33 KV Metering System	Rs. 1,140/-
6.	132 KV Metering System	Rs. 8,900/-
7.	220 KV Metering System	Rs. 19, 600/-
B.	**Other work oriented jobs**	
1.	**Shifting of meter/meter board in the same premises.** (Even at the consumer's request)	Rs. 70/-
2.	**Re-sealing of cut outs provided on meter board in the consumer's premises, if seal is found broken**.	Rs. 25/-
3.	**Replacement of fuses/meter reading card**	
a)	Replacing consumer's cut out fuses (LT)	Rs. 25/-
b)	Replacement of missing meter reading card.	Rs. 10/-
4.	**Disconnection/Reconnections**	
a)	Single phase LT connection	Rs. 60/-
b)	3-phase LT connection upto 25 HP/19KW	Rs. 150/-
c)	3-phase LT connection above 25 HP/19KW	Rs. 500/-
d)	HT Connection upto 5 MVA	Rs. 1750/-
e)	HT Connection above 5 MVA	Rs. 2500/-
5.	**Re-rating / checking of installation / equipment done at the request of the consumer**.	
	Single phase connection	
a)	Three phase connection	Rs. 150/-
b)		Rs. 300/-
6.	**Testing of installations** For the subsequent testing of installation, or testing of an extension to the existing installation, or if the wiring contractor or his representative fails to be present during initial testing of a new installation or subsequent testing	Rs. 200/-
C.	**Testing Charges**	
1	Single Phase meter	Rs. 130/-
2	3 Ph, 4 Wire meter, without CT	Rs. 200/-
3	LT CT (Each)	Rs. 170/-

4	3 Ph, 4 Wire meter, with CTs	Rs. 880/-
5	Tri-vector meter	Rs. 1200/-
6	33/11 KV metering equipment	Rs. 2680/-
7	132/220 KV metering equipment	Rs. 3750/-
8	O/C, E/F Relay per element testing	Rs. 400/-
9.	BDV	Rs. 320/-
10.	HT CT (Ratio, polarity, IR, BDV) each unit	Rs. 1000/-
11.	ABT Meter	Rs. 9310/-
D.	**Additional charges for testing at site**	
1.	Equipment tested at site, the site being located at the Head Quarter of the MRT Division.	Rs. 800/- per day or part thereof and the transport charges for the work on actual basis.
2.	Equipments tested at site, the site being located away from H.Q of E.E. (MRT)	Rs. 800/- per day or part thereof and transport charges along with TA & DA admissible to the staff involved. The counting of days shall be from the starting of journey till the return from the journey for the work on actual basis.
E.	**Contest Fee**	
1.	LT Meter	1.5 times of testing charges
2.	HT Meter	2 times of testing charges
F.	**Special Meter Reading**	
1.	L.T. Connection	Rs. 25/-
2.	H.T. Connection	Rs. 250/-
3.	Surcharge for inaccessibility of meter for reading as per notice	LT: Rs.25/- HT: Rs. 250/-
G.	**Replacement of Burnt Meter**	Cost of meter
H.	**Supervision charges for Service Connection and other works**	
1.	Single Phase	Rs. 200/-
2. (i) (ii)	Three phase Connected load upto 25 HP Connected load above 25 HP	 Rs. 365/- Rs. 510/-
3.	Work got done by consumer's contractor	15% on cost of material and labour
4.	Shifting of connection	15% on actual cost of material + actual labour charge
I.	**Supply Arranging Charges**	
1	System strengthening charge for affording connections in colonies developed / being developed by colonizers	Rs. 1250/- per KW

	/ Builders / Society / Developing agencies.		
2	Supply arranging charges/Supply affording charges		
A	Three Phase L.T. Connections upto 100 HP (Except Flour Mills and pumps in rural area) Free L.T./H.T. line length Max		Rs. 740/- per KW 0.5 Km
B	For 11/33 KV HT Connections		Rs. 650/- per KVA of CD
(i)	11 KV – Max. free line length		2 Km
(ii)	33 KV - Max. free line length		
a b c	Upto 2500 KVA Above 2500 –5000 KVA Above 5000 KVA		5 Km 7.5 Km 10 Km
C	132/220 KV EHT Connection		Rs. 650/- per KVA or actual cost of work + 15% supervision charges, whichever is higher
J.	**Hiring of Board's Plant and Equipment**		
1.	For initial agreement period		2% per month on current schedule of rates
2.	For subsequent period of agreement		Twice the above
K.	**Transfer of Name**		
1	LT consumers		Rs. 100/-
2	HT consumers		Rs. 2000/-
L.	**HT/ LT Tariff Booklet**		Rs. 30/-
M.	**Application processing fees**		
1	LT Industrial Consumer	Adjustable in future energy bills.	Rs. 1000/-
2	LT Consumers (Other than Industrial and BPL consumers)		Rs. 200/-
3	HT Consumers		Rs. 5000/-
N.	**Service charge for dishonored cheque**		Rs. 200/- or 0.5% of the amount of dishonored cheque, which ever is higher.
O.	**Stand-by feeder maintenance charge** 132/220 KV consumers		Rs. 2,125 /KM /M
P.	**Maintenance of Street Light**		
1 2 3 4	Filament lamp point Single tube light point Multiple tube light point Special Lighting like MV/ SV lamp point		Rs. 20/- per point Rs .45/- per point Rs. 60/-per point Rs. 90/- per point

Note- Other charges being levied by CSEB and not included in the above Schedule of Miscellaneous and General Charges shall continue to be levied by the Board without any change till further orders.

CHAPTER 7 DIRECTIVES TO CSEB

7.1 GENERAL

The Commission in different parts of this order has given certain directives to CSEB, with the specific objective of improving its operational efficiency and in its best interest and the interest of development of the sector in the State, both in the short and the long-term. Apart from these, there are certain other issues, not all of them directly related to tariff as such, which the Commission has been incorporating in its tariff orders in the past. Since the tariff order covers in its scope an overview of the performance of the utility, such directives are considered necessary. In this chapter of the order, the Commission has reviewed compliance with the directives issued in the last two tariff orders and has given certain new directives.

7.2 COMPLIANCE OF DIRECTIVES ISSUED IN PAST TARIFF ORDERS

The Commission had issued certain specific and important directives to CSEB, on improvement of its operational efficiency, in its past two tariff orders for FY 2005-06 and FY 2006-07. In the tariff order for 2005-06, the first tariff order issued by the Commission, as many as 29 directives were given. Some of these directives are of a general nature and require continuous and sustained efforts. These include reduction in T&D losses; cent percent metering, replacement of stopped and defective meters; billing and collection efficiency; accounting and recovery of arrears; control over cost of supply; consumer care and grievance redressal machinery; power purchase and procurement; cadre management and training of personnel; procurement and inventory management and improved governance etc. Some progress has been made in compliance of these directives. The Commission however, feels that no useful purpose would be served in repeating these directives in the present order. The Commission is separately monitoring progress in respect of these. Some of these directives such as, installation of weightometers in generating stations and creation of finance cell in Korba are being carried over to this order. The Commission had added 10 more directives in its tariff order for FY 2006-07. None of these directives have been complied with by the CSEB and hence most of them are being repeated here.

7.2.1 Installation of weightometers in generating stations

In the Commission's tariff order for FY 2005-06, the Board was directed to install weightometers in the powerhouses by December 2005 so as to correctly calculate the receipt of coal and quantity fed to the boilers. In the tariff order for FY 2006-07, the Commission further directed that specific coal consumption, stacking and

transit losses after installation of weightometers in Korba (East) may be conveyed to the Commission. The Board was also directed to commission the belt weightometers at Korba (West) by the end of October 2006.

The Board has submitted that installation of weighbridge is complete and belt weighers have been installed on the coal conveyers for the entire Korba East complex and calibration and stamping has also been done. The Board has submitted that the gravimetric feeders for the remaining 23 mills for the units of Korba West will be functional from the following dates:

Unit No.1 - December' 2007
Unit No. 2 - January' 2008
Unit No. 3 - February' 2008
Unit No. 4 - March' 2008

Further, the Board submitted that the target date for installation and commissioning of gravimetric coal feeder at Korba East (Unit No. 6) is June 2008.

Commission's views

The Commission had issued the directive in June 2005. The Board is taking three years to carry it out. The Commission is concerned with the inordinate delay in installation and commissioning of the weightometers at the thermal power stations. The Board should realise that these directives are intended to benefit the Board and the consumers through improvement in accountability and operational efficiency. CSEB is directed to ensure that there are no further delays in commissioning of the weightometers for Korba West, and the remaining work for the weightometers in the Korba East complex should be expedited and commissioned at the earliest. **The Commission directs the Board to submit the progress report by end March 2008.** Failure to comply with this directive will automatically invite action under section 142 of the Act. **The calculation of specific coal consumption and transit and stacking losses for each Station after installation of weightometers may be conveyed to the Commission on a quarterly basis.**

7.2.2 Improvement in billing and collection efficiency

The Commission had given several directives related to metering, billing and collection of present dues as well as arrears, in order to streamline the process and minimize the timelag between actual sale of electricity and receipt of revenue, such as:

- Billing through meter reading instrument (MRI) for H.T consumers
- Tie-up with banks for revenue collection.
- Facility to pay through any CSEB collection centre, banks, Internet and credit cards, etc.
- Recover 92% of current demand and 25% of arrears as on 31-03-2006.
- Take prompt and stern action for the recovery of arrears outstanding against LT and HT consumers.
- Focus on the circles where collection is poor and give specific targets to officers in these circles and institute a system of incentives and disincentives for them.
- Issue 90-days notice period to all Government departments with arrears of more than three months to pay off or face disconnections.
- Similar action to be taken for defaulter local bodies and efforts to get the recoveries directly from the grants of the State Government.

The Board has informed that a pilot project for spot billing for Dhamtari district is under process and letter of award has been issued for the work. MRI facility for H.T consumers was not complete as on March, 31, 2007. The Board has initiated the method of revenue collection through postal department for three months for its Jagdalpur circle, on trial basis. It is stated that based on the results of such arrangement it will replicate the same throughout the State.

Commission's views

The Commission is concerned that the Board could implement only a single scheme throughout the year. The Board should have simultaneously tried all methods of revenue collection, so that it could then replicate a few successful methods. The efforts made by the Board in this area are grossly insufficient. **The Commission directs CSEB to enter into arrangement with various banks and provide options like 'anywhere payment', payment through internet, payment at bank counters, payment through credit cards,etc., within the next three months.**

HT arrears amounted to as much as 90% of total arrears as on March 31, 2006, with about 45% of the total arrears being older than three years. The Board has informed that it has managed to recover Rs. 327.64 crore from cement industries, Bhilai Steel Plant (BSP) and Bharat Aluminium Company (BALCO) under H.T category, which is 25% of the arrears to be recovered. CSEB has to put in more efforts to recover the arrears. The Commission has also been informed that the

arrears on account of Railways have reached Rs. 917 crore. The Board has clarified that these arrears are on account of some disputed bills in the past, which is under arbitration for many years. The Board should expedite the arbitration process, so that the amount of arrears can be reduced and reflected properly.

In the petition, the Board has not indicated any collection efficiency though the tariff order for FY 2006-07 contained a directive in regard to the improvement in collection efficiency. **As directed earlier, CSEB should ensure to recover 92% of current demand and 25% of arrear as on 31/03/07 during the year 2007-08 and also ensure that recovery against current dues and against arrears are segregated without further delay.**

7.2.3 Financial Management

A finance cell for Korba (E) and Korba (W) under a Cost/Chartered Accountant was suggested to be created as early as possible. The Board was advised to relax, if need be, its present recruitment procedures to provide lateral entry of Chartered Accountants and Cost Accountants at middle levels recruited from the open market. The Commission further directed the Board to set up Finance Cells headed by Financial Controllers at the regional level in the first phase and at the circle level in the second.

Commission's views

The Board has clearly chosen to ignore this important directive which is in its best interest. The Commission has repeatedly stressed the importance of sound financial management in the Board. All the thermal generating stations including new ones of the Board are located in Korba. These involve investment of large public funds and being the main stay of the Board's generating assets, their better management, both technical and financial, is of crucial importance. If these assets were with any company it would have engaged a full-time Director (Finance) and a full-fledged financial management team. It is most unfortunate that the finances of the generating assets of Korba are entrusted to accountants who are ill-equipped for financial management function. The Commission reiterated in its directive that a finance cell under a Director (Finance), who may be recruited from the open market, if need be, but who must have the requisite qualification and experience, be created in Korba without further delay and within a period of six months. Similarly, finance cells be set up in Raipur and Bilaspur, the two most important regions of the Board under Joint Directors, who should also be professionals and not accountants. The Commission shall be constrained to reduce return on equity in the generation sector in the next tariff order, apart from taking

any other action under the provisions of the Act, if this directive is not complied with.

7.2.4 Business plan and Investment programme

The Commission directed the Board to submit a three-year investment plan with cost benefit analysis by December 2006. The Board was also directed separately to submit medium-term and long-term business plans.

The CSEB submitted a draft Business plan for 5 years to the Commission in April 2007. The Commission reviewed the draft Business Plan and sent it back to the Board, with its views and comments on various aspects, for review by the Board. The Board has submitted that the plan is still being reviewed and revised plan would be submitted shortly. CSEB is also yet to submit the three-year investment plan with cost benefit analysis as directed in the last tariff order.

Commission's views

Despite the passage of six months since the draft Business Plan was returned by the Commission, the Board is yet to re-submit the Business Plan after incorporating the changes and suggestions of the Commission. The Board should realise it is a commercial organisation, and it is in the interest of the Board to have a Business Plan that charts out the future business plans and prospects as envisaged by the top management of the Board. The Business Plan will give the necessary direction to the long-term capital investment plan, which is essential for prioritising the capital investment as well as arranging the necessary finance or undertaking the capital investment in a phased manner.

For the purpose of determination of ARR, the Commission has agreed to the capital investment as projected by the Board since it does not have an impact on the consumers' tariff for the present, though the Commission has doubts about the Board's ability to undertake the entire planned investment in FY 2007-08. The Commission has considered the capital investment, despite the non-submission of the three-year capital investment plan by the Board. In the next ARR and tariff process, the Commission will consider the capital investment and financing of the same only on the basis of the long-term capital investment plan approved by the Commission. The Board should accordingly ensure that five year business plan including capital investment plan for the period beginning FY 2008-09 is submitted to the Commission within three months of issue of this tariff order, so

that the Commission has adequate time to study and approve the plan, and the Board can accordingly incorporate elements of the approved plan in the subsequent ARR and tariff petition.

7.2.5 Checking of power theft

The Commission has repeatedly emphasized the urgent need for segregation of technical and commercial losses through a proper loss study, and the need for a concerted effort at reducing the commercial losses, viz., pilferage and theft of electricity, which is common to both LT and HT consumers. The Commission has repeatedly emphasized the need for mobilizing the vigilance staff and other field officers to check theft of electricity. Some of the directives given by the Commission in this regard were:

- Each circle should be asked to identify theft-prone areas and draw up plans for checking theft depending on the extent of commercial losses in the Circle, under the principle of 'ABC' analysis, i.e., targeting the comparatively bigger consumers first.
- The Board should urgently take up the programme of use of aerial bunched cable in theft-prone areas, in a large way.
- The Board should prepare detailed instructions regarding checking of theft to include the relevant provisions in the Electricity Act and the Electricity Rules.
- The high commercial losses are in a few districts, which are also chronic defaulters in the payment of electricity dues. The Board should identify such specific area/locality and suggest levy of surcharge and take other measures such as higher level of load-shedding for such areas. A system of incentive and disincentive for the Board's staff posted in these districts/areas should also be formulated.

CSEB has informed that theft prone areas have been identified through energy audit and regular and surprise-checking programs are planned accordingly. CSEB reported that during the year a total of 1,05,043 connections have been inspected and out of which 23,353 connections were detected with theft and other irregularities. Board has informed that an additional demand of Rs. 21.96 crore has been raised and the Board has been able to recover Rs. 12.34 crore as a part of the anti-theft drive. The Board has further informed that First Information Report (FIR) for 418 cases has been lodged in cases of theft. The Board has laid 49.63 km of aerial bunched cable in the identified theft prone areas covering 7418 consumers. This has resulted in annual saving of 1.86 MU.

The Board submitted that appropriate instructions for checking of theft have been issued. Further, it has identified other areas having high commercial losses, and is in the process of formulating the penalty mechanism for the same.

Commission's views

The efforts made so far are far from satisfactory. The Board has not mentioned about the circle-wise targets given for checking of electricity theft. **The Board is hereby directed to formulate and provide the details of the monthly circle-wise targets to the Commission within two months of issue of this tariff order, and achievement on the same may be submitted to the Commission each month.**

The Board has not commented on the preparation of detailed instructions for checking theft, methodology to be followed for carrying out checks, preparation of theft reports, etc. The Board does not appear to have taken any measures to improve the field officers' knowledge and awareness regarding the extant laws and procedures in this context. The Board should realise that commercial losses are one of the biggest challenges faced by the Board, and unless appropriate steps are taken by the Board at the earliest, any significant reduction in the distribution losses will remain a pipe-dream. **Towards this, it is an essential first step to educate the field officers regarding the various legal provisions and the appropriate procedures to be followed while checking on theft and documenting the information, so that the paper work is in place for undertaking any subsequent legal or criminal process as provided in the Act**. Further, the recent amendment to the Act (EA 2007) has several stringent provisions regarding theft of electricity, including making theft of electricity a non-bailable offence, imprisonment, compounding, etc. **The Board should ensure that its field officers and vigilance squads are well versed in the various provisions of the Act and are able to take appropriate steps to control theft of electricity.**

The Commission directs CSEB to lay more aerial bunched cables in the theft prone areas. The Board is also directed to finalise the mechanism for penalising areas with higher commercial losses, and design a system of incentives and disincentives for the Board's staff posted in theft prone areas and submit the same to the Commission within three months from the date of issue of this tariff order.

7.2.6 Consumer interface

The Commission had given certain directives to the Board to improve the consumer services such as:

- Timely payment of interest on the security deposits.
- A tariff-card in Hindi, which explains the various components and charges included in the bill.
- A pamphlet detailing the system of internal grievance redressal machinery in the Board and about the Forum and its jurisdiction to be sent to all consumers in alternate months.
- Evolve a procedure to give intimation regarding planned load shedding and pre-arranged shut down to its HT and major consumers by sending SMS on mobile phone.

The Board has informed that tariff card in Hindi is under preparation, explaining the component-wise charges and the same will be distributed shortly. The Board has distributed pamphlet on a one-time basis, detailing the internal grievance redressal machinery and the Board has printed such information on bills, which are to be distributed shortly. The Board informed that it is intimating its HT and other major consumers about planned outages and pre-arranged shutdowns through SMS.

Commission's views

Even after completion of over one year since the issue of the previous tariff order, the Board is yet to send the tariff card in Hindi. If the same tariff card is sent now, it will have no meaning as the tariffs are being revised through this tariff order. **The Commission directs CSEB that the tariff card in Hindi explaining the various components and charges should be sent to each consumer along with the first bill computed on the basis of the revised tariff as determined in this tariff order, and a copy of sample bills for each consumer category should be sent to the Commission after the issuance of the revised bills**.

7.2.7 H.T Consumer cell

The Board was directed to prepare a scheme for establishment of HT consumer cells in the head office as well as in important industrial areas of the State such as Urla, Siltara in Raipur and Tifra in Bilaspur, and ensure that these are functional within a period of three months.

The CSEB has informed that a fully functional HT cell has been established at the head office under the control of CVO. CSEB has clarified that this cell checks the energy bills of HT consumers but does not do any special checking. CSEB has reported that HT cell at the head office has detected 40 cases and raised additional demand of Rs. 7.30 Crore. However, CSEB has not mentioned anything about the progress of establishment of HT cells at important industrial areas as directed in the last tariff order.

Commission's views

The focus of the Board seems to be misplaced, as the HT cell at head office is under the control of the Chief Vigilance Officer. The Board has added that additional demand of Rs. 7.30 crore has been raised after checking of HT consumer bills. This was not the intention of the Commission while directing the Board to set up the HT consumer cells. While the Board should check the bills of all HT consumers regularly, the objective of the Commission's directive was to have a single-window system to address the problems and concerns of the HT industrial consumers, who contribute very significantly to the Board's revenue (64%). This is a commercially appropriate step, as any organisation should seek to retain the large consumers and address their concerns in a responsive and responsible manner. **The Board should understand the objective and refocus on the HT consumer cell at the head office appropriately. The Commission reiterates its directive to establish HT Cells in important load centres of the State such as Urla, Siltara in Raipur and Tifra in Bilaspur. CSEB should establish such cells within three months.**

7.2.8 Gratuity and Pension fund

The Commission had directed the Board to submit more details about the size of the pension fund at the time of next tariff filing, so that the position regarding the size of the fund and the contribution required every year to the fund is clear.

The Board has informed that all the employees recruited after 1.12.2005, are covered under the contributory pension scheme. The Board has also informed that the total corpus of pension and gratuity fund for the existing employees is Rs. 1468.75 Crore as on May, 3, 2007 including the approved contribution of Rs. 100 Crore during FY 2006-07. There is a funding gap of Rs. 451.25 Crore (Rs. 1920 Crore-1468.75 Crore) in the fund.

Commission's views

CSEB has not clarified about the size of the fund. **The Board should ensure that the amounts are contributed to the fund as booked under the accounts, and invested appropriately, so that the funds can be self-generating fund and no**

provisioning is required after sometime. Further, the Board should update the actuarial valuation to account for the employees who have joined after January 1, 2004, who are not eligible for pension, and hence, no provision for pension fund has to be created for such employees.

CSEB should provide the details to the Commission regarding the size of the fund and the investment made out of the fund.

7.3 New Directives:

7.3.1 Timely and correct preparation of statement R-15

The R-15 is the most vital statement of the Board, which gives a bird's eye view of the overall position of the distribution function of the Board. This statement is being prepared at the distribution centre level, and the consolidated statement is prepared for the Board for HT and LT consumers. This statement gives monthly as well as annual status of total number of consumers, connected load, energy sales, revenue billed and the arrears against the different categories of consumers.

Though CSEB has submitted that the sales and consumer category-wise details have been taken from R-15 statement, several discrepancies were noted between the number of consumers, connected load and sales as reported in the R-15 statement and as given in the tariff petition. The average billing rate reported in R-15 for some categories indicate that the tariff approved by the Commission in its tariff order is not being followed, which is a serious lapse.

The basic problem is that CSEB has not been modifying its internal Management Information System (MIS) in accordance with the consumer categorisation introduced by the Commission, resulting in a situation, where several assumptions, many of which appear to be faulty, have had to be used to arrive at the numbers in accordance with the Commission's formats.

The category of consumers reflected in the R-15 statement should be in accordance with the existing approved tariff categories. This would help in analysing the effect of change and growth of sales, consumers and revenue in different categories in order to facilitate accurate forecasting by the licensee. The Commission feels the statement should have been customised so as to serve the very purpose of reforms in the distribution sector.

The Board should realise the importance of correcting and streamlining its commercial database to reflect the actual tariff categories and sub-categories, so that the Board itself is in the position to correctly assess the revenue from the tariff. **CSEB is directed to prepare its R-15 for LT and HT consumers as per the consumer categories and tariff approved by the Commission for FY 2007-08 and submit the monthly R-15 to the Commission every month with in one month of the end of the previous month.**

7.3.2 Reduction in T&D losses

CSEB has projected T&D loss level of 35.54% in FY 2006-07 against the target of 33.81% given by the Commission. The Board could reduce T&D loss to the extent of 0.65% over the previous year against a target of 3%. With its very favourable sales profile of the HT consumer (HT sale 65%) T&D loss at the level of 35.54% is unacceptable. There has been a shortfall of 1.73% in the achievement of the targets set by the Commission. The State Government has recently notified an action plan for reduction of AT&C losses in which the AT&C losses during FY 2006-07 has been shown as 33% which is proposed to be brought down to 29% during FY 2007-08. Thus, there is wide variation in the losses shown by the Board in its petition and in the action plan notified by the State Government. The Board has recently entrusted the work of evaluation of T&D losses and preparing an action plan for reduction thereof to a reputed consultant. This report is likely to be received only after expiry of 12-14 months. Under the circumstances, the Commission has no option but to accept the T&D loss level of 35.54% during FY 2006-07 projected by the Board. **However, the Commission directs CSEB to reduce the T&D loss by 3% in FY 2007-08 over the T&D loss estimated in FY 2006-07**.

The Commission has noted that the above consultancy assignment is very large and comprehensive in scope. The Board must institute necessary mechanism to monitor the progress of the tasks assigned to the consultant on a regular basis, issue requisite instructions to the field offices to extend necessary help to them and associate a group of officers whom the consultants will train and who will carry on the task of regular energy audit and monitor the implementation of the measures for reduction of losses suggested by the consultant.

7.3.3 Demand side management and energy conservation

Demand side management is an important area which should be in focus in the Board, particularly in the context of the unmanageable spike in the peak load. TOD tariff is one of the measures which this order contains. Fortunately, the Board appears to be conscious of this aspect and has referred to various measures for

energy conservation in para 2.5 of its application. However, the objective could be achieved only if the Board takes bold and effective steps to implement the measures catalogued in the application. Presently they would appear to be in the drawing board only. Some of these measures such as support to domestic consumers to use CFL lamp through payment in instalments, in association with CFL manufacturers; free distribution of CFL to BPL consumers; support to local bodies for change-over to CFL or T8 tubelight fittings in street lights; and promotion of energy efficient pumps etc., can be taken up quickly provided detailed implimentable schemes are prepared in collaboration with manufacturers of CFL and other equipments where necessary. The Commission would be willing and happy to grant concession in tariff for consumers who adopt these measures.

The CSEB should prepare workable schemes as early as possible. To begin with, at least on use of CFL in place of incandescent lamps and energy efficient pumps schemes should be taken up. It would be useful if use of CFL and of energy efficient pumps are made necessary condition for all new connections. However, the Commission would like to leave it to the Board to come with workable schemes.

7.4 ADVICE TO THE STATE GOVERNMENT

The Commission, in exercise of its advisory jurisdiction U/S 86(2) of the Act, had brought the following issues to the notice of the State Government in its last tariff order for the year 2006-07 and had requested for necessary action:

(i) Rationalization of electricity duty (This was carried over from the earlier tariff order) ;

(ii) Remittance of actual collection of ED by the Board to the State Government and provision of collection charges to the Board;

(iii) Waiver of ED on auxiliary consumption for CSEB's generating stations; and

(iv) Settlement of subsidy receivable from the State Government on account of bifurcation of erstwhile Board of M.P.

These issues were considered important enough to be brought to the notice of the State Government. However, we have received no response from the State Government on these so far. In view of this position the Commission does not wish to add to the already pending list and will be pursuing with the State Government for their response on these issues.

Annexure-I

LIST OF OBJECTORS WHO SUBMITTED WRITTEN OBJECTIONS

1	Shri Birendra Kumar Soni, Member, State Advisory Committee, Near Old Bus Stand, Dongargarh, Dist. Rajnandgaon.
2	Shri Amar Dhawana, Working President, Chhattisgarh Chamber of Commerce & Industries, Devilal Vyapar Udyog Bhawan, 2nd Floor, Bombay Market, Raipur
3	Shri Sunil Kumar Soni, Mayor, Nagar Palika Nigam, Malviya Road, Raipur
4	Shri B.K. Sharma, Member, State Advisory Committee, HIG-30, Sec-1, Pt. Deen Dayal Upadhaya Nagar, Raipur
5	Shri Mahesh Kakkad, Chairman, Chhattisgarh Udyog Mahasangh, Punjabi Colony, Katora Talab, Raipur
6	Shri Nitin Singhvi, Member, State Advisory Committee, LIG-59, Sec-1, Shankar Nagar, Raipur
7	Shri Bahadur Ali, Managing Director, Indian Broiler Group, Baldeo Bag, Rajnandgaon
8	Shri Lalit Kumar Singhania, Chairman, Environment Energy Foundation, 205, Main Road, Samata Colony, Raipur
9	Shri Shivendra Agrawal, Agrawal House, 53, Sunder Nagar, Raipur
10	General Manager (Elect.) Steel Authority of India Limited, Bhilai Steel Plant, Bhilai
11	Shri Ravi Rajagopal, AVP (Legal), Bharat Aluminium Company Ltd. (BALCO) PO.-Balco Nagar, Korba
12	Dy. Chief Electrical Engineer, South East Central Railway, Bilaspur
13	Shri Ramswaroopdas Niranjan Lal Charitable Trust, Vandana Bhawan, M.G. Road, Raipur
14	Shri Ashok Surana, President, Chhattisgarh Mini Steel Plant Association, 23/130, R.S. Shukla Road, Raipur
15	Shri Jayraj Jain, President, Dhamtari Gramin evam Shahri Chakki va Huller Mill Sangh, Bilai Mata Mandir, Dhamtari

16	Sh. S.N. Bhattacharya, Vice President, M/sJayaswals Neco Ltd., Steel Plant Division, Siltara Growth Centre, Bilaspur Road, Siltara, Raipur
17	Sarpanch, Gram Panchayat Arjunda, Vikas Khand Gunderdehi, Dist. Durg
18	Director, Chhattisgarh Renewable Energy Development Agency, MIG-A/20-1, Sector-1, Shankar Nagar, Raipur
19	All India Private Hospitals & Nursing Homes Association, Raipur Chapter, Tagore Nagar, Raipur
20	Shri Prashant Thengdi, Chhattisgarh Youth Congress Committee, Meena Bhawan, Santoshi Chowk, Raipur
21	Confederation of Indian Industry (CII), 193, Civil Lines, Raipur
22	Shri Bhanwar Lal Sethia, Near Itwari Bazar, Dhamtari
23	Shri H.P. Gupta, Aryan Coal Benefications Pvt. Ltd., Rajendra Nagar Chowk, Link Road, Bilaspur
24	CG Biomass Energy Developers Association, C-33, 3rd floor, Ashoka Millennium, Ring Road, No. 1, Rajendra Nagar Chowk, Raipur (C.G.) 492001
25	M/s Essar Steel Chhattisgarh Ltd., Ashoka Millennium, Ring Road No.1, Raipur
26	Shri Gopal Mukherjee, Chairman, Rajkishore Nagar Samanvay Samiti, Rajkishore Nagar, Bilaspur

Annexure-II

LIST OF PERSONS WHO ATTENDED THE PUBLIC HEARINGS

Sl No.	Name & Address
1.	Shri Mohan Anti, Advocate, Raipur
2.	Shri J. S. Walia, BMS, Raipur
3.	Shri Dharampal Kailash, M/s Cosmos Casting Ind. Ltd., Raipur.
4.	Shri B.K. Sharma, Member, State Advisory Committee, and Ex-Member, CSEB, Raipur
5.	Representatives of M/s IB Group of Poultry, Rajnandgaon
6.	Shri S.P. Naik, M/s Jayaswals Neco Ltd., Raipur
7.	Shri G. K. Chhangani, CII, Raipur
8.	Shri C.P. Sharma, Advisor, RASL, Raipur
9.	Shri Vijay Bothra, CG Mini Steel Plant Association, Raipur.
10.	Shri R. K. Tola, M/s MFP Ltd., Raipur.
11.	Shri J. S. Saini, M/s Super Iron & Steels Ltd.
12.	Shri Anil Agrawal, M/s Agrawal Steel Mill, Raipur.
13.	Shri Sunil Agrawal, M/s Krishna Iron Strips & Tubes Pvt. Ltd., Raipur.
14.	Shri O.P. Gupta, M/s Steel Abrasive Industries Ltd., Raipur.
15.	Shri M. Dhuppad, M/s C.G. Ferro Traders (CSMPA), Raipur.
16.	Representative of M/s Ramesh Steel Industries Tatibandh, Raipur
17.	Representative of M/s A.C. Stripes Pvt. Ltd., Raipur
18.	Representative of M/s A.C. Steels, Raipur
19.	Shri Prashant Thengdi, Secretary, CG Youth Congress Committee, Raipur
20.	Shri Mahesh Kakkad, CG Udyog Mahasangh, Raipur
21.	Shri Arun Tayal, M/s Kailash Castings (P) Ltd., Raipur.
22.	Shri Abhay Singh, M/s Kailash Castings (P) Ltd., Raipur.
23.	Shri Ramswaroopdas Niranjan Lal Charitable Trust, Raipur
24.	Shri Alok Chowdhary, M/s Raghuveer Ferro Alloys (P) Ltd., Raipur
25.	Shri P. Vamsi Varma, M/s Srinivas Ferro Alloys, Raipur.
26.	Shri S. Shome, Head Finance (Power), BALCO, Korba
27.	Shri Jigar Shah, Asst. Mgr, (Finance), BALCO, Korba
28.	Shri D.K. Sahu, AGM, BSP, Bhilai
29.	Shri S.C. Tripathi, DGM, BSP, Bhilai
30.	Shri Bhadudi, AGM (Fin) , BSP, Bhilai
31.	Shri C.S. Sharma, DGM, BSP, Bhilai
32.	Shri Y.L. Rao, DGM (Electrical-Energy cell) , BSP, Bhilai
33.	Shri C.P. Sharma, Advisor, SEML, Raipur
34.	Shri Sudhir Ranjan, Chief Electricial Services Engineer, South Eastern Central Railway, Bilaspur
35.	Shri Yogesh Partaity, Dy. CEE, South Eastern Central Railway, Bilaspur
36.	Shri B.N. Patel, S.E, South Eastern Central Railway, Bilaspur
37.	Shri Pankaj Chauhan, Section Engineer, South Eastern Central Railway, Bilaspur
38.	Shri D.K. Sharma, JE¸ South Eastern Central Railway, Bilaspur
39.	Shri O.P Shrivastava, G.M. (E&M), South Eastern Coal Fields Ltd. (SECL), Bilaspur

40.	Shri R.P.Garg, Dy. CE (E&M), South Eastern Coal Fields Ltd. (SECL), Bilaspur
41.	Shri L. Prasad, Dy. CE (E&M), South Eastern Coal Fields Ltd. (SECL), Bilaspur
42.	Shri Gopal Mukherjee, President, Raj kishore Nagar Samanaya Samiti, Bilaspur
43.	Shri B.K.Mallick, Raj kishore Nagar Samanaya Samiti, Bilaspur
44.	Shri A.K. Sen, Raj kishore Nagar Samanaya Samiti, Bilaspur
45.	Shri A.P. Mooley, Raj kishore Nagar Samanaya Samiti, Bilaspur
46.	Shri B.P. Choubey, Raj kishore Nagar Samanaya Samiti, Bilaspur
47.	Shri A.G. Sawaimal, Raj kishore Nagar Samanaya Samiti, Bilaspur
48.	Shri Vijay Sahu, Raj kishore Nagar Samanaya Samiti, Bilaspur
49.	Shri N.P.S. Rao, Raj kishore Nagar Samanaya Samiti, Bilaspur
50.	Shri S.V. Shivkumar, Raj kishore Nagar Samanaya Samiti, Bilaspur
51.	Shri Harish Kedia, President, Chhattisgarh Laghu & Sahayak Udyog Sangh, Bilaspur
52.	Shri S.K. Mishra, Chhattisgarh Laghu & Sahayak Udyog Sangh, Bilaspur
53.	Shri Sunil Marda, M/s Gautam Plastics, Bilaspur
54.	Shri Anil K. Shivdasani, M/s Maa Mahamaya Steels (P) Ltd, Sirgitti, Bilaspur
55.	Shri Arun Kumar Sinha, Vill- Bahtarai, Bilaspur
56.	Shri Ramesh Kochar,102, Shanti Apartment, Tikrapara, Bilaspur
57.	Shri A.K. Agarwal, Vinoba Nagar, Bilaspur
58.	Shri Arshad Ahmed Zunjani, A/S 78, Arya Nagar, Bilaspur
59.	Shri Pannalal Adale, Near Discipal Church, Turbahar Road, Bilaspur
60.	Shri R.B. Tiwari, Bilaspur
61.	Shri Prakash Singh Parihar, Haribhoomi
62.	Shri Neerajdhar Diwan, Haribhoomi
63.	Shri Abdul Aslam, Deshbandhu
64.	Shri Radhakrishna Sharma, Nai Duniya
65.	Shri Irshad Ali, Abhi Tak, TV News
66.	Shri P.R. Bothra, Vice President, Chhattisgarh Udyog, Jagdalpur
67.	Shri B. Patnaik, ESSAR Steel Chhattisgarh Ltd., Kirandul
68.	Shri Rekhcand Jain, General Secretary, Chamber of Commerce & Industries, Jagdalpur
69.	Shri Rakesh Pandey, Deshbandhu
70.	Shri K. K. Vasudevan, Deshbandhu
71.	Shri Rajendra Pandey, Vice President
72.	Shri V.K. Heliwal, M/s Heliwal Cold Storage, Jagdalpur
73.	Shri Ashok Somani, M/s Indrawati Cold Storage, Jagdalpur
74.	Shri Alok Dev, Sr. Dy. Director, Publicity
75.	Shri Sanjeev Giswars, Hotel Poonam, Jagdalpur
76.	Shri Mohd. Firoz, Hotel Bastariya,
77.	Shri Ajay Shukla, Hotel Akash
78.	Shri P.D. Agarwal, 62- Brij Raj Nagar, Jagdalpur

LIST OF OFFICERS FROM CSEB WHO ATTENDED THE PUBLIC HEARING

1.	Shri Manoj Dey, Member (T&D)
2.	Shri V. K. Awasthi, CE (Comm.), Raipur
3.	Shri A. K. Tiwari, CE (RR), Raipur
4.	Shri G. S. Deshpande, CE (O&M), Raipur
5.	Shri G.L. Bizora, CE (BR) Bilaspur
6.	Shri S. P. Sharma, Director (Fin) Raipur
7.	Shri A. Bhatnagar, SE (Comm.), Raipur
8.	Shri G. C. Mukherjee, SE (O&M),Raipur
9.	Shri G.L. Patel, SE (O&M) Bilaspur
10.	Shri A.K. Sahu SE, Jagdalpur
11.	Shri Anil Jerath, Addl. Dir (Fin), Raipur
12.	Shri R.A. Pathak, EE (West), Raipur
13.	Shri M.K. Sinha, EE (O&M), Jagdalpur
14.	Shri G. Anand Rao, EE, Jagdalpur
15.	Shri R.K. Awasthi, ASE (City), Bilaspur