

**CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION
RAIPUR**



Order passed on 13th September, 2006

**in
Petition No. 24/2006(T)
(Under Section 45, 46, 62 and 64 of Electricity Act, 2003 and clause 30 of
C.S.E.R.C. (Conduct of Business) Regulations, 2004**

**In the matter of
Determination of Annual Revenue Requirement (ARR) and
Retail Supply Tariff FY 2006-07**

**Chhattisgarh State Electricity Board,
Danganiya, Raipur**

-

Applicant

On behalf of CSEB

:

- 1. Shri V.K. Jain,**
- 2. Shri G.S. Deshpande
Chief Engineer (Commercial),
and other officers of
CSEB, Raipur,**

**CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION
RAIPUR**



Petition No. 24/2006(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 2006-07 for the Chhattisgarh State Electricity Board**

ORDER

(Passed on 13th September, 2006)

This order deals with the application filed by the Chhattisgarh State Electricity Board (CSEB or the Board, for short) under sections 45, 46, 62 and 64 of the Electricity Act, 2003 (the Act) for determination of retail supply tariff for the financial year 2006-07, based on its total annual revenue requirement during the year and the revenue gap anticipated therein. The Commission having considered the documents and information filed with the application by the CSEB and filed subsequently in course of consideration of the application, as also those available on record, and having heard the applicant, the interveners, the consumers and representatives of consumers in the public hearings held, hereby passes this order on the tariff application.

2. In passing this order, the Commission has been guided by the principles enunciated in section 61 of the Act, that the tariff should 'progressively reflect cost of supply for electricity' and also 'reduce and eliminate cross-subsidies', 'safeguard consumers' interest' and recover the cost in a reasonable manner. The Commission has issued Regulations under Section 181(2)(zd) of the Act on the terms and conditions of tariff which are based on these principles and which have been followed in this order. The Commission has also been guided by the National Tariff Policy (NTP), which lays down a framework for performance based cost of service regulations (para 5.3). The NTP mandates introduction of an incentive based regulation regime through a multi-year tariff (MYT) framework. In spite of the clear prescription of the NTP that MYT framework "be adopted for any tariffs to be determined from April, 2006" [para 5.3(h)], it has not been possible to do so for many reasons. For introducing MYT regime, the prime requirement is of baseline data. Although CSEB has been in existence for around six years now, it has not so far instituted an efficient information system to facilitate acquisition of necessary operational data. No studies have been conducted so far to yield the baseline data on various efficiency parameters, especially voltage-wise T&D losses. Meterization has not been completed and no energy audit has been conducted so far to arrive at the extent of transmission and distribution losses. The Board has taken more than one year to operationalise billing as per the last tariff order of this Commission, which is effective from 1.7.2005. Voltage-wise cost of supply is not available. Thus there is no data available for setting efficiency parameters. Secondly, the Board has not prepared its medium-term and long-term business plans and the capital investment plan, apparently in anticipation of restructuring. In such a scenario, introducing MYT will be nothing short of a leap in the dark. Depending on the assumptions made in the absence of reliable data acquired through necessary studies, introduction of a MYT regime shall be detrimental to the interest of the Board as well as the consumers. The Commission, therefore, has not insisted on MYT regime from the current year. Looking to the present state of preparedness, the Commission feels that it would be possible to introduce MYT only in the year 2008-09 for which the Board has to take the necessary steps now. Directions are being issued to the Board separately in this order for the preparatory action it is required to take for MYT.

3. In the examination of the revenue requirement projected by CSEB, the Commission has been guided by the norms laid down in the NTP and by the Central Electricity Regulatory Commission. We have taken into consideration the views expressed by the various stakeholders on the ARR and the tariff proposals in the public hearings, which in some cases, we are happy to note, were based on in-depth analysis of data and information furnished by the Board. The Commission has taken care to ensure that the revenue requirement includes as far as possible only reasonable and prudent expenditure which is required to be made to maintain and enhance the quality of service and the operational and financial efficiency of the Board. The Board had projected a total revenue requirement of Rs. 3215.52 crore for the year and a revenue gap of Rs.469.52 crore, with the existing tariff. On detailed scrutiny, however, the Commission has approved the revenue requirement at Rs.2740.09 crore and a revenue surplus of Rs.23.91 crore with the existing tariff. This has brought down the average cost of supply from the projected Rs.3.74 per KWh to Rs.3.20. The tariffs have been determined accordingly.

4. An attempt has been made to further rationalize the various tariff categories and take the process a step forward from the beginning made in the first tariff order passed by this Commission last year. This process of rationalization will reduce cross-subsidy, as mandated by the Act as also the NTP and gradually bring retail tariff close to the cost of supply. But this exercise will be more purposive when consumer category-wise and voltage-wise cost of supply is available; it is unavailable at present. The Commission has not, in the absence of such data, laid down the trajectory for reduction of cross-subsidy.

5. This order is in seven parts (chapters) which include a detailed analysis of the annual revenue requirement (chapter 4). The Commission directs the CSEB to take immediate steps to implement the order after giving a public notice of seven days in accordance with Clause 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 October, 2006. Normally tariffs should have been made applicable from the

beginning of the financial year but for the inordinate delay of six months in submission of the tariff application by CSEB. The order is based on revenue requirement for the whole year (2006-07) and tariffs have been determined on that basis. But the order will be effective only during half of the year. The total revenue surplus for the whole year is assessed at Rs. 23.91 crore (chapter 4) and hence the revenue surplus will be of the order of about Rs.12 crore only for the half year, which we consider as negligible. The Commission has, therefore, not taken into account the additional revenue which the Board may earn during the first six months of the current year, in the determination of tariff. The Board is directed to take all necessary steps for implementation of this tariff order so that the revised tariff is made effective to all HT and LT consumer categories and billing is done as per the revised tariff with effect from the 1st of October, 2006.

6. This order shall remain in force till 31st March, 2007 or till the next tariff order of this Commission, whichever is later.

7. The Commission expects the Board to comply with the directions given in this order including the directions given in the last tariff order, many of which have not so far been complied with and have been repeated in this order.

Sd/-
Sarat Chandra
Member

Sd/-
S.K. Misra
Chairman

Table of Contents

	Page No.
Chapter 1: Introduction.	
1.1 Background	1
1.2 NTP and new regulations	1
1.3 Brief note on tariff filing	1
1.4 Public hearing	5
1.5 State Advisory Committee meeting	5
 Chapter 2: Operational and Financial performance of CSEB.	
2.1 General	7
2.2 A brief overview of CSEB	7
2.3 Generation	7
2.3.1 Installed capacity	8
2.3.2 Capacity addition	9
2.3.3 Plant load factor and availability	9
2.3.4 Operational performance of thermal and hydel plants ..	10
2.4 Transmission	11
2.4.1 Transmission losses	11
2.4.2 Capacitor Installation	12
2.5 Distribution	12
2.5.1 Distribution network	12
2.5.2 Consumer profile	12
2.5.3 Distribution losses	13
2.5.4 Failure rate of transformers	14
2.6 Demand and supply position	14
2.7 Energy balance	16
2.8 Financial performance of the Board	16
2.8.1 Financial performance of CSEB: Profit and loss account	17
2.8.2 Balance sheet	18
2.8.3 Energy sales and revenue	19
2.8.4 Functional break up of costs	19

2.9	Rural electrification	20
2.10	Progress of reforms in the state electricity sector	21
2.10.1	Restructuring of the CSEB	21
2.10.2	Reforms in the distribution sector	21
2.10.3	Meterisation	22
2.10.4	Energy audit	22
2.10.5	Billing and collection efficiency	22
2.10.6	Consumer focus	23

Chapter 3: Objections and suggestions from public/consumers and CSEB's response.

3.1	Inviting objections	24
3.2	Public hearings	24
3.3	Objections received and CSEB's replies	24
Issue 1	Performance of generating stations and generation availability	25
Issue 2	Non-compliance of directives of the Commission in Tariff Order, 2005	25
Issue 3	Load shedding of LT categories during peak load hours	25
Issue 4	High T&D losses and need for reduction of losses and study of voltage wise system losses	26
Issue 5	Contribution to CM's relief fund	26
Issue 6	Quantum of power purchase and power purchase cost.	26
Issue 7	Rate of power purchase from CPPs	27
Issue 8	Audited accounts	27
Issue 9	Bad debts	27
Issue 10	Other expenses (employee cost, A&G expenses etc.).. . . .	27
Issue 11	Income tax payment	28
Issue 12	Calculation of depreciation	28
Issue 13	Return on equity	28
Issue 14	Cost of supply	29
Issue 15	Cross subsidy	29
Issue 16	Assessment of agricultural and BPL consumption	29
Issue 17	Multi year tariff	29

Issue 18	Tariff proposed for HV-6A, low load factor category . . .	30
Issue 19	Issues relating agriculture and allied services	31
Issue 20	Electricity rates for poultry and dairy	32
Issue 21	Lower tariff for battery chargers	32
Issue 22	ToD charges	32
Issue 23	Industries with CPPs to be categorized under HV-6A category	33
Issue 24	Concessional tariff for CPPs drawing start-up power ...	33
Issue 25	Tariff issues relating to fisheries	33
Issue 26	Tariff for herbal plantation	34
Issue 27	Concessions to oxygen, CO ₂ gas and chemical industries	35
Issue 28	Levy of proposed peak load hour surcharge	35
Issue 29	Proposed withdrawal of PF and LF incentives	35
Issue 30	Objection to levy of parallel operation charges	35
Issue 31	Security deposit	35
Issue 32	Seasonal Industries' problems	36
Issue 33	Issues of industrial consumers	36
Issue 34	Issues relating to Railways	38
Issue 35	Issues of Bhilai Steel Plant	39

Chapter 4: Annual revenue requirement for 2006-07 licensee's proposal and Commission's observations and decisions.

4.1	Background.	42
4.2	Capital investment plan for the year 2006-07.	42
4.3	Operational parameters.	44
4.4	Generation.	45
4.4.1	Generating stations of CSEB.	46
4.4.2	Operational parameters of the generating stations.	46
	(a) PLF of thermal stations.	46
	(b) Generation from hydel and Co-generation plants.	48
	(c) Auxiliary consumption of thermal stations.	49
	(d) Auxiliary consumption of hydel and Co-generation plants.	50

	(e) Station of heat rate.	51
	(f) Specific oil consumption.	52
4.4.3	Gross generation	53
4.4.4	Net generation	54
4.5	Expenses	55
4.5.1	Fuel costs	55
	1 Fuel supply	55
	2 Transit & stacking loss of coal	55
	3 Fuel cost	55
	4 Total fuel cost	57
	5 Other variable costs	58
4.5.2	O&M expenses	60
	(a) Employee cost.	60
	(b) Repair and maintenance expenses.	63
	(c) Administration and general expenses.	64
4.5.3	Interest and finance charges.	66
4.5.4	Capitalization of interest & other expenses for generation.	67
4.5.5	Depreciation	67
4.5.6	Reasonable return.	70
4.5.7	Provision of income tax.	72
4.5.8	Provision for bad debts and other debts.	74
4.5.9	Other income.	74
4.5.10	Annual revenue requirement - Generation	74
4.5.1	Generation tariff.	75
4.6	Transmission.	75
4.6.1	O&M expenses.	75
	(a) Employee cost.	76
	(b) Repair and maintenance expenses.	76
	(c) Administration and general expenses.	77
4.6.2	Interest and finance charges.	77
4.6.3	Capitalization of interest & other expenses	78
4.6.4	Depreciation.	78

4.6.5	Reasonable return.	78
4.6.6	Provision for income tax.	79
4.6.7	Other income.	79
4.6.8	ARR for transmission.	79
4.6.9	Transmission tariff/charge.	79
4.6.10	Transmission charges for open access.	80
4.7	Distribution.	81
4.7.1	Category-wise consumers.	81
4.7.2	Projected energy sales	83
	(a) LT consumers	84
	(b) HT consumers	86
4.7.3	Category-wise energy sales.	89
4.7.4	T&D losses.	91
4.7.5	Energy requirement.	94
4.7.6	Energy from own generation.	94
4.7.7	Energy balance.	95
4.7.8	Purchase of energy.	95
4.7.9	Expenses.	97
	1 Power purchase expenses.	97
	2 Regulation of purchase of power.	99
	3 Merit order for purchase.	100
4.7.10	O&M expenses.	101
	(a) Employee cost.	101
	(b) R&M expenses.	101
	(c) Administration and general expenses.	102
4.7.11	Interest and financing charges.	103
4.7.12	Capitalisation of interest and other expenses	104
4.7.13	Depreciation.	104
4.7.14	Reasonable return.	104
4.7.15	Provision of income tax.	105
4.7.16	Doubtful and bad debts.	105
4.7.17	Other income.	105
4.7.18	Annual revenue requirement - Distribution	105

4.8	Wheeling charges.	106
4.9	Annual revenue requirement of CSEB	107
4.10	Revenue estimation and gap.	109
4.10.1	Other income.	109
4.10.2	Income from existing tariff.	111
4.10.3	Revenue gap.	113
4.10.4	Revenue from approved tariff.	113
4.11	Cost of supply.	114
4.12	Average EHT/HT tariff for 2006-07	116
4.13	Cross subsidy.	116
4.13.1	Reduction in cross subsidy.	117
4.13.2	Cross subsidy surcharge.	117

Chapter 5: Tariff principles and design

5.1	Introduction.	118
5.2	Tariff proposed by the Board and approved by the Commission ...	119
5.3	Tariff categories	120
A.	L.T. categories.	120
B.	H.T. categories.	121
5.4	L.T. tariff.	122
5.4.1	Domestic	122
5.4.2	Non-domestic.	123
5.4.3	Agriculture.	124
5.4.4	Agriculture allied services.	125
5.4.5	L.T. industries.	125
5.4.6	Public utilities.	126
5.4.7	L.T. temporary supply.	126
5.5	H.T. tariff.	126
5.5.1	Railway traction.	126
5.5.2	Cement factories.	126
5.5.3	Coal mines and heavy industries.	126
5.5.4	Steel industries.	127
5.5.5	Other industries.	127

5.5.6	Low load factor industries and start-up power.	127
5.5.7	Bulk supply and residential.	128
5.5.8	General purpose non-industrial	128
5.5.9	Public water works.	128
5.5.10	Irrigation.	128
5.5.11	Temporary supply.	128
5.6	ToD tariff.	129
5.7	Power factor incentive and penalty.	129
5.8	Load factor incentive.	131
5.9	Monthly minimum charge.	131
5.10	Miscellaneous and general charges	132
5.11	Tariff schedule for low tension consumers	133
5.12	LT temporary supply	138
5.13	Terms and conditions of LT tariff.	139
5.14	Tariff schedule for HT consumers.	143
5.15	HT temporary connection	152
5.16	Time of day tariff	153
5.17	Terms and conditions of HT tariff.	154
5.18	Parallel operation charges	158
5.19	Open access charges.	158
5.20	Schedule of miscellaneous and general charges.	159
Chapter 6: Variable cost adjustment formula		162
Chapter 7: Directives to CSEB		
7.1	General	165
7.2	Directives issued in Tariff Order for 2005-06 : Compliance.	165
7.2.1	MIS.	165
7.2.2	Energy efficiency cell at generating stations.	166
7.2.3	Installation of weightometers in generating stations.	167
7.2.4	Transformer failure	167
7.2.5	Reduction in T&D losses	168
7.2.6	Assessment of load factor of agriculture pumps.	169

7.2.7	Energy audit and DSM	169
7.2.8	Cent percent metering	170
7.2.9	Replacement of stopped/defective meters	171
7.2.10	Efficient meter reading, billing and collection	172
7.2.11	Collection efficiency	172
7.2.12	Arrears list	173
7.2.13	Recovery of arrears.	174
7.2.14	Cost of supply and cross subsidy	175
7.2.15	Consumer care	175
7.2.16	Consumer grievance redressal	176
7.2.17	Power purchase and procurement	176
7.2.18	Asset register	177
7.2.19	Financial management	177
7.2.20	Cadre management	178
7.2.21	Training of personnel	178
7.2.22	Improving operational efficiency by competition.	178
7.2.23	In-house management consultancy cell.	179
7.2.24	Procurement and inventory management.	179
7.2.25	APDRP.	179
7.2.26	Improved governance.	180
7.2.27	Investment programme.	180
7.2.28	Audit of accounts.	180
7.2.29	New generation projects.	181
7.3	New directives	181
7.3.1	Checking of power theft	181
7.3.2	Consumer interface	182
7.3.3	HT consumer cells	182
7.3.4	Rural feeder management	183
7.3.5	Connections to BPL consumers	183
7.3.6	Gratuity and pension fund	184
7.3.7	Subsidy from the State Government	184
7.3.8	Energy audit of power stations	184
7.3.9	Transmission plan	185

7.3.10	Data management	185
7.4	Advice to the State Government	185
7.4.1	Rationalization of electricity duty	185
7.4.2	Collection of ED by the Board on behalf of the State Government	186
7.4.3	ED on auxiliary consumption in CSEB's generating stations	186
7.4.4	Subsidy receivable from the State Government	186
Annexure	List of objectors	187

Chapter 1. Introduction

1.1 BACKGROUND

Chhattisgarh State Electricity Board (CSEB/Board) is a vertically integrated power utility responsible for electricity generation, transmission and distribution in the State of Chhattisgarh. This is the second tariff petition filed by CSEB before this Commission. CSEB submitted its first tariff application for the year 2005-06 on 1st March, 2005 and the Commission passed its first tariff order on 15th June, 2005.

1.2 NTP & NEW REGULATIONS

Since the first tariff order was passed in June, 2005, the National Tariff Policy (NTP) has been notified by the Government of India. The Commission has, in pursuance of the Electricity Act, issued the following regulations which would impact on the tariff setting principles and norms:

- The Chhattisgarh Electricity Regulatory Commission (Intra-State Open Access in Chhattisgarh) Regulations, 2005 on 30th July 2005
- The CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006 on 1st March 2006
- Guidelines for Power Purchase and Power Procurement Process, on 22nd March 2006

The Commission in dealing with this second tariff petition has been guided by the norms and principles set out in the NTP and the above regulations in scrutinizing the Annual Revenue Requirement of CSEB and determining the retail tariffs.

1.3 BRIEF NOTE ON TARIFF FILING

1.3.1 CSEB was required to submit its application to the Commission for approval of Annual Revenue Requirement (ARR) and determination of retail tariff for the year 2006-07 by 30th November 2005 as required under clause 30 of the CSERC (Conduct of Business) Regulations, 2004 and clause 6 of the CSERC (Details to be furnished by licensee, etc.) Regulations, 2004.

1.3.2 CSEB requested on 14.11.2005 for extension of time for submission of the tariff application by three months on the ground that the audited accounts for the years 2003-04 to 2005-06 were not available and that CSEB was likely to be restructured on or before 09.12.2005. The Commission permitted time up to 31.1.2006 for submission of the tariff application vide letter dated 22.11.2005. While reminding the Board on 10.1.2006, the Commission informed the Board that the proposal of tariff shall be guided by the multi-year

tariff principles as mandated under the NTP. CSEB again requested on 19.01.2006 for further extension of time, this time on the ground that they would require some more time to comply with the various provisions of the National Tariff Policy which was recently notified. The Commission permitted further time upto end of February 2006 for submission of the tariff application. CSEB vide letter dated 28.02.2006 informed the Commission that due to inadequacy and consequent frequent changes in validation of required data, the preparation of ARR was taking time. In the circumstances, CSEB again requested for further time for submission of tariff application upto 31.03.2006. The Commission vide its letter dated 02.03.2006 advised the Board that the proposal was for availing extension of time for five months from the due date of submission which was not justified. However, in view of difficulties pointed out by the Board, the time for submission of the tariff application was extended up to the end of March, 2006.

In the meantime, the Board requested the Commission to exempt it from filing the multi-year tariff (MYT) petition on the ground that the requisite data base was not ready. The Commission advised the Board on 16.03.2006 to consider engaging a consultant for indicating the requirement of the data to prepare multi-year tariff petition if not for the current year, at least for the next year and directed that the necessary preparatory action be commenced. The Board informed the Commission on 29.03.2006 that the tariff proposal could not be discussed in detail for final approval of the Board and therefore requested for extension in time up to 15.04.2006, which was acceded to by the Commission. The application for determination of tariff for the year 2006-07 was submitted by the Board on 13.04.2006, after a delay of more than four months.

- 1.3.3 A copy of the application was sent to the consultant of the Commission, the Administrative Staff College of India, Hyderabad, for scrutiny. The inadequacies/discrepancies noted by the consultant and the staff of the Commission were brought to the notice of the Board vide the Commission's letter dated 24.04.2006 and the matter was also discussed with the Chairman and Members of the Board. Since it entailed modification in both the formats and write up, the application was returned to the Board on 24.04.2006 and the Board was advised to submit the modified application within 10 days. The Board in its letter dated 02.05.2006, however, stated that rectification of discrepancies can not be completed within 10 days and therefore requested the Commission to allow submission of application by 31.05.2006. The Commission first permitted time up to 15.05.2006, but again on the request of the Board made vide letter dated 09.05.2006, ultimately permitted submission of petition by 31.05.2006. The revised tariff application was submitted by the Board only on 30.05.2006, six months beyond the due date. The application was registered by the Commission as petition No.24/2006(T) on 05.06.2006.

1.3.4 A copy of the final petition was sent to the consultant of the Commission for scrutiny. Technical validation discussions were held between 12.6.2006 and 16.6.2006 which were attended by the staff of the Commission, officers of the Board and consultants of both the Board and the Commission. During discussions, the Board was advised to furnish the following additional information/data which were considered material for examination of the ARR:

- (i) Details of major repair and maintenance expenses incurred in the year 2005-06.
- (ii) Year-wise statement of surplus and reserves including manner in which these are utilized/invested.
- (iii) Details of capital expenditure (scheme-wise) for the year 2005-06 and capital expenditure plan for the year 2006-07.
- (iv) Details of interest and other expenses capitalized in the year 2005-06.
- (v) Details of assessment of load factor for agricultural pumps. – Not submitted.
- (vi) Voltage level-wise assessment of losses. - Not submitted.
- (vii) Circle-wise losses, collection efficiency and AT&C losses. - Not submitted.
- (viii) Annual overhauling plan of the generating units for the year 2006-07.
- (ix) Chemical analysis report of GCV of coal.
- (x) Copy of provisional annual accounts of last years.
- (xi) Progress of meterisation of feeders and consumers.
- (xii) PLF targets set by the Ministry of Power for generating plants.
- (xiii) Details of HT and LT arrears.
- (xiv) Any study report on transmission and distribution system planning. - Not submitted.
- (xv) Capital works in progress.
- (xvi) Details of power factor incentive and penalty billed in last year.
- (xvii) Details of load factor incentive.
- (xviii) Details of billing in the three slots of TOD tariff, etc.

Most of the requisite information/data was submitted by the Board.

1.3.5 The Board was also asked to submit a gist of the tariff petition in Hindi proposed to be published for the benefit of those consumers, who do not wish to go through the tariff petition in detail and in English. The matter of notice in Hindi and English proposed to be published in newspapers was received only on 26.6.2006 and was approved on 28.6.2006.

1.3.6 Determination of tariff, which affects all consumers, is required to be done in a transparent manner providing adequate opportunity to all stakeholders for making suggestions and comments as mandated under section 64(3) of the Act. Accordingly, a brief of the existing and proposed tariff was published by the Board on 30.06.2006 and 01.07.2006 in the following newspapers having wide circulation in the State:

- Dainik Bhaskar (Hindi)
- Nav Bharat (Hindi)
- Hari Bhumi (Hindi)
- The Hitavada (English)

The gist of the additional filing was published in the following newspaper:

- Dainik Bhaskar (Hindi)
- Nav Bharat (Hindi)
- Hari Bhumi (Hindi)
- The Hitavada (English)

Copies of the tariff petition were sent by the Commission to the Energy Department of the State Government and to the members of the State Advisory Committee for their suggestions/comments.

Copies of the tariff petition (in English), and its summary in Hindi, were made available for sale to the members of the public in the offices of the Chief Engineer (Commercial), CSEB at Raipur; all regional field offices of CSEB at Raipur, Bilaspur, Jagdalpur, Rajnandgaon and Ambikapur; all circle offices of CSEB at Raipur, Durg, Rajnandgaon, Bilaspur, Jagdalpur, Ambikapur, Champa and Raigarh and in the Commission's office at Raipur. The petition was also posted on the website of the CSEB. The last date for submission of written objections/suggestions was fixed as 20.7.2006. Thus a period of 21 days was allowed to the public for filing objections.

Consumers of various categories raised various issues/objections/comments on the tariff petition filed by the Board. The Commission asked the Board to give its response on the issues raised by the objectors. These have been dealt with in Chapter- 3 of this order.

1.3.7 CSEB made an additional filing to the petition No.24/2006(T) in respect of the revenue from the existing and proposed tariff and the depreciation, stating that the revenue was calculated at 100% of contract demand and there was a mistake in calculation of depreciation. In this amendment, the revenue was calculated at 75% of contract demand. This was accepted by the Commission.

The gist of the above modification was published in newspapers on 27.07.2006 and a public hearing was held at Raipur on 11.8.2006 after giving due notice in the newspapers of 6.8.2006.

1.4 PUBLIC HEARING

With a view to give adequate opportunity of personal hearing to the objectors, the Commission held public hearings at the following four places in the State:

Table-1.1
Tariff Hearings

S.No.	Place	Date of public hearing
1	Bilaspur	29.07.2006
2	Ambikapur	01.08.2006
3	Raipur	03.08.2006, 04.08.2006 & 11.08.2006
4	Jagdalpur	12.08.2006

Notice for public hearings were published in the following leading newspapers of the State on 27.7.2006, 2.8.2006 and 6.8.2006:

- Nav Bharat (Hindi)
- Dainik Bhaskar (Hindi)
- Hari Bhumi, Bilaspur (Hindi)
- The Hitvada (English)

Besides, wide publicity was also given through local newspapers at Bilaspur, Ambikapur and Jagdalpur. The public hearing at Jagdalpur scheduled on 08.08.2006 was re-scheduled to 12.08.2006 on account of heavy rains in the area.

Comprehensive public hearings were held at the above four places in which not only hearing on the representations / comments received was held but an opportunity was given for open hearing to all participants, irrespective of whether they had submitted objections / comments on the tariff application or not. Thus the Commission made efforts to hold wider consultations for arriving at its conclusions / decisions on the ARR and tariff filing. Chapter-3 gives details of the public hearing.

1.5 STATE ADVISORY COMMITTEE MEETING

A special meeting of the State Advisory Committee, constituted under section 87 of the Act, was convened on 14.07.2006 to elicit their views and advice on the tariff application. The Board gave a presentation in the meeting. Various aspects of the tariff application were discussed by the members in the

meeting and they gave valuable suggestions for consideration of the Commission. Some of the main suggestions were as under:

- (i) CSEB be directed to install weightometers at the earliest so that the realistic assessment of coal consumption could be made.
- (ii) Load management may be done according to the HT and LT consumption so as to reduce losses.
- (iii) There should be separate tariff category for Food Processing units or it may be included in Agriculture Allied Services category.
- (iv) The energy charges for HV-6 and HV-6 A may be increased and the fixed cost of this category may be reduced.
- (v) The tariff in the State must be based on the tariff prevalent in those states which have pithead thermal generating station.
- (vi) Study for consumer category-wise or voltage-wise cost of supply should be carried out for fixing tariffs.
- (vii) CSEB pays Income Tax, which indicates that it is in profit and this may be factored in while determining the tariff.
- (viii) CSEB must comply with the directives issued by the Commission.
- (ix) Power factor incentive must be continued.
- (x) The employees' expenses of CSEB are on the higher side. Donation towards CM's Relief Fund must not be permitted. The provision of bad debts is also projected on the higher side.
- (xi) The level of cross subsidy may be reduced as per the provisions of the Electricity Act, 2003.
- (xii) Energy Auditing and Consumer Indexing must be carried on priority basis and sincere efforts to reduce the T&D losses must be made. Insulated cable may be used in place of bare conductor in theft-prone areas.
- (xiii) Lower tariff may be fixed for traffic signal system.

Chapter 2. Operational and Financial Performance of the CSEB

2.1 GENERAL

A brief analysis of the operational and financial performance of the CSEB is necessary to provide the perspective in which the ARR for the year 2006-07 filed by the Board, may be examined. The objective is also to analyze the existing operational and financial efficiency levels of this single power utility in the State, in relation to the efficiency levels expected of it in terms of the provisions of the Act, the mandates of the National Electricity Policy and the National Tariff Policy, the relevant Regulations issued by this Commission and the last tariff order of the Commission, so that specific areas for improvement may be brought into focus. The Board is yet to introduce a credible management information system. This performance assessment is based on the information provided by the CSEB in the tariff application and separately during consideration of this application.

2.2 A BRIEF OVERVIEW OF CSEB

The CSEB, as already noted, is an integrated power utility responsible for generation, transmission and distribution of electricity in the State of Chhattisgarh. It was created on 15th November 2000, when the new State of Chhattisgarh was carved out of the erstwhile State of Madhya Pradesh. The CSEB is the State Transmission Utility and a deemed licensee in the State for electricity distribution under the transitional provision contained in Section 172(a) of the Electricity Act. The Government of India has agreed to the State Government's proposal for extension of time till 9th December 2006 for the CSEB to continue this status after which it has to be restructured. The Government of Chhattisgarh is required to functionally restructure the CSEB under Sections 131 and 132 of the Act.

2.3 GENERATION

The CSEB has a total installed capacity of 1423.85 MW of its own of which 1280 MW is thermal and 143.85 MW is hydel and co-generation. There has been no major addition to thermal capacity since the inception of the Board. Hydel capacity has also remained more or less stagnant with only a small addition.

2.3.1 Installed Capacity

The CSEB has three coal based, four hydel and one co-generation plant. The details of the plants, their capacity and vintage are as follows:

Table –2.1
Installed Capacity

Sl. No.	Name of Plant	Capacity (MW)	Date of Commissioning
1	Korba (East) TPS Phase II Total Capacity: 200 MW	Unit 1: 50 MW*	September, 1966
		Unit 2: 50 MW*	May, 1967
		Unit 3: 50 MW*	March, 1968
		Unit 4: 50 MW*	October, 1968
2	Korba (East) TPS Phase III Total Capacity: 240 MW	Unit 5: 120 MW*	April, 1976
		Unit 6: 120 MW*	April, 1981
3	Korba West TPS Total Capacity : 840 MW	Unit 1: 210 MW	June, 1983
		Unit 2: 210 MW	March, 1984
		Unit 3: 210 MW	March, 1985
		Unit 4: 210 MW	March, 1986
4	Hasdeo Bango HEP Total Capacity: 120 MW	Unit 1: 40 MW	March, 1994
		Unit 2: 40 MW	November, 1994
		Unit 3: 40 MW	January, 1995
5	Micro Hydel Power Station Korba: Total Capacity 0.85 MW	1 X 0.85 MW	January, 2003
6	Gangrel HEP Total Capacity : 10MW	Unit 1: 2.5 MW	April, 2004
		Unit 2: 2.5 MW	June , 2004
		Unit 3: 2.5 MW	October, 2004
		Unit 4: 2.5 MW	November, 2004
7.	Kawardha Cogeneration	1 X 6 MW	September, 2006
8.	Sikasar HEP	2 X 3.5 MW	September, 2006 – First synchronization
Total Capacity: 1423.85 MW			

**These units were refurbished during September, 2002 to March, 2005 at the total cost of Rs. 374.6 crore.*

The present thermal-hydel mix is about 91: 9, as against a desirable mix of 60:40. There is a need to increase hydel capacity, which will help meeting peak demand. In the absence of such mix, the licensee is compelled to go for purchase of costly power during peak hours. The Board has a share of 283.48 MW, including unallocated share of 49.48 MW, from central generating stations.

2.3.2 Capacity Addition

During 10th Five Year Plan, CSEB has added the following generation capacity:

- 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 in progress and it is expected that the first unit of 250 MW will be commissioned by April '07 and the second unit in next three months thereafter.

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

Plant	Capacity (MW)	Remarks
Korba West Extension (Thermal)	500-600 (2X250 or 2X300)	Pithead Station
IGTPP, Bhailyathan (Thermal)	1320 (2X660)	-Do-
IFFCO Sarguja Joint Venture (Thermal)	1000 (2X500)	-Do-
Marwa (Thermal)	1000 (2X500)	-Do-
Korba South (Thermal)	1000 (2X500)	-Do-

2.3.3 Plant Load Factor & Availability

The details of the plant load factor for CSEB's thermal stations are given in the table below:

Table-2.2
Plant Load Factor & Availability of Thermal Stations

Sl.No.	Plant	2004-05		2005-06	
		PLF	Avail.	PLF	Avail.
1	Korba East Phase II	90.34	93.01	91.92	92.73
2	Korba East Phase III	42.87	48.56	75.49	85.39
3	Korba West	73.94	84.09	78.09	87.00

Korba East Phase III was under refurbishment in 2004-05 and hence the low PLF and availability factor. Units of Korba East phase-II are 38 to 40 years old and have been giving remarkable PLF after refurbishment. Korba East phase-III units are also 25 to 30 years old. After refurbishment, these units have also generated power with over 75% PLF. Korba West units are 20 to 23 years old and have achieved 78% PLF. The performance of 50 MW and 120 MW units of the Board have considerably improved after refurbishment.

Considering the age of 210 MW units, their performance is also comparable to all India average.

The performance of the stations in respect of PLF compares well with the thermal stations having units of the same capacity in the country, as could be seen in Table-2.3 below:

Table - 2.3

Capacity in MW	No. of units Installed	Total capacity in MW	PLF (%)		
			2003-04	2004-05	2005-06
50/57.5	27	1377.5	38.99	42.70	35.62
120	23	2770	34.86	42.89	44.46
200/210	159	33145	79.44	79.76	79.22

Source: CEA

2.3.4 Operational Performance of thermal and hydel Plants

Operating performance of thermal stations of CSEB during the last two years is given below:

Table-2.4
Thermal stations

Particulars	Units	Korba East Phase II		Korba East Phase III		Korba West	
		2004-05	2005-06	2004-05	2005-06	2004-05	2005-06
Capacity	MW	200	200	240	240	840	840
Availability Factor	%	93.01	92.73	48.56	85.39	84.09	87.00
Plant Load Factor	%	90.34	91.92	42.87	75.49	73.94	78.09
Auxiliary Consumption	%	10.30	10.18	9.98	8.84	9.76	9.58
Station Heat Rate	KCal/KWh	3348	3053	3078	2854	2536	2642
Sp. Oil Consumption	ml/KWh	1.85	1.25	3.55	2.00	1.27	1.12
Calorific Value of Coal	KCal/kg	3370	3304	3370	3315	3395	3518
Calorific Value of Oil	KCal/Lt	10000	10000	10000	10000	10000	10000
Price of Coal	Rs/Tonne	575	588	575	588	603	550
Price of Oil	Rs/kl	14815	16178	15806	17041	15392	19651
Specific Coal Consumption	kg/KWh	0.93	0.92	0.85	0.86	0.76	0.75
Gross Generation	MU	1582.78	1610.49	901.29	1587.10	5440.92	5746.40
Auxiliary Consumption	MU	163.06	163.92	89.91	140.35	531.17	550.50
Net Generation	MU	1419.72	1446.58	811.38	1446.75	4909.75	5195.89
Total Variable Cost	Rs.Crs	94.41	98.56	52.42	90.00	270.02	265.99
Variable Cost/Unit Gross	paise/kwh	59.65	61.20	58.16	56.71	49.63	46.29
Variable Cost/Unit Net	paise/Kwh	66.50	68.13	64.60	62.21	55.00	51.19

It is observed that there is improvement in the performance of thermal stations.

The performance of CSEB's hydel generating stations are as follows:

Table-2.5
Hydel Stations

Details	Generation/Auxiliary Consumption (MUs)	
	2004-05	2005-06
Hasdeo Bango	375.10	360.00
Gangrel	7.51	10.11
Micro HPS Korba	4.78	4.80
Gross Generation	387.39	374.91
Auxiliary Consumption	1.28	3.13
Net Generation	386.11	371.78

The overall net generation from hydel stations stood at 386.11 MUs in 2004-05 and is estimated at 371.78 MUs in 2005-06. The hydel generation is governed by the water releases from the reservoirs which is controlled for the purposes of irrigation and this is a constraint on CSEB's ability to fully use its very limited hydel capacity.

2.4 TRANSMISSION

Increasing importance would have to be given to the transmission function of CSEB in view of the introduction of open access for consumers and traders under the provisions of the Electricity Act. Since its creation, CSEB has taken up major expansion of its network. These investments have been made largely from the internal accruals of CSEB. The transmission network at present is as given in the table below:

Table - 2.6
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 05	As in March 06	As in March 05	As in March 06	As in March 05	As in March 06
400	277	277	1	1	945	945	3	3
220	1657	1685	7	8	1930	2250	16	18
132	3388	3708	35	42	2309	2833	73	88
HVDC	360	360	1	1	243	243	6	6

2.4.1 Transmission Losses

The transmission losses reported by the CSEB for 2005-06 is 3.93%. The actual transmission losses reported for 2004-05 was 3.62%. There has thus been an increase of 0.31% in transmission losses. In the absence of any

benchmark study this estimate is based on the meters provided on the feeders for energy accounting. Benchmark studies to determine allowable loss levels are yet to be conducted. But the present loss levels are not considered high.

2.4.2 Capacitor Installation

The installation of capacitors in the system is essential to improve power factor, reduce reactive power flow on the network and improve voltage levels. CSEB installed capacitors of 20 MVAR during 2004-05 and 125 MVAR during 2005-06. The total capacity of the capacitors installed as on 31.03.2006 is 474 MVAR.

2.5 DISTRIBUTION

2.5.1 Distribution Network

The Board has substantially expanded its distribution network during the last two years as would be seen from the Table-2.7 given below:

Table-2.7
Distribution Network

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

The MVA capacity of 33/11KV power stations is 2368 and of distribution transformers is 3189 as on 31.03.2006.

2.5.2 Consumer Profile

An overview of the distribution end of the business, in terms of category-wise number of consumers, their connected load and the sale of electricity during 2005-06 is given below:

Table-2.8
Consumer Profile in 2005-06

Category	No. of Consumers/ Connections (as on 01.04.2006)	Sanctioned Load/Contract Demand KW or KVA	Units Sold (MUs)
LT Consumers			
Domestic BPL	858162	44992	258
Other Domestic	1246406	566139	1164
Non-Domestic	167817	183837	271
Agriculture	132661	396533	472
LT Industry	21748	350830	341
Water Works & Street Lighting	8383	30374	102
Temporary	21817	58496	109
LT Total	24,56,994	16,31,201	2,717
HT Consumers			
Railways	21	230100	617
Coal Mines	20	93270	406
Cement Factories	12	64005	283
Heavy Industries	2	336099	1568
Power Intensive	241	589121	1457
Other HT Industries	302	144241	399
HT Industries with low LF	134	69274	67
General Purpose (Residential Colony)	38	49870	227
General Purpose (Non-Industrial)	142	46331	141
Public Water Works	14	6426	30
Irrigation	17	6194	5
HT Total	943	16,34,931	5,199
Grand Total (HT+LT)	24,57,937		7,916

The distribution end of the business is most critical in the electricity supply business, as the revenue streams from distribution need to pay for the transmission and generation ends of the business. Moreover, the distribution business has strong consumer interface where the change in the reforms process should be most apparent. The core of the reform process is reduction in distribution losses, improvement on efficiency, availability of reliable and quality power as well as improved consumer interface.

2.5.3 Distribution Losses

Efficiency improvements in the Board are highly dependent on bringing down the distribution losses in the system. Distribution losses comprise technical and commercial losses, commercial losses being an euphemism for pilferage

as well as inefficiencies due to lack of 100% meterisation and inadequate systems and procedures for meter reading, billing and revenue collection.

The reported distribution losses in CSEB for 2005-06 is 32.58% over the distribution losses of 35.37% in 2004-05. However, taking into account the fact that nearly 66% energy is supplied to HT consumers and a substantial proportion of LT energy in the urban areas, the actual distribution losses in the LT distribution network can be presumed to be much higher. In the absence of any energy audit, however, it is difficult to estimate accurately the extent of energy losses. It would also be important to segregate technical and commercial losses in order to initiate remedial measures.

2.5.4 Failure Rate of Transformers

A high failure rate of distribution transformers affects the reliability of supply and adds to the costs, this has to be controlled by the CSEB. The transformer failure rate in the last three years has been as given in the table below:

Table-2.9
Transformer Failures

	2003-04		2004-05		2005-06	
	Transformers Installed	% Failure	Transformers Installed	% Failure	Transformers Installed	% Failure
EHV Transformers	87	2.29	96	2.08	108	1.20
33/11 KV Transformers	590	2.37	623	2.56	669	2.04
Distribution Transformers	35950	16.30	38936	18.36	43144	14.94

The rate of failure of distribution transformers was 18.36% in 2004-05. The Commission had directed the Board to bring it down to 10%. At present, distribution transformer failure rate continues to be high at 14.94%. The Board, however, has a scheme for renovation of 6000 distribution transformers for which Rs. 30 crore has been earmarked. The Board should go ahead with this scheme and keep a close watch on transformer failure rate.

2.6 DEMAND AND SUPPLY POSITION

Although the State claimed to have surplus power in 2001, it has had peak demand and energy shortages since 2002. In 2005-06 peak shortage in demand and energy shortage were to the extent of 42.7% and 18.07% respectively.

The demand has grown substantially, from unrestricted demand of 1450 MW in 2002 to 2292 MW in 2005-06, an increase of 58.07%. Substantial growth mainly in industrial and agricultural demand has accounted for this increase. The expected peak demand and energy shortage during 2006-07 is 43.16% and 21.07% respectively.

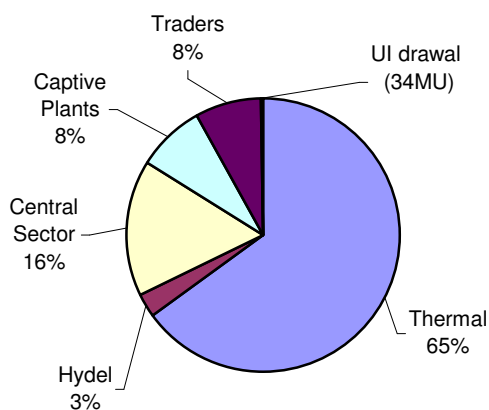
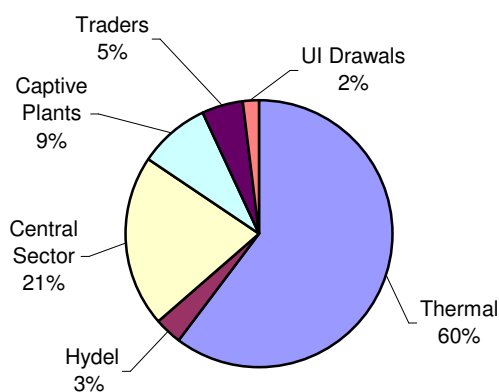
Table-2.10
Power Supply Position

Details	2004-05(in MU)	2005-06 (in MU)
i) Own generation		
a) Thermal	7141	8089
b) Hydel	386	372
Net Own Generation	7527	8461
ii) Power Purchase		
a) Central Stations	2482	2007
b) Captive Plants	1030	994
c) Traders	570	972
d) UI drawals (net)	239	34
Total Purchase	4321	4007
Grand Total	11848	12468

Energy Generated and Purchased

2004-05

2005-06



The grid performance of the Board has been as given in table below:

Table-2.11
Grid Performance

CSEB: Grid Performance (MUs) as on May 2006	
Entitlement	280.600
Actual Drawal	295.990
Total Over(+)/ Under (-) drawal	15.400
Overdrawal at Freq.< 49 Hz	0.550
Underdrawal at Freq. > 50.5 Hz	0.114

Source: WRLDC, Powergrid from Power Profiles: MOP, Gol

2.7 ENERGY BALANCE

The energy balance of the CSEB was as follows:

Table- 2.12
Energy Balance

	2004-05 Actual	2005-06 Estimated
Energy Sales (MU)		
LT Metered	1820	2086
LT Un-metered	396	631
HT Metered	4958	5199
Inter-state sales	90	0
Total	7264	7916
T&D losses (MU)	4584	4552
T&D losses incl. inter-state sales (%)	38.69	36.51
T&D losses within state (%)	38.99	36.51
Energy Requirement: (MU)	11848	12468
Met By		
Own Generation Thermal	7141	8089
Own generation Hydel	386	372
Net Power Purchase	4321	4007
Total Energy Availability	11848	12468

2.8 FINANCIAL PERFORMANCE OF THE BOARD

The audited accounts of the Board are not available. The Commission had directed the Board in its last order to finalise the accounts and have them audited for all the years since the time of its inception. The Commission has been informed that audit has started.

The financial performance of the CSEB as per the petition filed has been as follows:

2.8.1 Financial Performance of CSEB: Profit and Loss Account

Table-2.13
Profit and Loss Account

		(Rs. Crore)	
	Particulars	2004-05	2005-06
		Actual	Estimated
A	Revenue		
1	Revenue from sale of power	2390.11	2685.01
2	Other Non-tariff income	487.05	218.24
	Total Revenue / Income	2877.16	2903.25
B	Expenditure		
1	Generation Cost (Fuel Cost Only)	423.18	461.12
2	Purchase of Power	799.05	899.26
3	Repairs and Maintenance	152.79	147.99
4	Employee costs	945.65	637.28
5	Administration and General expenses	151.08	72.86
6	Net prior period credit charges	0.00	0.00
7	Other Debits, Write-offs	15.28	148.99
8	Extraordinary items	0.00	0.00
9	Less: Expenses Capitalized	12.48	10.69
	Total Expense	2474.56	2356.81
C	PBDIT	402.60	546.44
D	Depreciation and Related debits	40.80	46.25
E	PBIT	361.80	500.19
1	Interest & Finance Charges	132.18	175.03
2	Less: Interest Capitalized	0.00	31.91
F	Total Interest and Finance Charges	132.18	143.12
G	Profit/Loss before Tax	229.62	357.07
H	Income Tax	90.86	223.00
I	Profit/Loss after Tax	138.75	134.07

2.8.2 Balance Sheet

Table- 2.14
CSEB – Balance Sheet

(Rs. crore)

	Particulars	2004-05	2005-06
		Actual	Estimated
I.	SOURCES OF FUNDS		
	A) Shareholders' Funds	1,047.78	1,181.85
	a) Share Capital	23.12	23.12
	b) Reserves and Surplus	1,024.67	1,158.74
	B) Loan Funds	1,546.40	1,830.43
	a) Secured Loans	733.79	733.79
	b) Unsecured Loans	812.61	1,096.63
	C) Other sources of Funds	441.04	522.83
	a) Capital contributions from consumers	99.14	111.37
	b) Capital Reserves	0.00	0.00
	c) Grants	341.90	411.46
	d) Unfunded Liability for Pension & Gratuity	0.00	0.00
	Total Sources of Funds	3,035.22	3,535.11
II.	APPLICATION OF FUNDS		
	A) Fixed Assets		
	a) Gross Block	1,910.45	2,908.21
	b) less: Accumulated Depreciation	1,307.67	1,353.91
	c) Net Block	602.79	1,554.29
	d) Capital Work in Progress	1,195.50	1,265.41
	B) Investments	998.53	337.02
	C) Advance for Capital works	0.00	0.00
	D) Other Assets	1.46	1.46
	E) Current Assets, Loans and Advances	2,563.85	2,520.36
	i) Current Assets	1,891.58	1,686.09
	ii) Loans & Advances	672.28	834.28
	F) less: Current Liabilities and Provisions	2,326.90	2,143.43
	i) Current Liabilities	2,061.02	1,920.43
	ii) Provisions	265.88	223.00
	G) Net Current Assets	236.95	376.93
	Total Application of Funds	3,035.23	3,535.11

2.8.3 Energy Sales & Revenue

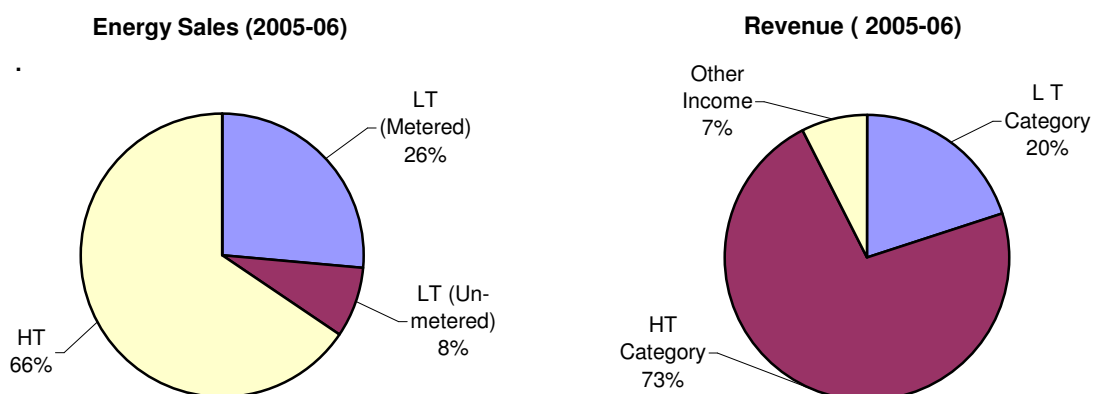
The sales mix and revenue earned from consumers is given in Table-2.15 below:

Table-2.15
Sales and Revenues

Category	2004-05(Actual)		2005-06(Estimated)	
	Sales (MU)	Revenue (Cr)	Sales (MU)	Revenue (Cr)
L T Category	2216	522	2717	586
HT Category	4958	1844	5199	2117
Inter-state Sale of Power	90	24	0	0
Misc	0	0	0	(17)
Sub Total	7264	2390	7916	2685
Other Income		487.05		218.24
Total	7264	2877.05	7916	2903.24

The other income in 2004-05 was high as compared to 2005-06 because Rs. 236 crore was written back towards waiver of 60% surcharge and incentives by NTPC on share of CSEB liability in erstwhile MPEB outstanding dues as per provisions of tripartite agreement.

The CSEB has a very favourable HT-LT mix as indicated in the pie chart below:



2.8.4 Functional Breakup of Costs

The total average cost of power supply was Rs. 3.41 per unit for the year 2005-06. Of this, the average generation costs are Rs.1.14 per unit, transmission Re. 0.27 per unit and distribution Rs. 2.00 per unit.

Table-2.16
Cost per Unit - Break Up

(Rs./unit)

	2004-05 Actual	2005-06 Estimated
Generation	1.33	1.14
Transmission	0.33	0.27
Distribution	1.61	2.00
Total	3.27	3.41

2.9 RURAL ELECTRIFICATION

Rural electrification is vital for the socio-economic development of the State as a whole and the rural areas in particular. The objective of the government of India's rural electrification programme is to improve the quality of life of the rural population by supplying electricity for lighting of homes, shops, community centres and public places in all villages. Rural electrification involves supply of energy for two types of programmes:

- Production oriented activities such as minor irrigation, rural industries, etc.;
- Village electrification.

Out of the total 19,744 inhabited villages in Chhattisgarh (as per the 2001 Census), 18,532 (94%) are electrified leaving 1212 villages yet to be electrified. However, a great deal needs to be done to ensure electrification of rural households as the following table indicates:

Table-2.17
Electrification of Rural Households

State	Total Rural Households (Nos.)	% Rural Households un-electrified
All India	1,38,271,559	56.5
Chhattisgarh	3,359,078	53.9
Madhya Pradesh	8,124,795	37.7
Punjab	2,775,462	10.5
Karnataka	6,675,173	27.8
Andhra Pradesh	12,676,218	40.3
Orissa	6,782,979	80.6
Jharkhand	3,802,412	90.0
Bihar	12,660,007	94.9

Source: [www. Powermin.nic.in](http://www.Powermin.nic.in)

Although Chhattisgarh has done better than many of its neighbours, a lot is yet to be done. The energy policy of the Government of Chhattisgarh lays emphasis on providing electricity to all the villages and majra/tolas (hamlets).

Transmission and distribution system would accordingly need to be strengthened. The GOC's rural electrification policy is in line with the National Electricity Policy which states that:

- a) Electrification of all villages and majra/tolas of the State would be completed by the end of the 10th Five-Year Plan i.e. 2007;
- b) Electricity to every household in the State would be available by the end of the 11th Five-Year Plan i.e. 2012.

About 555 villages and 7207 majra/tolas have been electrified between November 2000 and March 2006. In addition, works relating to 60,694 pumps have been completed in the same period.

2.10 PROGRESS OF REFORMS IN THE STATE ELECTRICITY SECTOR

The Commission in its last order had reviewed the progress of reforms in the States as envisaged under the Electricity Act. The Commission would like to revisit this important area as it has implications not only on consumer tariffs but also on the development of the electricity sector as a whole in the State. Unfortunately, the pace of reforms continues to be slow and the present situation calls for greater initiative by the State Government and greater efforts by the CSEB.

2.10.1 Restructuring of the CSEB

The process and restructuring of the Electricity Board has considerably slowed down. On the request of the State Government the Central Government, in pursuance of the provision in Section 172 of the Act, have agreed to extend the transitional state till 9th December, 2006. Preparatory steps which were taken earlier and which were noted in our last tariff order have almost come to a standstill. The Commission is of the firm view that structural reforms are essential if the efficiency of the power utility in the State is to improve. The Commission strongly urges upon the State Government to take steps most urgently for restructuring of the Board. In the absence of any decision on restructuring, the Board has not prepared its long-term business plan and lacks long-term focus in its functioning which is not in the interest of the State.

2.10.2 Reforms in the Distribution Sector

The Commission had emphasized in the last order the need for reforms in the distribution function of the Board. Even if the process of restructuring has slowed down, there is no reason why the key reforms in the distribution system can not be carried forward. The CSEB, unlike most power utilities in the country, has certain strengths which can be harnessed for greater efficiency and larger benefit to the consumer. The CSEB's consumer mix is very favourable and its financial position is very sound. Unfortunately, the

benefits of these are not flowing to the consumers as expected, mainly because of lack of reform in the critical distribution sector. There has been inadequate and unsatisfactory progress in crucial areas like meterisation, loss reduction and billing and collection efficiency.

2.10.3 Meterisation

Inspite of periodic review by the Commission, the process of meterisation is yet to catch speed. Out of the total 24.58 lakh electricity consumers of the CSEB, the metered connections are only 16.93 lakh as on 31.3.2006. CSEB has metered 1,45,282 services (upto March 2006) against 4,01,473 targeted. Apart from this, 2,22,028 single phase and 3200 three phase meters are either stopped or are defective. These meters were to be replaced latest by March, 2006; of which only 98,458 could be replaced. The Board had asked, and the Commission had approved under section 55 of the Act, time upto end of March, 2007, for cent percent metering of all electric connections in the State. Considering the progress made so far this would require serious and extra efforts on the part of the Board. It has been observed that there is lack of coordination between meter procurement and meter installation as these two functions are handled by two different agencies in the Board. Inspite of the Commission's repeated advice the Board has not put its act together. This is a matter of concern and should receive CSEB's utmost attention.

2.10.4 Energy Audit

This again is another important area in which there is constant default. Energy audit is linked to metering of all feeders/points. The position at present, as reported by the CSEB, is that all the 132 KV, 33 KV and almost all 11 KV feeders have been provided meters, but out of 43,144 distribution transformers only 6,016 are metered. As a result, there has been no worthwhile energy audit undertaken in the Board while the AT&C losses continue to be unacceptably high. The Board must take up energy audit of feeders with representative consumer-mix and over a period of time to take care of seasonal variations in consumption, to arrive at voltage-wise losses.

2.10.5 Billing and Collection Efficiency

There has been no improvement in billing and collection efficiency of the Board since the Commission last reviewed the position as part of the tariff determination process. While the number of BPL consumers are on the increase and the Board proposes to add 2.3 lakh more BPL consumers to its list this year, it is reported that these consumers are not billed mainly because of lack of staff and also the transaction costs involved. Similarly, it is reported that in many cases agriculture pumps are also not being billed. With rapid rural electrification and the State Government's thrust on installation of irrigation pumps, the Board will be losing large amount of revenue if a system is not put in place for billing of such consumers. While lack of staff is

no doubt a constraint, the Board should consider various alternatives, like outsourcing and engaging franchisees etc. If urgent steps are not taken this alone will erode the financial viability of the Board very soon.

The CSEB has intimated collection efficiency for the year 2005-06 as 95.38% which includes arrears along with the current revenues. This is an estimation and needs to be worked out more accurately taking only the current demand into account. The arrears in the Board are very high at Rs. 1334.38 crores as on 31.03.2006. In its last tariff order, the Commission had directed the Board to improve their financial position by improving collection efficiency. There is lack of systematic effort to improve the collection machinery. Arrears and current dues have not yet been segregated. There are examples of good practices in many States which the Board should look at and adopt. Appointment of franchisees in rural areas, collection through banks and application of IT in collection are some of the alternatives which the Board should consider.

2.10.6 Consumer Focus

The Electricity Act mandates that the interest of the consumer must be protected and the standards of services should be improved. The Commission has issued the Supply Code and the Regulations for Redressal of Grievances of Consumers. In compliance with these Regulations, the internal grievance redressal machinery is in place in the Board and Forums have been constituted at Raipur, Bilaspur and Jagdalpur. The Commission has also appointed the Electricity Ombudsman. However, consumer grievance redressal machinery has not been very effective so far, mainly because of lack of awareness among the consumers about its existence. The Board should give greater publicity to the grievance redressal machinery. The Commission on its part has set up a Consumer Advocacy Cell which will make efforts to raise the awareness of consumers about their rights. But the main responsibility rests with the power utility.

Chapter 3. Objections and suggestions from the public/ consumers and CSEB's response.

3.1 INVITING OBJECTIONS

The CSEB published a public notice on 30.06.2006 in leading news papers of the State in which the ARR/expected revenue from charges (ERC) and the tariff proposals were published. Suggestions, objections and comments on the proposal were invited from the public by 20.07.2006. The names of news papers in which the public notice was published is given in Chapter-1. Some of the objections were received by the Board directly. All the written objections were forwarded to the licensee by the Commission as and when they were received and CSEB was asked to offer its replies and views in respect of the objections of the general public/consumers.

The list of objectors is annexed to this order.

3.2 PUBLIC HEARINGS

In order to ensure transparency in the process of determination of tariff as envisaged in the Electricity Act, public hearings were held at four places in the State the two largest towns and two district towns in predominantly tribal areas:

1. Bilaspur - 29.07.2006
2. Ambikapur - 01.08.2006
3. Raipur - 03.08.2006, 04.08.2006 & 11.08.2006
4. Jagadalpur - 12.08.2006.

In the public hearings some of the objectors, who submitted their objections in writing earlier, presented their objections and suggestions personally before the Commission. Other participants from the general public, who did not submit written objections earlier, were also given an opportunity to present their views in respect of the tariff proposals. In each of these hearings the consultants of CSEB made a detailed presentation on the ARR/ERC and tariff proposals. Officers of the CSEB were present.

The public hearing at 11.08.2006 was specifically held on the issues relating amendments to the petition submitted by CSEB on 19.07.2006.

3.3 OBJECTIONS RAISED AND CSEB'S REPLIES

The views and suggestions of the objectors who have given written suggestions and also made personal presentations and also of the other participants at the public hearing are discussed below:

Issue:1 Performance of Generating Stations and generation availability

A number of organizations have commented that the projected lower PLF and other parameters for CSEB's generation plants result in a fall in generation and increase in cost. Generation should be maintained at least at last year's level. If the generation at Board's stations can be improved, power purchase at high cost can be avoided or reduced.

CSEB's reply: The projected lower availability and PLF of CSEB plants is on account of annual overhaul of some of the units and repairs and maintenance, as indicated in the ARR. Additional period is provided for AOH as it was not done during 2005 – 06. There were other factors also like partial loading, choking of pumps on debris, varying coal quality etc., which cause outages. All these relevant factors have been taken into consideration in making the projections regarding availability of generating station.

Issue:2 Non-Compliance of directives of the Commission in Tariff Order 2005

Some objectors have pointed out that CSEB has not complied with the directives issued by the Commission in its last tariff order. Non-compliance of directives has posed a question mark on the sanctity of the entire regulation process. The Commission should set a definite time frame for compliance of directives. It was also suggested that the reasonable return be reduced from 14 to 12% for non-compliance.

CSEB's reply: CSEB has made all possible efforts to comply with directives and complied with them to the extent possible. The Commission was appraised of the reasons for non-compliance, if any. Regarding shortfall in operating performance with respect to the parameters specified by the Commission, the reasons have been furnished.

Issue:3 Load shedding of LT categories during peak load hours

There were suggestions for planned load shedding of agriculture and domestic consumers during peak hours to get load relief upto 200 MW. Restrictions should be imposed on avoidable use of electricity, such as flood lighting for tournaments, etc.

CSEB's reply: The power requirement of LT consumers, such as domestic and non-domestic consumers is essential during peak hours and it is not desirable to apply load shedding to such consumers as it will lead to civil unrest. Restriction on avoidable use of electricity shall be imposed as and when the situation so warrants.

Issue:4 High T&D losses and need for reduction of losses and study of voltage-wise system losses

Several objectors pointed out that the T&D losses of the Board were very high and T&D loss reduction target for FY 06 had not been met by CSEB. They also pointed out that voltage level-wise assessment of losses for determination of cost of supply was necessary but was not carried out by CSEB. If the T&D losses could be reduced, the average cost of supply would reduce and upward revision of tariff may not be necessary.

CSEB's reply: The reduction of about 2.8% against the target of 3%, in FY 06 was in itself a considerable achievement, though there was scope for improvement. The growth in load and the wide extension of network contribute to losses which is difficult to contain in a short time. A further reduction of 2% was proposed for FY 07. The CSEB has hired a consultant for study of system losses and cost of supply. It will take a year to complete the study keeping in view the difficulties in providing meters etc.

Issue:5 Contribution to CM's relief fund

Most objectors objected to inclusion of the provision for contribution of Rs. 40 crore to the CM's relief fund in Administration & General expenses stating that it cannot be loaded on to the consumers.

CSEB's reply: The contribution is for upliftment of the poor and to support relief, during national calamities etc. So, such contribution should be allowed.

Issue:6 Quantum of power purchase and power purchase cost

A number of objectors felt that proposed quantum of power purchase and the cost of such purchase was abnormally high, particularly purchase from power traders. Power purchase has to be reduced through proper assessment of demand and improving own generation.

CSEB's reply: The estimated power purchase requirement has been computed based on realistic assessment of demand and power availability from various sources. The rates are actually prevailing rates. The rate obtained from power traders was Rs. 4.62/KWh as at generator terminal and adding of external transmission loss, it is estimated at Rs. 5.12/KWh.

Issue:7 Rate of Power Purchase from CPPs

Some of the CPPs demanded that the power purchase rate from the CPPs should be increased in proportion to increase in energy tariff of consumers.

CSEB's reply: Consumer tariffs and power purchases are different activities governed by different provisions of the Act. Also, the purchase rates for power from CPPs have increased compared to past years.

Issue: 8 Audited Accounts

Some objectors pointed out that CSEB had not furnished audited accounts.

CSEB's reply: As there was no opening balance sheet, in the absence of final apportionment of assets and liabilities between MPEB & CSEB, it was not possible for the Accountant General to conduct audit. The final apportionment ordered in November 2004 is also in dispute, but accounts based on the order were submitted to AG for 2002 – 03 and 2003 – 04 and they are under audit. The report is still to be received

Issue:9 Bad debts

Some objectors felt that proposed waiver of bad debts should be limited to only 1% of revenues as per regulations. The burden of past inefficiencies like arrears etc should not be loaded on the current consumers.

CSEB's reply: The treatment of bad debts is done as per accounting practices followed generally. It is a standard business practice to make provisions for unrealizable revenues. CSEB has a legacy of receivables inherited from erstwhile MPEB as well as provisions made earlier. The impact of bad debts is not proposed to be passed on to any specific category. It was incorporated in the average cost of supply. One percent as per regulations is not adequate. Separate provision has to be made for outstanding dues

Issue:10 Other expenses (Employee cost, Adm & Genl. Expenses) etc

Some of the objectors pointed out that actual performance of CSEB for 2005 – 06 was better than what was approved by Commission while the projections for FY 07 are abnormally high.

CSEB's reply: CSEB agrees that there was variation in performance in 2006 and the reasons were detailed in ARR in Chapter-9 of the petition. The forecast for 2007 was based on prevailing conditions and

not ideologies. In order that the licensee is not put to a loss. The projections were based on actuals of 2005 – 06 and realistic outlook for FY 07.

Issue:11 Income tax payment

Some objectors felt that the projection of income tax liability was high and that Rs. 78 crore liability which pertained to earlier years needed explanation as Rs. 51 crore was paid in 2006 towards this. Further CSEB earned large profits during earlier years thereby attracting large tax liability. Therefore, prior period tax on account of excess profit should not be allowed to be loaded on to the consumers in the current years.

CSEB's reply: Income tax for the year 2002–03 and 2003–04 was paid provisionally as bifurcation of assets and liabilities of erstwhile MPEB was not finalized. Additional tax liability of Rs. 73 crore for FY 02–03 and Rs. 63 crore for 2003–04 (total Rs. 136 crore) arose consequent to the tax liability as per the opening balance sheet of CSEB prepared as per the final assets and liabilities allocation orders of Government dated 04.11.2004. Rs. 51 crore was deposited in March 2006 and balance Rs. 85 crore has been paid in June 2006.

Issue 12: Calculation of Depreciation

Some objectors have pointed out that calculation of depreciation required review. CSEB has reduced the consumer contribution and capital gain from the asset value for calculation of depreciation and this requires review.

CSEB's reply: Depreciation calculation has been done in accordance with CERC regulations.

Issue:13 Return on Equity (ROE)

Some objectors objected to CSEB asking for return on networth which included reserves and surplus in addition to equity. They also felt that income from reserves and surplus should be deducted from cost of supply.

CSEB's reply: The National Tariff Policy and CSERC regulations provide for a return on equity including surplus from operations, which is in effect the networth of the licensee. The equity base of licensee was very small. Considering the large equity requirements of big projects it is necessary to provide adequate returns to allow sufficient internal cash generation. This justified ROE on reserves and surplus

also. The income from reserves and surplus is included in other income.

Issue 14: Cost of supply (COS)

Some industrial consumers objected to non-submission of consumer category-wise COS and to the calculation of cross subsidy based on average cost of supply.

CSEB's reply: CSEB has already awarded the contract for undertaking detailed study on the T&D losses and voltage-wise cost of supply for the Board.

Issue: 15 Cross subsidy

It was stated by some objectors that CSEB has not followed the principle of progressive reduction of cross subsidy as mandated under Section 61(9) of Electricity Act 2003. CSERC should specify a path of cross subsidy reduction over a period of 5 years.

CSEB's reply: Keeping the reduction of cross subsidy in view, CSEB has proposed increase in tariff in case of such categories of consumers who are receiving supply at the lower cost than the average cost of supply. Cross subsidy will be reduced over a period of time with the reduction of cost of supply.

Issue:16 Assessment of Agricultural and BPL consumption

Some objectors felt that the estimated consumption by agricultural pumpsets and BPL/SLP consumers, who are not metered, is high and was not assessed correctly. It has been done to show lower T&D losses.

CSEB's reply: CSEB has installed sample meters on some segments of agricultural consumers and based on the study of their consumption pattern, the load factor of agricultural consumers was assessed at 15% against 10% in the previous petition. Similarly, sample study of unmetered BPL consumer groups was conducted and it showed a consumption of 33 units/month during 2004–05 and 37 units/month during 2005–06. Against 37 units, CSEB has assumed only 30 units.

Issue 17: Multi-year Tariff

Some of the objectors have raised the issue of CSEB not filing its petition for multi-year tariff and the delay in implementation of MYT.

CSEB's reply: The Board has explained the constraints in the implementation of multi-year tariff in the tariff petition itself and has requested the Commission to consider multi-year tariff filing commencing from next year filing i.e. in November, 2007 so that the same is implemented in the State with effect from April, 2008.

Issue: 18 Tariff proposed for HV - 6A Low load factor category

Some of the consumers organizations felt that in the current tariff proposals the maximum increase is proposed in respect of steel and other industries, as against the State's policy to support these industries which are facing problems. Punjab does not have fixed charges for industrial consumers. But CSEB has proposed a hike in fixed charges from Rs. 175/- to Rs. 225/-. Out of 943 HT consumers, 134 (14.21%) belong to HV-6A (single shift) category. Their consumption is 1.29% of the total HT consumption. A 45% increase is proposed in fixed charges and a 15.1% increase in revenue over the existing revenue. The per unit rate which was highest at Rs. 5.41 /unit is proposed to be raised to Rs. 6.23/unit. It was requested to keep the tariff of HV-6A single shift consumers equal to that of other HT Industrial consumers.

CSEB's reply: The fixed costs of CSEB are 47% of the overall costs. Even then in the tariff proposals the fixed charges are kept at 24% of the cost. Section 45 (3A) of the Electricity Act allows fixed charges to be equal to fixed costs. HV-6 (A) category has low load factor and so their energy consumption is less compared to demand. Keeping this in view, their fixed charges are kept at lower level than for other HT consumers in order to reduce their per unit over all cost.

Nearly 12 to 15 percent increase has been proposed on the existing tariff for category HV-6A. Though load factor of 15% is stipulated in this category, many of the consumers have load factor as high as 27%. Hence the effective increase would only be about 10%. The effect of the increase on this category may result in overall rate of Rs. 4.89 for EHV, Rs. 5.19 for 33 kV and Rs. 5.43 for 11 kV consumers. When the demand is very high for any consumer compared to the energy consumption, the per unit cost necessarily will be high.

The low load factor HV-6A consumers can be equated in tariff to other HV-6 consumers only if the Government allows compensatory subsidy to the CSEB.

Issue :19 Issues relating to agriculture & allied services

Some issues were raised relating to agriculture tariff as under:

1. A subsidy of Rs. 40000/- per agricultural connection is being allowed by the State Government. This is being misused by dividing land holdings into smaller farms and multiple connections are being taken. Water is also being sold. It was suggested that connections should be released on the basis of acreage that can be irrigated per HP. Small farmers can be grouped into communities for granting group connections.
2. Non-domestic LV-2: Farmers maintain cattle as part of their farming activity. This should not be treated as dairy industry. Only if milk production is at a high level and chilling etc is undertaken then only they should be included in dairy activity. This may be clarified in the tariff design. Activities like, horticultural plantations, floriculture, vegetable growing, depend on nurseries. It takes a lot of time for plantation to yield fruits. So nursery and plantations should be removed from non-domestic category. Ratanjot cultivation is being encouraged by the State Government as a matter of policy. If non-domestic tariff is applied to this activity farmers will get dissipated. It takes 6 years for plantation to grow. Some trees like teak etc. take 60 years, some like subabool take 15 years to grow fully. So they should be removed from non-domestic and placed in agricultural category.
3. It should be clarified as to which activities are included in Agriculture Allied Services category. The Board has not clarified as to which type of consumers shall be included in high-tech category. Such of the farmers who do plantation only for their personal use have to be exempted and placed under agriculture. It should be kept in mind that tree plantation is useful for environment. So such activities should be encouraged by keeping the tariff low.

CSEB's reply: The suggestions are welcome and every effort will be made to implement them to the extent feasible. The following activities are included in this new category of "Agriculture Allied Services" viz, floriculture, sericulture, plantation, poultry, fisheries, aquaculture, high-tech agriculture and such other activities. They are not included in the list of agricultural activities defined in the letter No. 2351 dated 13.10.2005 of Asst. Director, Agriculture, annexed to the objector's letter. Tree plantation is a commercial activity, unlike farmers who grow food crop and vegetables for their livelihood. So the subsidized rate of agricultural category cannot be applied to these allied activities as the outcome of such activities profits only a few persons and the consumers in general should not be burdened to profit a few people. However, to encourage these activities, lower rates than the non-

domestic category have been proposed. Tissue culture and biotechnology laboratories shall be included in 'high-tech' sub-category.

Issue:20 Electricity rates for Poultry & Dairy

Some objectors have stated that dairy and poultry are agricultural activities. Its raw material is derived from agriculture. They provide rural employment and contribute to rural development. M.P and Maharashtra States have provided heavy rebates and other facilities for this activity in regard to electricity tariff. No concessions are being given in Chhattisgarh and these activities are not equated to general agriculture tariff. Some time back CSEB gave a rebate to poultry, as a special case, for one year. Dairy and poultry activities should be treated as agriculture and the basic agriculture tariff applied to them.

CSEB's reply:

1. In the 2006–07 tariff petition of Madhya Pradesh proposed dairy and poultry as LV Industry upto 25 HP with demand charges as Rs. 60/- per HP or Rs. 80/- per KW and energy charges as Rs. 3.30 per KWh. CSEB has proposed Rs. 80/KW (Rs. 60/HP) and Rs. 3.00 per kWh. So the rates are less than those desired by the objector.
2. In 2005–06, the CSEB proposed poultry connections to be included in HT Irrigation category but the CSERC has included them in HV-6. No change is proposed in this year.

Issue: 21 Lower tariff for battery chargers

The Chhattisgarh State Renewable Energy Development Agency (CREDA) suggested lower tariff for charging of batteries to be used in battery-operated vehicles so as to support environment.

CSEB's reply: The persons engaged in battery charging business shall be taking up the commercial activity and do not deserve subsidised tariff. At present there is no category of L.T. consumers between domestic and non-domestic which can be applied to such consumers.

Issue: 22 TOD Charges

Some objectors have objected to the proposal of CSEB to withdraw the TOD Tariff. They felt that this would stress the system more even during off peak hours as the industry will like to work during day time.

CSEB's reply: The consumers availing TOD or HV-6A tariff are already paying 130% of charges for use of power during peak load

hours or beyond prescribed hours. Since the cost of peak power is increasing abnormally, it is necessary to impose restriction for use of costlier power.

Issue: 23 Industries with CPPs to be categorized under HV-6A category

It has been represented that industries having CPPs have a low load factor. Therefore demand charges to CPPs with low L.F. upto 15% should be levied 2/3rd of other industries.

CSEB's reply: The low load factor tariff HV-6A can be opted by any eligible consumer provided it is approved by the Commission.

Issue:24 Concessional tariff for CPPs drawing start-up power

Some objectors have proposed that power generating units taking start-up power and now under category HV-5, should be charged at concessional rates. The monthly minimum charge on them should be withdrawn. Generating units taking start-up power under category HV-6 should be charged a nominal demand charge or only single part tariff, as is being done in Orissa. The power consumption under start-up power may be adjusted in the export to CSEB.

CSEB's reply: Start-up power is categorized under HV-6. But consumers who avail supply for other purposes will attract other applicable tariff. Start-up power is not provided for under HV-5. As regard concessions, demand charges for units taking start-up power under category HV-6, the CSEB felt no such consideration was required. It was pointed out that MMC was based on contract demand even in the case of HV-6A low load factor consumers.

The National Tariff policy does not recommend charging of single part tariff. The accounts of export and import should be kept separate and may not be adjusted looking to the use of power at different times of the day and even on different dates.

Issue:25 Tariff issues relating to fisheries

Chhattisgarh State Co-operative Fisheries Mahasangh, Raipur along with the other such objectors represented as follows:

- In the proposed tariff, fisheries have been kept in a new category i.e. Agriculture Allied Services in LV-3 and it has been proposed to levy energy charges of Rs. 3/unit whereas for agriculture it is Rs. 1.10/unit.
- Fisheries should be treated as agriculture for income tax, water and electricity charges, as per the report of the National Farmers' Commission.

- In MP agriculture and fisheries have one electricity rate (Re. 1 per unit), which was prevalent from December, 1997.
- With proposed charges, tariff will be 3 times the existing tariff and seed cultivation for fisheries will become costly in Chhattisgarh as compared to other States.
- Fisheries services have very less power consumption as compared to other services. Such increase in tariff will not yield much revenue to CSEB, but will adversely affect the fisheries industry.
- So fisheries be considered in agriculture category, not in allied category.

CSEB's reply:

- If concession in electricity tariff is to be provided (as per the Farmers' Commission report), State Government has to provide cash subsidy. So this need to be considered by the Government.
- Earlier, for fisheries, pump set connections were charged at non-domestic rates. However from 22.11.1997 as per Government circular, fisheries services are being charged for pumpsets as per agriculture metered supply (i.e. Rs. 100 flat rate at that time). This was prevalent upto June, 2005. The difference of tariff between non-domestic and agriculture was compensated by State Government.
- As per tariff order 15.2006.2005 (effected from 01.07.2005), the pump set connections for fisheries service are being charged at non-domestic tariff rates as the State Government has not committed for any compensation for this category.
- Board in its tariff application for 2006-07 has proposed demand charges of Rs. 80 per KW and energy charges Rs. 3 per unit for, horticulture, floriculture, sericulture, hen breeding, fisheries and other categories, which is less than the average cost of supply.

Issue: 26 Tariff for herbal plantation

Chhattisgarh State being declared the first herbal state, the Commission should allow concessional tariff for herbal plantation to promote this sector.

CSEB's reply: Such representations were received earlier also and therefore, the Board has proposed separate 'allied agriculture services' tariff.

Issue:27 Concessions to oxygen, CO₂ gas & chemical industries

Consumers belonging to this group have represented that keeping in view their high L.F. they should have concessional tariff as is applicable to chemical or Ferro Alloys industries.

CSEB's reply: CSEB has already proposed withdrawal of L.F. incentives for all HT Industries. A reduction in demand charge is proposed for HV-6 category. There is no separate tariff applicable for Electro-Chemical Industries; they come under HV-6 category.

Issue:28 Levy of proposed peak load hour surcharge

Industrial organizations/associations in general objected to the proposal for doing away with TOD and the levy of peak hour surcharge. They wanted exemption from surcharge for continuous process industries as they provide stable load.

CSEB's reply: The request seems reasonable and can be considered for continuous process industry only. But the consequent gap in ARR has to be bridged by some other means

Issue: 29 Proposed withdrawal of PF and LF incentives

Several objectors have demanded that the PF and LF incentives, which are proposed to be scrapped by CSEB, should be continued.

CSEB's reply: Incentive to certain extent is already available in proposed tariff. Any extra incentive will increase tariff burden on other consumers. As regards PF, maintaining it at 0.98 by consumer is mandatory. It also benefits the consumer. Therefore, there is no need to further incentivise PF and LF.

Issue:30 Objection to levy of parallel operation charges (POC)

CPPs felt that parallel operation charges should not be levied on CPPs that sell power to CSEB or use CSEB network for wheeling, as they cannot sell or wheel without parallel operation.

CSEB's reply: The ARR petition provides detailed arguments in support of POC proposed.

Issue: 31 Security deposit

The record of security deposits of the consumers should be properly maintained and consumers should be allowed to have access of it, when they desire. The Board should also accept security deposit in the form of fixed deposit certificates of the banks or bank guarantee.

CSEB's reply: Deposition of security amount is not a tariff related matter. With the introduction of SAP and issue of bills in the new formats, the amount of security available with the Board shall appear on the monthly bills. The Board is in need of cash to meet its operating expenditure and therefore the request of security deposit in the form of fixed deposit certificate or bank guarantee is not acceptable.

Issue:32 Seasonal Industries' problems

Rice mills and other seasonal industries have represented that if the connected load increases over 100 HP, the connection is treated as HT connection. Such consumers who are also seasonal consumers are charged for low power factor. They have furnished examples as under:

Rice Mills: Rice Mills work at full load only for 4 months in a year, another 4 months at half the load and the remaining 4 months they are idle. They are charged for low power factor for eight months. This is not in order.

Crusher Industry: They are seasonal and work for 6 months. They don't work during rainy season

Chilling Centres: They don't work in winter. They should not be charged for low power factor. They requested that low power factor billing should not be imposed on such seasonal HT industry.

CSEB's reply: There is no separate category of tariff for seasonal HT Industries. As regard low P.F. surcharge, this will arise only if the P.F of the installation is not maintained at 0.90. It does not depend on whether the consumer is seasonal consumer or not. If the machines used by the consumers are of low P.F., they need to install appropriately rated capacitors to improve the P.F.

Issue:33 Issues of Industrial Consumers

Chhattisgarh Udyog Mahasangh have raised the following issues:

- Proposed new tariff will adversely affect industries. Fixed charges are proposed to be increased from Rs. 175/- to Rs. 225/-.
- For HV-6(A) category consumers, proposed tariff increase is 15.1%, whereas for other HV categories it is 4.8%.
- Energy charges for category HV-6(A) industries is high at Rs. 5.41 which is proposed to be further increased to Rs. 6.23 per unit, which is 145% of other HV categories.
- For HV-6(A) category consumer running in one shift, the demand charges be reduced to 1/3rd of other HV categories.
- There is steep increase in power purchase from years 2005 to 2007, i.e. Rs.799.05 crore, Rs.899.26 crore, Rs.1622.98 crore, in

2005,'06 and '07 (proposed) respectively which needs attention and directions to reduce the cost. Power from traders should also be reduced to Rs. 695 crore.

- A target of 3% increase in generation by the Board will result in 254 MU additional power being available.
- More power be purchased from captive power plants in the State.
- Cross subsidy for HV Industries has been increased from Rs. 0.42 per unit to Rs. 0.60 per unit which is against the Commission's tariff philosophy.
- The salary of staff expenditure should be Rs.243 crore instead of Rs.645 crore.
- O&M expenditure for generation sets needs to be examined closely.
- Income Tax of Rs. 178 crore be paid from reserves and surplus as this liability pertains to previous years.
- Fixed charges of HT categories should be uniform.
- The Sangh proposed that a total cost of Rs. 2479 crore (767 fixed cost + 1712 variable cost) in ARR as against Rs. 3552 crore (1540 fixed cost + 1812 variable cost) proposed by CSEB. This should result in a reduction of 20% in tariff. Detailed calculations have been submitted.

CSEB's reply:

- The fixed charges in the proposed tariff are about 24% of cost against the actual fixed cost of 47%.
- Although section 45(3)(a) of the Electricity Act provides for recovery of full cost, but as the load factor of HV-6(A) category consumers is low, resulting in low consumption compared to the demand, fixed charges have been kept at a lower level, as compared to other categories.
- For HV-6(A) category consumers the increase is of 12-15% on the present rates, which is based on load factor of 15%, whereas this category has a load factor of even 27% which will amount to increase of 10% only.
- The proposed average tariff for category HV-6(A) would be Rs. 4.89/unit for EHV, Rs. 5.19/unit for 33KV and Rs. 5.43/unit for 11KV consumers. As such there is not much unforeseen increase in tariff.
- Demand charges can be reduced to 1/3rd only if State Government provides subsidy.

- It is also pointed out that impact of the proposed tariff on consumers under HV- 6A category would be 28.57% in demand charges and 6.15% for energy charges.

Issue: 34 Issues relating to Railways

A separate presentation was made by the East Coast Railway at Bilaspur on 01.08.2006. The salient issues raised in their presentation are summarized below:

- Railway is a public utility. The tariff for bulk consumers should be less compared to other consumers. The cost to serve for consumers at higher voltage level is generally less.
- KVAh based single part tariff is preferred for railway traction.
- The demand charge in other States are lower. CSEB charges demand charge on 15 minute integration basis.
- Cross subsidy should be brought down progressively and by 2010–11, tariff to be brought down $\pm$ 20% of cost of supply as per National Tariff Policy.
- Simultaneous maximum demand be billed by single point metering at Barsur for 6 traction substations.
- The Commission should consider reduction in penalty for exceeding contract demand and reconsider penalty for higher energy consumption.
- Leading power factor be considered as unity.
- As the cost of meter has already been recovered, no meter rent should be charged.
- Objections on ARR:
 - CSEB has failed to submit MYT proposal.
 - CSEB failed to maintain PLF and SHR for generating stations as targeted by the Commission.
 - Low energy sale, low inter-state sale, higher generation cost, higher T&D Losses, higher employee cost, higher R&M cost.
 - Introducing peak hour charge and providing P.F. incentive beyond 0.98.
 - CSEB failed to complete the study on cost of supply.

CSEB's reply: The study on cost of supply is being undertaken by a consultant. The equivalent average tariff at 31% load factor has been worked out as Rs. 4.12 per unit. No increase in tariff for traction connection has been proposed. Hence the Railways should have no cause for complaint.

- Two part tariff is in line with the National Tariff Policy (NTP).
- Comparison of demand charge in isolation is not correct. Comparison of tariff with other States is not proper. Average cost of supply in A.P. and Orissa is quite lower than in Chhattisgarh, which has practically no hydel power.
- As the demand of traction load fluctuates widely, the 15 minute integration period is in order. It is also applicable to other such categories of HT consumers.
- As per NTP, tariff should be brought to $\pm 20\%$ of the cost of supply by 2010 – 11. The average cost of supply worked out by CSEB is Rs. 3.74 per unit, while the average tariff for traction is Rs. 4.12 per unit, which is only 10% above cost of supply.
- Since all the connections have separate identity and have different geographical area, simultaneous maximum demand cannot be taken.
- The penalty for exceeding the contract demand has already been reduced in the tariff order dated 15.06.2005 from 2 to 1.5 times. Any further reduction will affect the grid discipline. It is also applicable to all other EHT/HT consumers.
- The Engineering books state that leading KVarh be not ignored while calculating power factor. The CEA has also recommended lag plus lead logic, which is technically correct.
- Meter rent charge is not only based on one time purchase cost; CSEB has to check, inspect and maintain the meters and metering equipments in proper order and also replace the defective meters. Rent was however, reduced in last tariff order dated 15.06.2005 and no change has been proposed by CSEB in meter rent. The Railway can purchase their own meters and metering equipments and in such case, the meter rent shall not be recovered.
- The points on the ARR have been already explained in detail in the tariff petition itself and no further explanation is required.

Issue: 35 Issues of Bhilai Steel Plant (BSP)

BSP has raised certain general issues related ARR and some specific issues relating to BSP. The issues raised by BSP in their submission and in the public hearing and response of CSEB are given below:

(i) Cost of supply vis-a-vis cost of power to BSP

It was pointed out by BSP that the present cost of power to BSP is 4.13/KWh which is 12% higher than the present cost of supply. With the proposed tariff it will be Rs. 4.23/KWh, 15% higher than

cost of supply. Thus instead of narrowing the gap between cost of power to the customer and cost of supply, the present proposal widens the gap.

In a recent ruling the Appellate Tribunal (Ur Iron Vs APERC), has ruled that the tariff should be gradually reduced to cost to serve.

CSEB's reply: There is no increase in the effective unit rate in cost of power to BSP and other heavy industries in the proposed tariff. The effective unit rate based on existing tariff is Rs. 4.09 and it continues to be the same in the proposed tariff. Where as there is no change in cost of power to the consumer, the cost of supply has increased from Rs. 3.41/KWh to Rs. 3.74/KWh. Regarding the order of the Tribunal in the case of APERC, the cost to serve in AP was reduced from Rs. 3.00/KWh to Rs. 2.97/KWh hence there was a case for reduction. In the case of CSEB the cost of supply has gone up to Rs. 3. 74.

(ii) Return on equity on paid up capital

BSP also raised objections to the proposed 14% return on equity and free reserves of Rs. 1158 crore. This would be unfair enrichment at the cost of consumers. If ROE is given only on equity of Rs. 23 crore, cost of supply would reduce by 19 paise / KWh.

CSEB's reply: As per clause 29 (2) of the terms and conditions of tariff regulations issued by CSERC, the internal resources created out of free reserves for funding the project shall also be reckoned as paid up capital for the purpose of computing the return on equity.

(iii) T&D losses

CSEB has projected T&D losses in 2006–07 as 34.51%, a reduction of 2% which is not sufficient. If CSEB achieves a target of 4% reduction, the cost of supply would reduce by 14 paise. The average T&D loss in India is 25%.

CSEB's reply: CSEB has taken a number of effective steps to reduce the T&D losses. The losses were reduced from 38.99% in 2004 – 05 to 36.51% in 2005–06, reduction of 2.48%. T&D loss reduction requires huge investment.

(iv) Plant Load factor

CSEB projected lower PLF in all their stations compared to 2005–06. PLF would be improved after deferment of AOH of some healthy units.

CSEB's reply: The performance of the plant was the highest in 2005–06 which cannot be expected to remain constant every year. A few units which were due for AOH during 2005–06 were not taken out. These units are to be taken out for AOH during 2006–07.

(v) Reduction of cross subsidy

As per the Electricity Act, the tariffs should progressively reflect the cost of supply. This would be achieved by gradual reduction of cross subsidy. With the present tariff proposal, the cross subsidy has gone up. It is violation of the Electricity Act.

CSEB's reply: As explained under (i) above, the tariff has not been increased even though the cost of supply has gone up as compared to 2005–06.

(vi) Discount on early payment of bill

2% discount for payment immediately on serving of bill may be allowed. Other States also give discount on early payment.

CSEB's reply: Electricity is a commodity for which bill is preferred after it is consumed i.e. the Board has already incurred the expenditure on fuel, etc. After issue of the bill, further time of 15 days is allowed for payment. There is therefore no case for early payment discount. However, discount for advance payment can be considered.

(vii) Tariff comparison with other steel plants

It is stated by BSP that the tariff charged by CSEB is higher compared to the tariff charged for steel plants in Orissa, West Bengal, Andhra Pradesh, Maharashtra. BSP has furnished the details of tariffs charged by other States.

CSEB's reply: The licensee has to recover the fixed charges in addition to the variable charge for the actual electricity supplied. As much as about 47% of average cost of supply is on fixed charges. CSEB's self generation and allocation from Central generating stations will improve in the coming years. When the cost of supply gets reduced only then the CSEB may be in a position to reduce the tariffs.

Chapter 4: Annual Revenue Requirement for 2006- 07: Licensees Proposal and Commission's Observations and Decisions

4.1 BACKGROUND

CSEB in its tariff petition has furnished data for the Board as a whole and for the generation, transmission and distribution functions together. Disaggregated data have also been furnished for the three functions which comprise function specific data as also data on common costs allocated on notional basis. The ARR and retail tariff proposals have been worked out, taking into account the sale of power by the generating units to the distribution function. The cost of wheeling of power by the transmission function has been added to the cost of generation taking into consideration the transmission losses. The Commission has examined the ARR of the Board as a vertically integrated entity, which it presently is. 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.

4.2 CAPITAL INVESTMENT PLAN FOR THE YEAR 2006-07

CSEB has submitted the capital investment plan for generation, transmission and distribution segments of the Board for the year 2006-07 at Rs. 2098 crore as detailed in Table-4.1 below:

Table-4.1
Capital Investment Plan

(Rs. crore)			
SI No.	Function	Expenditure for 2005-06	Projected for 2006-07
1	Generation	474.83	949.15
2	Transmission	228.31	449.31
3	Distribution	364.52	699.41
	Total	1067.66	2097.87

The projected investment in generation is mainly for

- i) Korba (East) Project (500 MW)
- ii) Korba (West) Project (500-600 MW)
- iii) Renovation and modernization of Korba East-III and Korba West.

The investment in transmission is for construction of new transmission lines and substations, augmentation of transformer capacity, refurbishment of

substations, testing equipment, AMR Metering, Network Analyzer and other capital investments.

The investment in distribution covers a number of works under various schemes, i.e.,

- i) APDRP
- ii) System improvement
- iii) Rural electrification and agriculture pump energization
- iv) Atal Jyoti Yojana
- v) Normal development works and civil works.

The details of the projects proposed during 2006-07 have been briefly explained in the ARR. The Board had also broadly indicated the financing plan for funding these projects as given in Table-4.2 below:

Table-4.2
Financing Plan for Capital Investment Programme

(Rs. crore)

Sl. No.	Details	2006-07			Total
		Consumer contribution and grants	Long Term Loans	Internal Resources	
1	Generation	0.00	683.67	265.48	949.15
2	Transmission	0.00	134.70	314.61	449.31
3	Distribution	389.05	0.00	310.36	699.41
4	Total	389.05	818.37	890.45	2097.87

It is seen from the financing plan that funding from consumer contribution and grants, and internal resources is substantial and an amount of Rs. 818.37 crore only is the long-term loan out of a total investment of Rs. 2097.87 crore.

Commission's views:

CSEB has large investment programme during 2006-07 as compared to earlier years. The programme was discussed with the officers of CSEB on the basis of the projects programmed, their need, the extent to which these could be implemented during the year 2006-07 and the investment requirements. The implementation of Korba (East) Project 2 X 250 MW is in an advance stage and there appears to be a requirement of funds to the tune of Rs. 546 crore. The order for implementation of Korba (West) – 2X250-300 MW project on EPC basis is likely to be placed within FY 06-07. Hence the requirement of fund of Rs. 216.48 crore for making advance payment and other expenditure would also be necessary. The renovation and modernization of thermal plants is essential to improve the performance of the

stations and are on hand. It is confirmed by the officers of the Board that the provision proposed for generation would be fully utilized. The investment plan for generation is therefore generally agreed.

The Board had initially furnished the details of transmission lines, substations and augmentation of transformer capacity at various substations etc. The works programmed and their need etc. were discussed. It is agreed by CSEB that the provision for some items such as AMR metering, network analyzer and provision for other normal works could be reduced. The Board accordingly revised the investment plan to Rs. 391 crore from Rs. 449 crore. The revised provision is agreed to.

In regard to distribution it has been explained that a number of works under APDRP, RGGVY, Atal Jyoti Yojana and RE works are already committed and are mostly being executed under turnkey contracts. Moreover, the works are being executed with consumer contribution, grants from the Central and State Governments and internal resources.

In view of the above, the investment programme for capital works and financing plan for 2006-07 is generally agreed to as below:

Table-4.3
Investment and Source of Funding

(Rs. crore)

Sl. No.	Details	2006-07			Total
		Consumer contribution and grants	Long Term Loans	Internal Resources	
1	Generation	0.00	683.67	265.48	949.15
2	Transmission	0.00	134.70	256.30	391.00
3	Distribution	389.05	0.00	310.36	699.41
	Total	389.05	818.37	832.14	2039.56

The Board has not submitted the capital investment plan for next three years and is directed to submit the same.

4.3 OPERATIONAL PARAMETERS

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 Central Electricity Regulatory Commission (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 and norms laid down in the CERC Regulations as above. 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 mentioned above.

As an integrated utility which is yet to be restructured, the CSEB has submitted as part of its ARR, costs relating to employees, contribution to gratuity and pension fund, administrative and general expenses, liability towards Income Tax and reasonable return for the whole Board and has also allocated these costs to generation, transmission and distribution functions on certain basis. The ARR in respect of these costs have accordingly been examined for the Board as a whole. While allocating these costs to three functions, the reasonableness of the basis of allocation has also been examined and allocation has been done accordingly.

4.4 GENERATION

The annual revenue requirement of generation function for the FY 2005, FY 2006 and the current year FY 2007 as presented by the Board, is given in Table-4.4 below:

Table-4.4
ARR for Generation

(Rs. crore)				
Sl. No.	Details	2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)
1.	Generation Costs (Fuel costs only)	423	461	508
2.	Repairs and Maintenance costs	127	94	103
3.	Employee costs	295	199	201
4.	Administration and General expenses	36	18	23
5.	Depreciation	12	12	23*
6.	Interest and Finance charges	48	63	164
7.	Less: Interest and expenses capitalized	1	16	60
8.	Other debits (including provision for bad debts)	0	0	0
9.	Provisions for Income Tax	33	86	69
10.	Total Cost	975	917	1031
11.	Add: Reasonable Return	49	56	64
12.	Less: Other income	23	5	7
13.	ARR for Generation	1001	968	1088

* As per supplementary filing submitted on 19.07.2006

The performance of the generating stations and the costs are discussed below.

4.4.1 Generating Stations of CSEB

CSEB owns and operates three coal based thermal generating stations, four hydel stations including one micro hydel station and one co-generation plant, as per details given in Table-4.5 below:

Table-4.5
CSEB: Generating Stations

Name of the Station	Nos. and Unit Size (MW)	Total Capacity (MW)
Korba East Phase II	4 X 50	200
Korba East Phase III	2 X 120	240
Korba West	4 X 210	840
Total Thermal (Coal based)		1280
Hasdeo Bango (Hydel)	3 X 40	120
Gangrel (Hydel)	4 X 2.5	10
Sikasar (Hydel)	2 X 3.5	7
Micro HPS Korba (West)	1 X 0.85	0.85
Kawardha Cogeneration Plant	1 X 6.0	6
Total Hydel and Co-Generation		143.85
Grand Total		1423.85

4.4.2 Operational Parameters of the Generating Stations

CSEB has submitted the actual performance of the generating stations for the years 2004-05, 2005-06 (estimated) and projected the performance for the year 2006-07 for the above thermal, hydel and co-generating stations. CSEB has also submitted the maintenance programme for the units and R&M programme (where applicable) for the years 2005-06 and 2006-07.

The performance of the stations is discussed below:

(a) Plant load factor (PLF) of thermal stations

CSEB has submitted the plant load factor for all the thermal stations, actuals for the years 2004-05 and 2005-06 (estimated) and projected for the year 2006-07, as given in Table-4.6 below:

Table-4.6
Plant Load Factor (PLF) (%)

Sl. No	Station	2004-05 Actuals	Approved by Commission for 2005-06	2005-06 (Estimated)	Projected for 2006-07
1	Korba East Phase II	90.34	80.00	91.92	88.50
2	Korba East Phase III	42.87	80.00	75.49	73.00
3	Korba West	73.94	76.00	78.09	74.50

A number of organizations and individuals have commented on the projection of low plant load factor (PLF), high auxiliary consumption, high heat rate, and high oil consumption of CSEB generating plants for 2006-07. It has been stated by them that better performance of the stations would reduce purchase of power at high cost and also reduce coal consumption etc., consequently the costs.

As may be seen from Table-4.6 above, CSEB has projected lower PLF for Korba East Phase-II & III and Korba West than what was achieved last year. The reasons given are as follows:

- (i) The PLF for 2006-07 for Korba East Phase II, will be less since all the units would be taken out for annual overhaul (AOH) for 15 days each, during 2006-07.
- (ii) Regarding Korba East Phase III, it is stated that during 2006-07, the normal AOH period would be extended by about 15 days, as major works like 'economizer' and 're-heater tube' replacement are to be undertaken during the year. These were not taken up during refurbishment of the plant during 2005-06.
- (iii) Regarding Korba West, it is stated that the PLF for 2006-07 will not be at the same level of 2005-06, as the AOH period is likely to be extended by 10 days for unit II, as compared to the normal period, due to postponement of AOH in previous years.

Commission's views:

The CERC has fixed a normative PLF of 80% for thermal generating stations (except for M/s Neyveli Lignite Corporation Ltd., Talcher & Tanda TPS of NTPC Ltd). The generating plants of CSEB are old and the units at Korba-II and III are of smaller capacity (50 MW and 120 MW).

It is noted that AOH of one unit of Korba East II (unit No. III) could not be done in the year 05-06 and in the AOH schedule for 06-07 it is proposed to be done in 15 days. Hence the Commission agrees that PLF for the year 06-07 may be less as compared to the actual for the year 05-06 i.e. 91.92%. The proposed PLF i.e. 88.5% which is above the normative PLF as per norms of CERC and also above the guaranteed PLF as per the refurbishment contract, is hence approved for Korba East Phase II.

As regards Korba East Phase III, the total period of AOH proposed for the year 06-07 is nearly the same as that of total AOH period in 05-06. The units have undergone refurbishment and the main objective of refurbishment is to increase generation, improve efficiency such as SHR, auxiliary consumption etc. Hence PLF lower than the PLF guaranteed by refurbishment agency cannot be agreed to. So the Commission decides that the PLF for the Korba East Phase III shall be 80%, which is equal to guaranteed PLF and also the norms.

Similarly the AOH schedule furnished by CSEB shows that the total AOH period proposed for Korba West Station for the year 06-07 is nearly the same as in 05-06. As per CEA report, there are 159 units of 200/210 MW capacity in India and the average PLF of these units was 79.22% during the year 2005-06. Since the units of the station are old, it is reasonable to assume that the station may not achieve normative PLF. However considering the performance of this station and also the average performance of 200/210 MW units in country for the year 2005-06, the Commission is of the view that the PLF of 78% can be achieved by the station in 06-07. Accordingly the Korba West PLF is approved as 78%, which is equal to the PLF achieved in the year 2005-06.

In view of the above discussion, the Commission approves the plant load factors for various stations as given in Table-4.7 below:

Table-4.7
Plant load factor (%) approved by the Commission

Sl. No	Station	Projected by CSEB for 2006-07	Approved by the Commission for 2006-07
1	Korba East Phase II	88.50	88.50
2	Korba East Phase III	73.00	80.00
3	Korba West	74.50	78.00

(b) Generation from Hydel and Co-generation Plants

CSEB has projected generation from hydel and co-generation plants as given in Table-4.8 below:

Table -4.8
Generation from Hydel and Co-generation Plants - CSEB

Generation	FY 05 Actuals	FY 06 Estimated	FY 07 Projected
Capacity (MW)			
Hasdeo Bango	120.00	120.00	120.00
Gangrel	10.00	10.00	10.00
Micro H.P.S. Korba (W)	0.85	0.85	0.85
Total Capacity (MW)	130.85	130.85	130.85
Generation (MU)			
Hasdeo Bango	375.10	360.00	360.00
Gangrel	7.51	10.11	10.11
Micro H.P.S. Korba (W)	4.78	4.80	4.80
Sikasar Hydel	-	-	7.18
Kawardha Co-gen. Plant	-	-	8.64
Gross Generation (MU)	387.39	374.91	390.73

Commission's views:

Generation proposed from Hasdeo Bango seems to be in order as generation from this hydel power station depends upon availability of water and release of water by Water Resource Department. DPR of Gangrel Hydel Station indicates that 39.7 MUs can be generated in a year from the station. The proposed generation of 10.11 MUs from the station is very low as compared to its capacity. CSEB should try to generate at least 20 MUs from the station. It is learnt that units of Sikasar Hydel Station have been synchronized in September'06 and unit of Kawardha co-generation plant has been Commissioned in September, 2006. Considering these developments the Commission approves generation from hydel stations and co-generation station as given in Table-4.9 below:

Table - 4.9
Generation from Hydel and Co-generation Plants Approved

Sl. No.	Station	Capacity (MW)	Gross Generation Projected by CSEB (MU)	Gross Generation Approved by the Commission (MU)
1	Hasdeo Bango Hydel	120.00	360.00	360.00
2	Gangrel Hydel	10.00	10.11	20.00
3	Micro HPS Korba (West)	0.85	4.80	4.80
4	Sikasar Hydel	7.00	7.00	7.18
5	Kawardha Co-Gen. Plant	6.00	8.64	8.64
	Total Hydel and Co-Generation	143.85	390.73	400.62

(c) Auxiliary consumption of thermal stations

CSEB has submitted the actual auxiliary consumption for the years 2004-05 and 2005-06 (estimated) and projected consumption for 2006-07 as given in Table-4.10 below:

Table-4.10
Auxiliary Consumption of Thermal Stations (%) - Submission by CSEB

Sl. No.	Station	2004-05 Actuals	Approved by the Commission for 2005-06	2005-06 (Estimated)	Projected by CSEB for 2006-07
1	Korba East Phase II	10.30	10.25	10.18	10.25
2	Korba East Phase III	9.98	9.50	8.84	9.50
3	Korba West	9.76	9.50	9.58	9.50

The auxiliary consumption for Korba East Phase II and Phase III for 2005-06 has been less than what was approved by the Commission, where as for

Korba West station it is marginally more. CSEB has projected auxiliary consumption for each station for 2006-07 as approved by the Commission for the last year.

Commission's views:

In the last tariff order, the Commission while approving the auxiliary consumption for different stations as mentioned above, for 2005-06 had directed the CSEB as follows:

- To bring down auxiliary consumption below 10% in Korba East Phase-II station and below 9.5% in Korba East Phase-III by the time of the next tariff filing.
- To make efforts to bring down auxiliary consumption below 9.5% by the next year in Korba West.

Based on the actuals for 2005-06, refurbishment done, vintage and capacity of the units etc., the auxiliary consumption for 2006-07 is considered and approved by the Commission for the three stations as in Table-4.11 below:

Table-4.11
Auxiliary Consumption of Thermal Stations Approved by the Commission

Sl. No	Station	Proposed by CSEB for 2006-07 (%)	Approved by the Commission 2006-07 (%)
1	Korba East Phase II	10.25	10.15
2	Korba East Phase III	9.50	9.00
3	Korba West	9.50	9.50

(d) Auxiliary Consumption of Hydel and Co-generation Plants.

CSEB has submitted the auxiliary consumption actuals for the hydel and co-generation plants for 2004-05 and 2005-06 and projections for 2006-07 as given in Table-4.12 below:

Table-4.12
Auxiliary Consumption of Hydel and Co-generation Plants (%) - Submission by CSEB

Sl. No.	Station	2004-05 Actuals	2005-06 (Estimated)	Projected by CSEB for 2006-07
1	Hasdeo Bango	0.34%	0.64%	0.64%
2	Gangrel	0.17%	0.23%	0.23%
3	Micro HPS, Korba	-	16.67%	16.67%
4	Sikasar Hydel	-	-	0.50%
5	Kawardha Cogen. Plant	-	-	9.50%

Commission's views:

The auxiliary consumption of 16.67% for micro HPS, Korba, is very high. The Commission fixes it at 1% on the basis of DPRs' for small hydel projects received from CREDA. In case of other it appears reasonable. The Commission approves the auxiliary consumption for the hydel and co-generation plants for 2006-07 as given in Table-4.13 below:

Table-4.13
Auxiliary Consumption of Hydel and Co-generation Plants (%)
Approved by the Commission

Sl. No	Station	Proposed by CSEB for 06-07	Approved for 06-07
1	Hasdeo Bango	0.64	0.64
2	Gangrel	0.23	0.23
3	Micro HPS, Korba (West)	16.67	1.00
4	Sikasar Hydel	0.50	0.50
5	Kawardha Co-gen. Plant	9.50	9.50

(e) Station Heat Rate (SHR)

CSEB submitted the heat rate actuals for 2004-05, estimated for 2005-06 and projections for 2006-07 for various stations as given in Table-4.14 below:

Table- 4.14
Station Heat Rate – Submission by CSEB
(KCal/KWh)

Sl. No.	Station	2004-05 Actuals	Approved by the Commission for 2005-06	2005-06 (Estimated)	Projected by CSEB for 2006-07
1	Korba East Phase II	3348	2780	3053	3102
2	Korba East Phase III	3078	2600	2854	2876
3	Korba West	2536	2600	2642	2593

On the SHR the CSEB has submitted as under:

- The heat rate achieved and projected for Korba East Phase II was on a higher side than approved by the Commission due to varying quality of coal received from suppliers and due to sand erosion/deposition in CW Pumps/Coolers, as the water canal of the power station is being used by the Water Resource Department for irrigation purposes, affecting the performance of generation units.
- For Korba East Phase III the heat rate is on the higher side. Such (120 MW series) units across the country have been experiencing varied performance on a year to year basis due to some technical constraints.

- All the units are quite old and guaranteed parameters as per the R&M contract could not be achieved due to the above reasons.
- The average total moisture in coal, as fixed for these stations, is 12% against 10% stipulated, due to which the boiler efficiency is reduced.

Commission's views:

While the Board's constraints are appreciated, it has to take the remedial measures. The guaranteed heat rate for Korba East Phase II, after R&M of the units is 2650 KCal/KWh, as revealed by CSEB officials during technical validation meeting. The recommendations of CEA on technical standards on operation norms for coal fired thermal power stations of capacities less than 200 MW suggests that SHR should be 5% above the guaranteed heat rate. Considering this recommendation the heat rate of 2780 KCal/KWh was approved by the Commission for the year 2005-06 and the same is approved for the year 06-07. Similarly, the guaranteed heat rate for Korba East Phase III, after refurbishment of the units was stated to be 2450 KCal/KWh. With 5% allowance, the heat rate of 2600 KCal/KWh as approved by the Commission for 2005-06 is approved for year 2006-07. For Korba West plant, the heat rate achieved for 2004-05 was 2536 KCal/KWh. For the year 2006-07, a heat rate of 2575 KCal/KWh should be achieved against the actual heat rate of 2642 KCal/KWh for 2005-06 and projected heat rate of 2593 KCal/KWh by CSEB.

The normative heat rate fixed by CERC for 200/210 MW units is 2500 KCal/kWh. The National Tariff Policy however states "in cases where operations have been mostly below the norms for many previous years, the SERCs may fix relaxed norms suitably and draw a transition path over time for achieving the norms notified by the Central Commission". However, in consideration of the capacity, vintage of the plant and the CERC norms, the Commission approves the following station heat rates as given in Table-4.15 below:

Table-4.15
SHR Approved by the Commission

Sl. No.	Station	(KCal/KWh)	
		Proposed by CSEB for 2006-07	Approved by the Commission for 2006-07
1	Korba East Phase II	3102	2780
2	Korba East Phase III	2876	2600
3	Korba West	2593	2575

(f) Specific Oil Consumption (Secondary Fuel)

CSEB has submitted station-wise specific oil consumption for the thermal stations, actuals for 2004-05, for 2005-06 (estimated) and projections for 2006-07, as given in Table-4.16 below:

Table-4.16
Specific Oil Consumption – CSEB Submission

(ml/KWh)					
Sl. No.	Station	2004-05 Actuals	Approved by the Commission for 2005-06	2005-06 (Estimated)	Projected by CSEB for 2006-07
1	Korba East Phase II	1.85	2.00	1.25	1.80
2	Korba East Phase III	3.55	2.53	2.00	2.59
3	Korba West	1.27	1.25	1.12	1.30

CSEB has submitted that for Korba East Phase III and Korba West Stations, both furnace oil and HSD/LDO are used as secondary fuel. The specific oil consumption mentioned above are inclusive of both furnace oil and HSD/LDO. For all the stations the actuals for 2005-06 are within the target approved by the Commission.

Commission's views:

The CERC norm for secondary fuel oil consumption is 2 ml/KWh. Based on the actual performance for 2005-06, the Commission approves the specific oil consumption for different stations for 2006-07, as given in Table-4.17 below:

Table-4.17
Specific Oil Consumption approved by the Commission

(ml/KWh)			
Sl. No.	Station	Proposed by CSEB for 2006-07	Approved by the Commission 2006-07
1	Korba East Phase II	1.80	1.50
2	Korba East Phase III	2.59	2.00
3	Korba West	1.30	1.25

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

4.4.3 Gross Generation

The gross generation as projected by CSEB and the generation approved by the Commission based on the approved PLF, the energy that could be generated by each of the stations is given in Table-4.18 below:

Table-4.18
Gross Generation – As Approved by the Commission

Sl. No.	Station	Capacity (MW)	Gross Generation Projected by CSEB (MU)	Approved PLF (in %)	Gross Generation Approved by the Commission (MU)
1	Korba East Phase II	200	1551	88.50	1551
2	Korba East Phase III	240	1535	80.00	1682
3	Korba West	840	5482	78.00	5740
	Total Thermal	1280	8568	80.00	8973
4	Hasdeo Bango Hydel	120	360.00	-	360.00
5	Gangrel Hydel	10.00	10.00	-	20.00
6	Micro HPS Korba (West)	0.85	4.80	-	4.80
7	Sikasar Hydel	7.00	7.18	-	7.18
8	Kawardha Co-Gen. Plant	6.00	8.64	-	8.64
	Total Hydel and Co-Generation	1423.85	390.73		400.62
	Total Self Generation		8958.73		9373.62

4.4.4 Net Generation

Considering the approved auxiliary consumption for each of the generating station, the net generation from each of the station of the CSEB is given in Table-4.19 below:

Table-4.19
Net Generation – As Approved by the Commission

Sl. No.	Station	Net Generation Proposed (MU)	Gross Generation (MU) (Approved)	Auxiliary Consumption (%) (Approved)	Auxiliary Consumption (MU) (Approved)	Net Generation (MU) (Approved)
1	Korba East Phase II	1391.59	1551	10.15	157	1394
2	Korba East Phase III	1388.95	1682	9.00	151	1531
3	Korba West	4961.22	5740	9.50	545	5195
	Total Thermal	7741.76	8973	-	853	8120
4	Hasdeo Bango Hydel	357.70	360.00	0.64	2.30	357.70
5	Gangrel Hydel	10.09	20.00	0.23	0.05	19.95
6	Micro Hydel	4.00	4.80	1.00	0.05	4.75
7	Sikasar Hydel	7.14	7.18	0.50	0.04	7.14
8	Kawardha Co-gen.	7.82	8.64	9.50	0.82	7.82
	Total Hydel and Co-Generation	386.75	400.62	-	3.26	397.36
	Total for CSEB	8128.51	9373.62		856.26	8517.36

The Commission approves net generation of 8517 MU from CSEB's generating stations against 8128 MU projected by the latter.

4.5 EXPENSES

The expenses projected by the CSEB for generation function are discussed below:

4.5.1 Fuel Costs:

4.5.1.1 Fuel Supply

CSEB gets its coal supplies from the coalfields near Korba. Coal is transported by rail, ropeway and conveyer belt (for Korba West) over a distance of about 10 to 15 Kms. The secondary fuel (oil) is supplied by oil companies.

4.5.1.2 Transit & Stacking Loss of Coal

CSEB has projected the transit and stacking loss of coal in 2006-07 at 3.0% for Korba (East) and 2% for Korba (West) stations, where as the actuals for 2005-06 were 0.28% for Korba (East) and 0.29% for Korba West.

The Commission approves, the transit and handling loss of coal at 0.3% for all the three stations, in line with the CERC norm of 0.3% for pithead stations and also considering the actual loss during 05-06.

CSEB was already directed to install and commission weightometers to arrive at the exact loss of coal during transit. Without such facility, accurate assessment of coal consumption as also of transit and handling loss is not possible. The weightometers, however, are yet to be installed. CSEB will do it now as early as possible.

4.5.1.3 Fuel Cost

The fuel for CSEB thermal stations include coal and secondary fuel (Oil). As already mentioned coal is supplied to all the thermal stations from coalmines of SECL near Korba and secondary oil is supplied by oil companies. CSEB receives coal from SECL mines, which is normally of "F" grade and sometime even "G" grade. However, CV of coal varies from mine to mine.

Assessment of fuel requirement and cost

a) Coal

The Consumption of coal and oil and their costs are derived from the following parameters:

- Station heat rate in KCal/KWh
- Calorific value of coal
- Calorific value of secondary fuel (oil)
- Gross Generation
- Specific oil consumption, and
- Price of coal & oil

CSEB has worked out the fuel requirement and the fuel costs based on the operating parameters and costs as detailed in Table-4.20 for the 2006-07.

Table-4.20
Fuel Requirements and Costs for 2006-07 – CSEB Submission

Sl. No	Station	Gross Generation (MW)	Heat Rate KCal / KWh	Transit Loss of Coal (%)	Weighted Average Cost of Coal Rs./MT	Weighted Average Calorific Value of Coal KCal/Kg	Cost of Oil Rs./KL	Calorific Value of Oil KCal/L	Specific Consumption of Oil ml/KWh
1	Korba East Phase II	1551	3102	3%	598	3450	21448	10000	1.80
2	Korba East Phase III	1535	2876	3%	598	3450	22230	10000	2.59
3	Korba West	5482	2593	2%	629	3430	24097	10000	1.30

CSEB has submitted that the average GCV of Coal, based on joint sampling tests carried out by CSEB along with the SECL as well as the tests carried out at the plant, and the weighted average cost of coal/MT during 2005-06 have been taken to workout the costs during 2005-06. However, for 2006-07, an increase of about 5% is assumed over the cost of coal per MT during 2005-06.

Commission's views:

a) Coal

The weighted average cost of coal per MT, and the corresponding calorific value for the coal purchased by CSEB have been obtained by the Commission for the month of April 2006 as it is considered that these values would be more realistic to adopt for the year 2006-07. The actual cost of coal per MT and the GCV of coal (as fired), are obtained for the supplies during April 2006. The Commission approves the rates as detailed in Table-4.21 below for the year 2006-07, on the basis of these rates:

Table-4.21
Cost of Coal/MT & GCV of Coal approved by the Commission-2006-07

Sl. No	Station	GCV of Coal KCal/Kg	Cost of Coal Rs./MT
1	Korba East Phase II	3420	598
2	Korba East Phase III	3420	598
3	Korba West	3658	617

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. The costs indicated by the CSEB in its filing is the weighted average cost of the mixed oil as obtained in 2005-06. The calorific value of oil is stated as 10000 KCal/L for 2005-06 and the same value is projected for the year 2006-07.

Commission's views:

The calorific value of oil at 10000 KCal/Kg, as projected by the CSEB, is approved by the Commission. The latest invoices for oil have been verified and the rate per KL of furnace oil is considered on the basis of the latest invoice dated 13-05-2006 of HPCL and the rate per KL of HSD is proposed based on the latest invoice dated 06-07-2006 of Reliance Industries Limited. The cost of oil/KL is worked out based on the proportion of furnace oil and HSD proposed to be used for different stations for 2006-07. Based on the above, the rate per KL and CV of secondary oil for different stations are approved as in the Table-4.22 below:

Table-4.22
CV of Oil and Cost of Oil – Approved by the Commission

Sl. No	Station	CV of Oil KCal/L	Cost of Oil (Rs./KL)
1	Korba East Phase II	10000	23982
2	Korba East Phase III	10000	24726
3	Korba West	10000	26578

4.5.1.4 Total Fuel Costs**a) Coal Costs**

Based on the target and rates approved by the Commission for 2006-07 as above, the quantity of coal and costs of coal are given in Table-4.23 below:

Table-4.23
Quantity and Cost of Coal - Approved by the Commission for 2006-07

Sl. No	Station	Gross Generation (MU)	Net Generation (MU)	Quantity of Coal required inclusive of 0.3% of Transit Loss (MT)	Cost of Coal Rs./MT	Cost of Coal (Rs. Crore)
1	Korba East Phase II	1551	1394	1257725	598	75
2	Korba East Phase III	1682	1531	1272695	598	76
3	Korba West	5740	5195	4033081	617	249
	Total Cost	8973	8120	6563501		400

b) Oil Cost

Based on the norms and rates approved by the Commission for 2006-07 as above, the quantity of secondary fuel (oil) required and the cost of oil are as detailed in the Table-4.24 below:

Table-4.24

Secondary Oil Quantity and Cost Approved by the Commission for 2006-07

Sl. No.	Station	Gross Generation (MU)	Quantity of Secondary Oil Required (KI)	Cost of Oil (Rs./KI)	Cost of Oil (Rs. Cr.)
1	Korba East Phase II	1551	2327	23982	5.58
2	Korba East Phase III	1682	3364	24726	8.32
3	Korba West	5740	7175	26578	19.07
	Total	8973	12866		32.97

4.5.1.5 Other Variable Costs

In addition to the coal and oil costs for thermal generation, CSEB has projected the following variable costs for different stations which include cost of water supplied, excise duty and cess on auxiliary consumption as in Table-4.25 below:

Table-4.25

Other Variable Costs

Sl. No.	Station	Cost of Water (Rs. crore)	E.D & Cess on auxiliary Consumption (Rs. crore)	Total (Rs. crore)
	Thermal Generating station			
1	Korba East Phase II	1.43	4.88	6.31
2	Korba East Phase III	1.37	4.58	5.95
3	Korba West	3.75	14.00	17.75
	Total Thermal	6.55	23.46	30.01
4	Hydel and Co- Gen Plant	7.23	0.03	7.26
	Total	13.78	23.49	37.27

The water charges and charges under ED and cess on auxiliary consumption for the thermal and hydel generations, which are Government levies, are approved by the Commission, as projected by the CSEB.

Cost of lubricants, consumable and chemicals

CSEB has considered the cost of lubricants, consumable and chemicals in fuel cost. Since these are included in the R & M expenditure and hence are not included in the computation of fuel cost.

The station heat rate proposed by CSEB for Kawardha Co-gen. plant does not appear to be reasonable hence the Commission has fixed it on the basis of other similar generating plants.

The Commission approves the total fuel and other costs at Rs. 471.00 crore for the year 2006-07, against Rs.507.67 crore projected by CSEB. The fuel and other variable costs as projected by CSEB and as approved by the

Commission for 2006-07 for the generating stations are given in Tables -4.26 and 4.27 below:

Table-4.26
Fuel and other Variable Costs as Projected by CSEB and as approved by the Commission for 2006-07

Station	Gross Generation		Net Generation		Fuel Costs		Other Variable Costs (Water Charges & ED & Cess on auxiliary consumption Charges (Rs. Cr)		Total Variable Costs		Variable Costs	
	(MU)		(MU)		(Rs. Cr.)		(Rs. Cr)		(Rs. Cr)		Rs./KWh (Net)	
	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved	Proposed	Approved
Korba East Phase II	1551	1551	1392	1394	95.02	81.00	6.31	6.31	101.33	87.31	0.72	0.63
Korba East Phase III	1535	1682	1389	1531	88.06	84.00	5.95	5.95	94.01	89.95	0.68	0.59
Korba West	5482	5740	4961	5195	286.20	268.00	17.75	17.75	303.95	285.75	0.61	0.55
Hydel Plant	381.98	391.98	378.93	389.54	-	-	7.24	7.24	7.24	7.24	-	-
Kawardha Co-gen. Plant	8.64	8.64	7.82	7.82	1.12	0.83	0.02	0.02	1.14	0.85	1.46	1.08
Total	8958.62	9373.62	8128.51	8517.36	470.4	433.83	37.27	37.27	507.67	471.10	0.62	0.55

Table-4.27
Fuel costs

Sl.No.	Item	Unit	East Phase- II	East Phase- III	West
			2006-07 Approved	2006-07 Approved	2006-07 Approved
1	Capacity	MW	200	240	840
2	P.L.F	%	88.5	80	78
3	Generation (Gross)	MU	1551	1682	5740
4	Auxiliary consumption	%	10.15	9	9.5
5	Auxiliary consumption	MU	157	151	545
6	Net Generation	MU	1394	1531	5195
7	Heat Rate	KCal/KWh	2780	2600	2575
8	Specific Oil Consumption	ml/KWh	1.5	2.00	1.25
9	Calorific Value of Oil	KCal/litre	10000	10000	10000
10	Calorific Value of Coal (GCV)	KCal/Kg.	3420	3420	3658
11	Overall Heat	G. Cal.	4311780	4373200	14780500
12	Heat from Oil	G.Cal	23265	33640	71750
13	Heat from Coal	G.Cal	4288515	4339560	14708750
14	Actual Oil Consumption	KL	2327	3364	7175
15	Actual Coal Consumption	MT	1253952	1268877	4020981
16	Coal Consumption including stacking and handling loss of 0.3%	MT	1257725	1272695	4033081
17	Cost of Oil per KL	Rs./KL	23982	24726	26578
18	Cost of Coal per MT	Rs./MT	598	598	617
19	Total Cost of Oil	Rs. Crore	5.58	8.32	19.07
20	Cost of Coal	Rs. Crore	75	76	249
21	Total Fuel Cost	Rs. Crore	81	84	268
22	Fuel cost / Unit Gross	Rs./KWh	0.52	0.50	0.47
23	Fuel cost / Unit Net	Rs./KWh	0.58	0.55	0.52
24	Specific Coal Consumption	Kg/KWh	0.811	0.757	0.703

4.5.2 Operation and Maintenance (O&M) Expenses

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

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

The projected costs under the above heads are discussed below:

a) Employee cost

As already mentioned CSEB has projected employee cost for the three functions generation, transmission and distribution together and has also furnished disaggregated data broadly on the basis of number of employees in each function. The cost of employees comprises salaries and wages, dearness allowance, terminal benefits in the form of pension and gratuity and staff welfare expenses. In addition, CSEB has included a provision for wage revision of employees which is said to be due from 1.12.2005 and also a provision for contribution to Gratuity and Pension Fund. For the year 2006-07 the Board has proposed the following amounts under each of the above for CSEB as a whole as given in Table-4.28 below:

Table-4.28
Employee cost as projected by CSEB

Sl. No.	Components of Cost	Cost (Rs. Crore)	Remarks
1	Basic Pay	262.59	Including additional pay with 5% increase over 2005-06
2	Dearness Allowance (DA)	70.29	8% increase over 2005-06
3	Other Costs	26.60	5% Increase over 2005-06
4	Wage revision	67.63	15% increase over Basic pay from 01-12-2005
5	Total Salaries & Wages (1 to 4)	427.11	
6	Other Allowances & Benefits	42.55	With 5% increase over 2005-06
7	Total Salaries, Wages & Allowances (5+6)	469.66	
8	Pension Payment	75.00	Actual Estimate
9	Contribution to gratuity and pension fund	100.00	
10	Other terminal benefits	0.77	5% increase over 2005-06
11	Total terminal benefits (8+9+10)	175.77	
12	Total employee cost (7+11)	645.43	
13	Less: expenses capitalized	10.64	
14	Net employee cost (12-13)	634.79	

CSEB has projected 5% increase in pay and other related costs over 2005-06, 8% increase in the case of D.A, 15% increase over the increased pay including additional pay merged and D.A there on as a commitment due to proposed revision of pay with effect from 01-12-2005. In addition, provision has been made for pension payment during the year and a contribution of Rs. 100 crore to the gratuity and pension fund. A total amount of Rs. 645.43 crore has been claimed towards employee cost.

Commission's views:

Some consumer associations/consumers have filed their objections with regard to the computation of gratuity and pension fund and also the contribution proposed to the fund. Objections have also been raised with regard to estimation of employee cost and provision for wage revision. The Commission has examined the cost on employees claimed by CSEB in the light of the above comments and objections. The 5% increase in salaries and wages and other related costs over the previous year is considered reasonable. CSEB has claimed 8% increase in Dearness Allowance while the normal increase would be about 4 to 6%. Therefore, a 5% increase is approved. In regard to wage revision, the expenditure is stated to be 15% of the pay, additional pay and DA thereon with effect from 01-12-2005. CSEB has not furnished the details for the claim, but submitted during discussions that the assessment was based on the earlier revision. Generally, revision of wages is being done every five years in CSEB. This has been the practice since the days of MPEB. On that basis the revision is due from 1st December 2005. CSEB has claimed Rs. 67.63 crore towards wage revision and has projected it as an expenditure to be incurred in FY 2006-07. The above amount has been assessed on the basis of the last pay revision. **Although this liability has not been approved by the Board, the Commission agrees to include it in the ARR of FY 2006-07 subject to the condition that in case of non-payment or variation in the amount paid, it shall be taken into account in the next year's ARR.**

Gratuity and Pension Fund

As per the actuarial valuation report as on March 31, 2004 the total funding requirement of the gratuity and pension fund was estimated at Rs. 1140 crore. As on 31.03.2006, the size of the fund comprising CSEB's contribution towards its corpus and the interest etc. earned thereon ploughed back into the fund, was Rs. 1269 crore. However, the updated actuarial valuation report as on March 31, 2005 has put the fund requirement for the pension and gratuity liability at Rs. 1920 crore.

Although there is a sudden increase in the size of the fund by more than 50% for which no explanation has been provided, except that it is based on actuarial valuation, it has been accepted as such since actuarial valuation is generally a very complex exercise which has been done by consultants. The Commission has no basis for disagreement with this valuation. There is a

funding gap of Rs. 651 crore (Rs. 1920 – Rs. 1269 crore) in the Fund. In order to gradually bridge the funding gap CSEB has made a contribution of Rs. 200 crore to this Fund during FY 2005-06 and has sought a further provision of Rs. 100 crore during FY 2006-07 in the present ARR. In addition to the contribution of Rs. 100 crore, a separate provision of Rs. 75 crore has been made for payment of pension and gratuity during FY 2006-07.

It has been submitted to the Commission that since the Gratuity and Pension Fund already exists, the pension liability in full should be met from the Fund only and not separately by the CSEB. The Commission agrees with this view. After the Fund has been created, all payments of pension and gratuity should be made from the Fund only. The Commission therefore approves a contribution of Rs. 175 crore for FY 2006-07 to the Fund. Rs. 1.00 lac per employee per annum is the maximum amount, which does not attract the Fringe Benefit Tax (FBT). Under the Income Tax Rules, if a trust fund is created then the initial contribution paid into such a fund in respect of the past service liability will be treated as a tax-deductible item in assessing the tax liability of the Board. It will thus lessen the load on ARR by way of lessening the burden of tax liability.

The Commission approves an amount of Rs. 638.16 crore, against Rs. 645.42 crore claimed by CSEB, under the head employee cost as per details given below in Table-4.29:

Table-4.29

Employee cost of the CSEB as a whole approved by the Commission

(Rs. crore)

Sl. No.	Particulars	Projected by CSEB	Approved by the Commission
1.	Basic pay	262.59	262.59
2.	Dearness Allowance	70.29	63.02
3.	Other costs	26.60	26.60
4.	Wage revision	67.63	67.63
5.	Other Allowance and Benefits	42.55	42.55
6.	Contribution to gratuity and pension fund for fund building and for payment of pension and gratuity	175.00	175.00
7.	Other terminal benefits	0.77	0.77
	Total Employees' cost	645.43	638.16

Function-wise Allocation

The employee cost has been segregated by the Board on functional basis and the total expenditure on employees has been more or less equally distributed among the three functions whereas the number of employees working in each function is not the same. During validation, CSEB has indicated the

segregation of employees as approximately 27%, 9% and 64% for generation, transmission and distribution respectively. The Commission considers it appropriate to distribute the employee cost among the three functions in the above ratio. The function-wise allocation of employee cost would be as given in Table-4.30 below:

Table-4.30
Function-wise allocation of Employee Cost

(Rs. crore)

Details	Proposed by CSEB for 2006-07	Approved by the Commission
Generation	201.28	175.31
Transmission	194.31	52.6
Distribution	249.83	410.25
Total employee expenses for CSEB	645.42	638.16

The break up of employees' cost allocated to generation function by the Board and approved by the Commission is given in Table-4.31 below:

Table-4.31
Employee Cost – Generation

(Rs. crore)

Sl. No.	Details	2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved)
1	Employee costs	102.99	113.16	146.46	125.20
2	Terminal Benefits	191.91	85.57	54.81	50.11
3	Total Costs	294.90	198.73	201.27	175.31

b) Repair and Maintenance (R&M) Expenses

CSEB has projected the R&M expenses for generation function at Rs.103.15 crore for the year 2006-07. The details are given in Table-4.32 below:

Table-4.32
Repair and Maintenance Expenses projected by CSEB

Sl. No	Year	(Rs. Crore)
1	2004-05 (Actuals)	127.49
2	2005-06 (Estimated)	93.77
3	2006-07 (Projected)	
3.1	Plant and Machinery	77.22
3.2	Buildings	13.03
3.3	Civil works	9.21
3.4	Hydraulic work	1.30
3.5	Vehicles	2.19
	Total projected for 2006-07	103.15

The Board has thus asked for an increase of about 10% in 2006-07 over the expenses for the year 2005-06.

Commission's views:

The R&M expenses projected have been examined and is considered high. The Board has spent considerable amounts on renovation and modernization of thermal plants. Therefore, there should in fact be a reduction in R&M expenses.

The renovation and modernisation of Korba East-II and Korba East-III has been almost completed. The renovation and modernisation of main plant of Korba West is in the planning stage. However, some renovation and modernization works at these stations are being taken under capital investment. The inventory in the stores of the power stations is of about Rs. 161 crore. In view of the above, it is felt that repair and maintenance charges of Rs. 103.15 crore projected for generation are very high and works out to about 8% of gross fixed assets. Some of the works provided under R&M, such as buildings, vehicles etc., unless the provision is for repairs and maintenance, should be treated as capital works. The repair and maintenance expenses are normally allowed in the range of 1 to 2% of, gross fixed assets. The Central Electricity Regulatory Commission (CERC) had earlier fixed 2.5% of capital cost of the project as O&M expenses, which include employee cost, R&M, and Administration & General expenses. The CERC regulations on terms & condition on tariff has fixed the normative O&M expenses for coal based generating stations of 200/210/250 MW capacity for the year 2006-07 at Rs. 11.25 lacs per MW.

However, in view of the vintage of the plant, R&M expenses can be allowed at 5% of gross fixed assets, which works out Rs. 64.80 crore on gross fixed assets of 1295.80 crore. The expenditure proposed on buildings and civil works, the details of which have not been furnished, is very high. **The Commission directs that within the over all limit of Rs. 64.80 crore for R & M expenses, the expenditure on building and civil works shall not be more than 10%.** Considering the expenditure incurred on renovation and modernization up till now and the level of inventory available in power stations, the R & M expenditure to the extent 5% of gross fixed assets is considered sufficient. The Commission therefore approves Rs. 64.80 crore as R & M cost for generation, with cost of civil works restricted to 10% of that, against Rs.103.15 crore projected by the Board.

c) Administration and General Expenses

The Administration and General (A & G) expenses estimated for FY 07 for CSEB is Rs. 89.12 crore for all the three functions i.e., generation, transmission and distribution, comprising of direct A & G expenses as Rs. 47.12 crore and an amount of Rs. 42 crore as donation to CM's Relief Fund. It has been submitted that these estimates are based on historical

trends. The direct A & G expenses incurred in FY 06 is estimated to be Rs. 42.83 crore, which has been escalated at 10% to arrive at Rs. 47.12 crore. The allocation of these expenses to generation, transmission and distribution has been done largely on the basis of the expenses identified for each function in the provisional annual accounts for FY 05.

Commission's views:

It has been pleaded by a number of objectors before the Commission that the donation to CM's Relief Fund cannot be permitted. The Commission agrees with this view. Consumers should not be burdened with an expenditure, which does not pertain to operations of the utility. The proposal of CSEB to contribute Rs. 42.00 crore towards Chief Minister's Relief Fund cannot be agreed to. The Commission approves only direct A & G expenses for FY 07 at Rs. 47.12 crore for the CSEB as a whole, which has been segregated on the basis mentioned above. The function-wise allocation of A & G expenses is given in Table-4.33 below:

Table-4.33
Function wise allocation of A & G Expenses

	Projected by CSEB for 2006-07	Approved for 2006-07
Generation	22.6	11.95
Transmission	31.81	16.82
Distribution	34.71	18.35
Total for CSEB	89.12	47.12

(Rs. crore)

Allocation to generation

CSEB has projected an amount of Rs.22.60 crore towards A & G expenses for generation, including an amount of Rs.10.65 crore as contribution to CM's Relief Fund.

The direct A & G expenses, projected are Rs.11.95 crore which is about 10% more than the previous year's expenses of Rs.10.86 crore. This is considered reasonable. The Commission approves A&G expenses at Rs.11.95 crore for the year 2006-07 under generation, against Rs.22.60 crore claimed by the Board.

O&M Expenses

The Commission approves the O&M expenses under various heads for generation for the year 2006-07 as given in Table-4.34 below:

Table-4.34
O&M Expenses – 2006-07

(Rs. Crore)

SI No	Function	Projected by CSEB	Approved by the Commission
1	Employee cost	201	175.31
2	R&M Expenses	103	64.80
3	Administration & General Expenses	23	11.95
	Total	327	252.06

The Commission approves O&M costs of Rs.252.06 crore for the year 2006-07 against Rs.327 crore claimed by the Board for generation function.

4.5.3 Interest and Finance Charges

For the generation function CSEB has claimed Rs. 164.04 crore as interest and finance charges which include Rs. 60.54 crore paid by CSEB to the State Government pertaining to interest liability on power bonds issued against Western Coal Fields Ltd. overdues, in terms of the scheme for settlement of dues recommended by Montek Singh Ahluwalia Committee. This is booked in generation function as these dues pertain to coal. The other interest and finance charges pertain to existing loans from State Government and existing and proposed loans taken from financial institutions and Banks etc. and the cost of raising finances. The State Government loans out standing are Rs. 273.05 crore on which the CSEB has claimed interest amounting to Rs. 23.19 crore. This works out to be 8.5%. The total long-term loans from financial institutions and Banks etc. are Rs. 1231.53 crore which comprise existing loans of Rs. 547.86 crore and proposed loans of Rs. 683.67 crore on which CSEB has claimed Rs. 75.45 crore as interest, at rates in the range of 7 to 14%. The weighted average rate of interest of 8.5% for the CSEB as a whole is considered to be reasonable. The interest and other expenses capitalized at Rs. 60.14 crore is also approved as projected by CSEB. The interest burden on these loans for generation function is as given in Table-4.35 below:

Table-4.35
Interest and Finance Charges – 2006-07

(Rs. crore)

SI. No.	Details	Projected by CSEB & approved by the Commission
1.	Interest and Finance charges on State Government loans, Bonds and Advances.	83.73
2.	Interest and Finance charges on long-term loans etc.	75.45
3.	Interest on working capital	0
4.	Other interest and finance charges	4.86
5.	Total interest charges	164.04
6.	Less Interest and Finance Charges chargeable to Capital Works Account	59.57
	Net interest and finance charge	104.47

4.5.4 Capitalization of interest & other expenses for Generation

Interest on the loans utilized for capital works is capitalized. The interest and other expenses proposed to be capitalized during 2006-07 is given in Table-4.36 below as Rs. 60.14 crore for generation:

Table-4.36
Capitalization of Expenses

Details	Rs. Crore
Interest capitalized	59.57
Other expenses capitalized	0.57
Total	60.14

4.5.5 Depreciation

CSEB initially claimed depreciation of Rs. 31.57 crore for the Board as a whole, on the gross fixed assets of Rs.722.12 crore at the beginning of the year for the year 2006-07. Rates at which depreciation was calculated were not given. The depreciation is calculated on the Net Fixed Assets reducing the consumer contribution and capital grants from the net fixed assets.

The depreciation for 2006-07 was revised later to an amount of Rs. 69 crore for the Board as a whole, as per details in Table-4.37 below:

Table-4.37
Depreciation Claimed by CSEB

(Rs. crore)					
Sl. No.	Details	G	T	D	CSEB
A	Gross Block at the starting of FY 04-05	216	78	312	637
	Asset Addition in FY 04-05	1	108	37	146
	Total – Gross Block at the starting of FY 2005-06	247	186	350	783
	Less: Consumer Contribution / Grants				
	Consumer Contribution / Grants at the starting of FY 2005-06	0	0	441	441
	Less: Depreciated value of Consumer Contribution/ Grants at the starting of FY 2005-06	0	0	351	351
	Net Consumer Contribution / Grants at the starting of FY 2005-06	0	0	90	90
	Eligible asset value for charging depreciation at the starting of FY 2005-06	247	186	260	693

Sl. No.	Details	G	T	D	CSEB
B	Asset Addition in FY 2005-06	419	229	350	998
	Less: Consumer Contribution / Grants addition FY 2005-06	0	0	41	41
	Eligible asset value for charging depreciation for addition in FY 2005-06	419	229	309	957
C	Asset Addition in FY 2006-07	38	312	532	882
	Less: Consumer Contribution / Grants addition in FY 2006-07	0	0	240	240
	Eligible asset value for charging depreciation for addition in FY 2006-07	19	156	146	321
D	Eligible asset value for charging depreciation				
	In the beginning of FY 2005-06	247	186	260	693
	Additions in FY 2005-06	419	229	309	957
	Additions in FY 2006-07	19	156	146	321
	Total	685	572	715	1971
E	Depreciation for FY 2006-07	23	20	26	69

G-Generation

T-Transmission

D-Distribution

Commission's views:

As per Regulation 18 of CSERC (Terms and conditions for determination of tariff) Regulations, 2006, depreciation is to be calculated on straight line method at the rates of depreciation laid down in the Appendix to those Regulations which are based on the CERC (Terms and Condition of Tariff) Regulations, 2004. Consumers' contribution, capital subsidy and grants are to be excluded from the value of assets for the purpose of depreciation. CSEB has identified fully depreciable assets at Rs. 1092 crore which have been excluded from the value of assets for the purpose of depreciation. CSEB has worked out the average rate of depreciation for generation function at 3.35%, for transmission function at 3.5% and for distribution function at 3.63% on the basis of average of depreciation calculated as per the rates prescribed in the Appendix to our Regulations for each type of assets. On this basis the Board has claimed Rs. 69 crore as depreciation comprising of Rs. 23 crore, Rs. 20 crore and Rs. 26 crore for the G, T & D functions respectively. The Commission has agreed to the amount of depreciated assets as identified by CSEB and the average rates of depreciation worked out by them. However, a few discrepancies in the calculation made by CSEB have been observed. Therefore, the Commission has re-worked the depreciation and arrived at Rs. 61 crore as depreciation for the CSEB as a whole comprising of Rs. 23 crore for generation, Rs. 20 crore for transmission and Rs. 18 crore for distribution. The detailed calculation is given in the Table-4.38 below:

Table-4.38
Calculation of depreciation for FY 07

(Rs. crore)

	G	T	D	TOTAL
Gross Fixed Assets as on 31-03-2006	1296	662	950	2908
(-) Fully depreciated Assets (as identified by CSEB)	616	243	233	1092
Live assets	680	419	717	1816
(+) 50% of new assets addition during FY 06-07 considered as eligible for depreciation for averaging purposes	19	142	263	424
Gross amount of live assets eligible for depreciation	699	561	980	2240
(-) Consumer contributions and grants up to previous year 523				
(-) Consumer contribution and grants relating to fully depreciate assets, on <i>pro-rata</i> basis* 60	-	-	463	463
(-) 50% of consumer contribution received/ expected during the FY07	-	-	8	8
Net amount of live assets eligible for depreciation	699	561	509	1769
Average depreciation rate as calculated by CSEB	3.35%	3.50%	3.63%	
Depreciation for FY07	23	20	18	61

Note: It is assumed that the grants received / expected during FY07 Rs. 389.04 crore as estimated by CSEB has been utilized for the purpose of capital work in progress not capitalized so far and hence not deducted from the amount eligible for depreciation for FY07.

* CSEB was established by division of erstwhile MPEB into MPSEB and CSEB in the year 2000 i.e. about six years ago. It has identified an amount of Rs. 1092 crore as fully depreciated assets. The assets get fully depreciated over a long time depending upon their useful life. Thus, the above fully depreciated assets is a part of assets acquired/constructed by MPEB and transferred to CSEB. The "gross fixed assets" and "consumers' contribution, capital subsidy and grants" transferred by MPEB to CSEB was Rs. 1611 crore and Rs. 89 crore respectively. Therefore, the "consumers' contribution, capital subsidy and grants" attributable to fully depreciated assets have been arrived at on *pro rata* basis in the ratio of 1092 : 1611 which comes to Rs. 60 crore.

The Commission approves depreciation of Rs.23 crore claimed by CSEB for generation.

4.5.6 Reasonable Return

CSEB has claimed a reasonable return of Rs. 165.46 crore for the whole Board and has submitted that it is based on its net worth as per un-audited annual accounts of 2004-05, and estimated additions during FY 2005-06 as well as during the ensuing year. The rate of return as permitted by the Commission in the previous tariff order (14%) has been applied.

The return is claimed at 14% on net worth of the Board comprising of equity and reserves and surpluses at the beginning of 2006-07, as detailed in Table-4.39 below:

Table-4.39
Reasonable Return - Generation

(Rs. crore)				
Sl. No	Details	Annual at the beginning of 2006-07	Rate of Return	Amount
1	Equity	8.89	14%	64.28
2	Reserves and Surpluses	450.27		
3	Net worth	459.16		

Commission's views:

Some of the objectors have submitted that the reasonable return should be allowed on equity and not on the net worth. Clause (2) of Regulation 29 of CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006 provides that a reasonable return on equity has to be calculated 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 01-04-2005, 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 new capital investments made on or after 01-04-2005, the normative debt-equity ratio has been considered as 70:30. A reasonable return on equity @ 14% has been allowed on the full equity as on 01-4-2005, and on the equity employed in the new capital expenditure made on or after 01-04-2005. A reasonable return has been allowed @ 14% on the amount equivalent to amount of equity worked out on the basis of normative equity (30%). On the amount of equity employed on or after 01-04-2005 over and above 30%, 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 debts. For the purpose of calculation of reasonable return to be allowed only equity employed in the gross fixed assets capitalized has been considered and the equity employed in the capital work in progress (CWIP) has been disregarded since the CWIP cannot be put to use in the business and hence are not capable of earning any return on investments. The calculation of reasonable return on equity is shown in the Table-4.40 given below:

Table-4.40
Reasonable return on equity for CSEB for FY 07

Capital Cost of Project			(Rs. crore)
	Up to 31-03-05	From 01-04-05 to 31-03-06	Total As on 31-03-06
Capital Expenditure			
Gross Fixed Assets capitalized	1910.45	997.76	2908.21
Capital Work in Progress	1195.50	69.91	1265.41
Total	3105.94	1067.67	4173.61
(-) Consumers Contributions /Capital Grants	441.04	81.79	522.83
CAPITAL COST OF PROJECT	2664.90	985.88	3650.78

Means of Finance

Debts	1546.40	284.03	1830.43
DEBT RATIO	58%	29%	50%
Equity			
Equity Share Capital	23.12	Nil	23.12
Reserves / Surplus	1024.67	134.07	1158.74
Internal Accruals	1307.65	46.25	1353.94
GROSS TOTAL EQUITY	2355.44	180.32	2535.76
(-) Investments	998.53	-661.51	337.02
(-) Other Assets	1.46	Nil	1.46
(-) Net Current Assets	236.95	139.98	376.93
Total Net Equity Invested in Capex	1118.50	701.85	1820.35
EQUITY RATIO	42%	71%	50%

Reasonable Return on Equity

Return @ 14% on Rs. 1118.50 crore Total net Equity invested in Capex up to 01.03.2005	156.59	-	156.59
Return on Equity employed in Capex on or after 01-04-2005 (Rs. 701.85)			
1. @ 14% on 295.76 crore normative equity i.e 30% of Capital cost of project	-	41.41	41.41
2. @ 8.5% on Rs. 406.09 (701.85 - 295.76) equity employed in Capex over and above the normative equity	-	34.52	34.52
Gross total return on equity for FY-07 on the basis of above total net equity invested in capital expenditure including CWIP	156.59	75.93	232.52
Less: out of the above gross total return on equity portion attributable to CWIP (232.52 / 4173.61) x 1265.41			70.50
Reasonable return on equity allowable for FY 2006-07 for the whole CSEB on the net equity employed in capital expenditure excluding the portion attributable to CWIP (232.52 / 4173.61) x 2908.21			162.02

The above reasonable return of Rs. 162.02 crore for the whole CSEB has been allocated amongst the three functions on the basis on which CSEB has allocated amount of sum of equity share capital and reserves and surplus. The following Table-4.41 shows the allocation:

Table-4.41
Function-wise allocation of ROE

		(Rs. crore)	
		Sum of paid up equity share capital and reserves and surplus allocated by CSEB	Reasonable return allocated
1.	Generation	459.15	62.94
2.	Transmission	169.77	23.27
3.	Distribution	552.93	75.81
TOTAL		1181.85	162.02

Thus the reasonable return for FY 2006-07 for the generation function is approved by the Commission at Rs. 62.94 crore.

4.5.7 Provision for Income Tax

CSEB has claimed an amount of Rs. 178 crore towards provision for payment of Income Tax for FY 2006-07. It has been submitted that it includes income tax and fringe benefits tax of Rs. 100 crore for FY 2006-07 and an amount of Rs. 78 crore of income tax payable during FY 2006-07 for prior periods based on final assessments by the Income Tax Department.

Commission's views:

As per clause (2) of Regulation 27 of the CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006, tax on income, if actually liable to be paid, shall be limited to tax on return on equity allowed excluding incentives. Therefore, the Commission allows an amount of Rs. 82.20 crore as the provision for payment of Income Tax on the basis of post-tax reasonable return on equity of Rs. 162.02 crore approved above.

The amount of Rs. 78 crore claimed by CSEB to be paid in FY 2006-07 for prior periods is also allowed by the Commission as a special case since the Income Tax returns for the earlier years were filed by the CSEB on the basis of provisional financial statements as the division of assets and liabilities between MPSEB and CSEB was not settled at that time.

The Commission approves the provision for payment of Income Tax of Rs. 160.20 crore for FY 2006-07 which is disaggregated amongst the generation, transmission and distribution functions in the same ratio in which the reasonable return has been disaggregated in Table-4.42 as under:

Table-4.42
Function-wise allocation of Income Tax
(Rs. crore)

		Income Tax Allocated
1.	Generation	62.23
2.	Transmission	23.11
3.	Distribution	74.86
	TOTAL	160.20

Thus the amount of provision for payment of income tax for the generation function comes to Rs. 62.23 crore.

The Commission has, however noted that a new sub-clause (c) has been inserted in clause (iv) of sub-section (4) of section 80-IA of the Income Tax Act, 1961 with effect from 01-04-2005 according to which the CSEB should be eligible for a 100% exemption from Income Tax. The said new sub-clause stipulates that an undertaking which undertakes substantial renovation and modernization of the existing network of transmission or distribution lines at any time during the period beginning 1st day of April, 2004 and ending 31st March 2006, will be exempted from Income Tax for ten years. For the purpose of this sub-clause “substantial renovation and modernization” means an increase in the plant and machinery in the network of transmission or distribution by at least fifty percent of the book value of such plant and machinery as on 1st day of April, 2004. It has been noted from the CSEB’s Tariff Petition that during the above stipulated period CSEB has added about 82% of the book value in the network of transmission and distribution lines as given in Table-4.43 below:

Table-4.43
Addition in book value of transmission and distribution lines in terms of Section 80-IA of the Income Tax Act

Particulars	Gross Fixed Assets			
	As on 31-03-2004 as per Tariff Petition for FY06	As on 31-03-2006 as per Tariff Petition for FY07	Addition during the period from 01-04-2004 to 31-03-2006 (3) – (2)	
Transmission	232.16	662.49	430.33	185%
Distribution	653.83	949.91	296.08	45%
Total	885.99	1612.40	726.41	82%

Since the stipulated renovation and modernization target has been achieved by 31-03-2006, CSEB should be eligible for a 100% exemption from Income Tax for ten years beginning from FY 2005-06 and onwards. CSEB must claim the above 100% exemption from Income Tax for all the ten years beginning FY 2005-06. **The Income Tax allowed in this order would, therefore, be subject to the condition that the CSEB shall seek to avail**

the above 100% exemption from Income Tax for ten years beginning from FY 2005-06, and in case the same is allowed by the Income Tax authorities for FY 2005-06 and onwards, the amount of Income Tax of Rs. 82.20 crore allowed as above for FY 2006-07 as well as Rs. 88.62 crore allowed in the last tariff order for The FY 2005-06, if not required to be paid or if already paid by CSEB and later on refunded by the Income Tax Department by virtue of the above provision of the Income Tax Act, shall be surrendered by the CSEB, as an over-recovery in terms of clause (4) of Regulation 27 of CSERC (Terms and Conditions for Determination of Tariff) Regulations, 2006, for deduction from the ARR of their next tariff petition.

4.5.8 Provision for Bad Debts and Other Debts

The Board has not claimed any amount under other debts, bad debts etc. under generation.

4.5.9 Other Income

CSEB has projected as Rs.7.06 crore under other income for generation. This has been discussed in para 4.10.1. The Commission approves the other income of Rs.7.06 crore for generation as proposed by CSEB.

4.5.10 Annual Revenue Requirement (ARR) - Generation

Based on the examination of various expenses of CSEB as above for generation segment, the expenses as approved by the Commission for the year 2006-07, are given in Table-4.44 below:

Table-4.44

ARR for Generation Function approved by the Commission for 2006-07

(Rs. crore)

Sl. No.	Details	Projected by CSEB	Approved by the Commission
1	Generation Costs (Fuel Costs)	507.76	471
2	O&M Costs		
	i) Employee costs	201.28	175.31
	ii) Repair & Maintenance	103.15	64.80
	iii) Administration and General Expenses	22.6	11.95
3	Depreciation	23	23
4	Interest and Finance Charges	164.04	164.04
5	Less Expenses & Interest Capitalized	(-) 60.14	(-) 60.14
6	Provision for bad debts and other debits	0	0
7	Income tax and Net charges for prior period	69.15	62.23
8	Total Costs	1030.84	912.19
9	Reasonable Return	64.28	62.94
10	Less other income	(-) 7.06	(-) 7.06
11	Generation ARR (8+9-10)	1088.07	968.07

4.5.11 Generation Tariff

Based on the above projected expenses and the net generation, the generation tariff projected by the Board and the tariff approved by the Commission is given in Table-4.45 below:

Table-4.45
Generation Tariff

	(2006-07)	
	Projected by CSEB	Approved by the Commission
Gross generation (MU)	8958	9374
Net Generation (MU)	8129	8517
Auxiliary Consumption (%)	9.26	9.13
Net Generation Tariff (Pooled) (Paise/KWh)	133	114

4.6 TRANSMISSION

The Board has projected the revenue requirement for transmission as a separate function, as given in Table-4.46 below:

Table-4.46
Transmission: Annual Revenue Requirement for 2006-07

(Rs. crore)				
Sl. No.	Particulars	FY 2005 (Actual)	FY 2006 (Estimated)	FY 2007 (Proposed)
1.	Repair and Maintenance cost	11	22	25
2.	Employee cost	285	192	194
3.	Administrative and General expenses	54	26	32
4.	Depreciation	6	10	20
5.	Interest and Finance charges	37	42	50
6.	Less Interest and Expenses capitalized	(-) 5	(-) 12	(-) 19
7.	Provision for Income Tax	25	32	26
	Total Costs	413	312	328
8.	Reasonable Return	18	21	24
9.	Less other income	(-) 55	(-) 12	(-) 62
10.	Transmission ARR	376	320	290

4.6.1 Operation and Maintenance Expenses

The O&M expenses for FY 2007 have been projected on the basis of past trends and modified to account for developments during 2005-06.

The major heads of expenditure under O&M expenditure are discussed below:

(a) Employee Cost

As discussed earlier under generation function, the employee cost comprises salaries and wages, dearness allowance, terminal benefits in the form of pension and gratuity and staff welfare expenses. The Board projected a total employee cost of Rs. 645.43 crore for all the three functions, and the Commission has approved Rs. 638.16 crore (para 4.5.2 and Tables- 4.29 and 4.30)

As discussed in para 4.5.2 above, the employee cost for transmission has been reworked and approved as follows:

Table-4.47
Employee cost – Transmission

(Rs. crore)					
Sl. No.	Details	2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved by the Commission)
1	Employee cost	99.43	109.25	141.40	37.56
2	Terminal Benefits	185.27	82.61	52.92	15.04
3	Total Costs	284.70	191.86	194.31	52.60

Commission approves the employee cost for Transmission segment at Rs.52.60 crore against Rs.194.31 crore projected by CSEB.

(b) Repair and Maintenance (R&M) Expenses

CSEB has projected the R&M expenses at Rs.24.50 crore for transmission for the year 2006-07, as under:

Table-4.48
Repair and Maintenance Expenses

(Rs. crore)		
Sl. No	Year	Expenses
1	2004-05 (Actuals)	11.07
2	2005-06 (Estimated)	22.28
3	2006-07 (Proposed)	24.50

Commission's views:

The R&M expenses proposed by the Board has been examined. The amount projected works out to about 3.7% of gross fixed assets. Normally R&M expenses are allowed at 1 to 2 percent of gross fixed assets. However, in view of the vintage of the transmission system, R&M expenses for transmission are allowed at 3% of gross fixed assets, which works out to about Rs.20.00 crore. The Commission approves the R&M expenses for transmission at Rs.20.00 crore against Rs.24.50 crore projected by the Board.

(c) Administration and General Expenses

CSEB has projected an amount of Rs.31.81 crore towards Administration and General expenses for transmission, including an amount of Rs.14.99 crore towards donations to CM's Relief Fund allocated to Transmission.

Commission's views:

The direct Administration and General expenses, projected under transmission for the year 2006-07 are Rs.16.82 crore which is about 10% over the previous year expenses of Rs.15.29 crore. This is considered reasonable. The Commission has not approved the amount of Rs.42.00 crore towards Chief Minister's Relief Fund (para 4.5.2) and corresponding provision of Rs.14.99 crore for transmission.

The Commission approves A&G expenses at Rs.16.82 crore for the year 2006-07 for transmission against Rs.31.81 crore claimed by the Board.

O&M Expenses

The Commission approves O&M costs of Rs.89.42 crore for the year 2006-07 against Rs.251 crore claimed by the Board, as per details given in Table-4.49 below:

Table-4.49
O&M Expenses – 2006-07

(Rs. crore)			
Sl. No.	Function	Proposed by CSEB	Approved by the Commission
1	Employee cost	194.31	52.6
2	R&M Expenses	24.50	20.00
3	Administration & General Expenses	31.81	16.82
	Total	250.62	89.42

4.6.2 Interest and Finance Charges

For transmission function CSEB has claimed Rs. 49.86 crore as interest and finance charges. This includes Rs. 18.03 crore as interest on the outstanding loans of Rs. 205.46 crore from State Government, which works out to 8.7%. Other interest and finance charges include interest on existing and proposed loans from financial institutions and Banks etc. and the cost of raising finance. On the total long-term loans from financial institutions and Banks etc. of Rs. 398.85 crore comprising of existing loans Rs. 264.18 crore and proposed loans Rs. 134.67 crore, CSEB has claimed interest at Rs. 28.05 crore which works out to be 7%. The rate of interest for this function being well within the reasonable range, the Commission approves the same. The interest and other expenses capitalized (Rs. 18.60 crore) as projected is also approved, details are given in Table-4.50 below:

Table-4.50
Transmission - Interest and Finance Charges – 2006-07
(Rs. crore)

Sl. No.	Details	Projected by CSEB and Approved by Commission
1.	Interest and Finance charges on State Government loans, Bonds and Advances.	18.03
2.	Interest and Finance charges on long-term loans etc.	28.05
3.	Interest on working capital	0
4.	Other interest and finance charges	3.78
5.	Total interest charges	49.86
6.	Less Interest and Finance Charges chargeable to Capital Account	(-) 13.09

4.6.3 Capitalization of Interest & Other Expenses

CSEB capitalizes interest every year on the loans utilized for capital works. The interest and other expenses proposed to be capitalized during 2006-07 is given as Rs.18.60 crore for Transmission as below:

Table-4.51
Capitalization of Expenses

Sl. No.	Details	Rs. crore
i)	Interest capitalized	13.09
ii)	Other expenses capitalized	5.51
	Total	18.60

4.6.4 Depreciation

As discussed in the para 4.5.5, the Commission approves depreciation of Rs.20 crore claimed by CSEB for transmission.

4.6.5 Reasonable Return

CSEB has proposed a return of Rs. 165.46 crore for the year 2006-07 for CSEB as a whole and Rs.23.77 crore for Transmission.

Commission's views:

As explained in para 4.5.6 above, the reasonable return works out to Rs.162.02 crore for the Board as a whole and the allocation to Transmission function would be Rs.23.27 crore. A return of Rs.23.27 crore is approved as against Rs.23.77 crore claimed by the Board.

4.6.6 Provision for Income Tax

The amount approved as provision for the payment of income tax for the FY 07 for CSEB as a whole is Rs. 160.20 crore and the allocation of the same has been discussed in para.4.5.7. Accordingly, Rs.23.11 crore has been allocated for transmission function.

4.6.7 Other Income

The Board has projected other income at Rs.61.65 crore which includes parallel operation charges of Rs.40.00 crore.

The income on parallel operation charges is to be considered for distribution function. The other income projected by CSEB, excluding parallel operation charge, is Rs. 21.65 crore which is approved.

4.6.8 ARR for Transmission

In the light of above discussion, the ARR for transmission approved by the Commission is Rs. 162.51 crore against the proposed ARR of Rs.289.57 crore, as per details given in Table-4.52 below:

Table-4.52
ARR for Transmission – 2006-07

(Rs. crore)			
Sl. No.	Particulars	Proposed by CSEB	Approved by the Commission
1.	Repairs and Maintenance costs	24.50	20.00
2.	Employee cost	194.31	52.60
3.	Administrative and General Expenses	31.81	16.82
4.	Depreciation	20.00	20
5.	Interest and Finance charges	49.86	49.86
6.	Less Interest and expenses capitalized	(-) 18.60	(-) 18.60
7.	Provision for Bad debt and other debts	-	-
8.	Provision for Income Tax	25.57	23.11
9.	Total Costs	327.45	163.79
10.	Reasonable Return	23.77	23.27
11.	Other Income	(-) 61.65	(-) 21.65
12.	Total	289.57	165.41

4.6.9 Transmission Tariff / Charges

The transmission tariff proposed by the Board based on account of energy wheeled for the distribution functions and expenses approved by the Commission is given in Table-4.53 below:

Table-4.53
Transmission Cost – 2006-07

Sl. No.	Particulars	Proposed by CSEB	Approved by the Commission
1.	Total cost of transmission (Rs. crore)	289.57	165.41
2.	Energy available for transmission (MU)	13114	12955
3.	Energy delivered to Distribution	12599	12446
4.	Loss (%)	3.93	3.93
5.	Transmission tariff (paise/KWh)	22	13

As per the approved transmission cost and the energy transmitted the transmission tariff works out to be 13 paise per unit.

4.6.10 Transmission Charges for Open access

The approved transmission charges (in cash) for using the transmission system of CSEB by the long-term and short-term customer is given in the Table-4.54 below:

Table-4.54
Transmission Charges for Open access

Transmission ARR (Rs. crore)		165.41
Average Capacity (MW)		2100
Transmission Charges for Long- term open access customer (Rs./MW/Month)	$TC_{\text{long-term}} = \frac{\text{Transmission ARR}}{(\text{Average Capacity} * 12)}$	65,639
Transmission Charges for Short- term open access customer (Rs./MW/Day)	$TC_{\text{short-term}} = \frac{\text{Transmission ARR} * 0.25}{(\text{Average Capacity} * 365)}$	540

The Commission decides that the transmission charges in cash will be Rs. 65,639 per MW or part thereof per month for the long-term open access customers and Rs. 540 per MW or part thereof per day for the short-term customers and the technical losses will be reckoned as 3.93% for calculating transmission charges in kind, which will be deducted from the energy input (i.e. the energy injected at the point of injection) at the point of delivery.

4.7 DISTRIBUTION

The Annual Revenue Requirement of Distribution function as proposed by the Board is given in Table-4.55 below:

Table-4.55
Annual Revenue Requirement - Distribution

(Rs. crore)

Sl. No.	Particulars	FY 2004-05 (Actual)	FY 2005-06 (Estimated)	FY 2006-07 (Projected)
1.	Cost of power from own generation	1001	968	1088
2.	Power purchase cost – other sources	799	899	1418
3.	Cost of Transmission functions	377	320	290
4.	Repairs and Maintenance costs	14	32	65
5.	Employee costs	366	247	250
6.	Administrative and General expenses	59	28	35
7.	Depreciation	23	24	26
8.	Interest and Finance charges	48	70	73
9.	Less: Interest and Finance charges	7	14	16
10.	Provision for Bad debts and other debits	15	149	100
11.	Provision for Income Tax and Net previous period credits / charges	33	106	83
12.	Total Costs	2727	2829	3411
13.	Reasonable Return	60	69	77
14.	Less: Other Income	409	201	273
15.	Distribution ARR (12+13-14)	2378	2698	3218
16.	Average Cost of Supply (Rs./KWh)	3.27	3.41	3.74

4.7.1 Category-wise Consumers

CSEB serves over 24.58 lakh consumers (as on 31.03.2006) in its area of operation. These consumers are broadly categorized as in Table-4.56 below:

Table-4.56
Category-wise Consumers (31.03.2006)

Sl. No.	Category	No. of Consumers	% of Consumers
	LT Consumers (99.96%)		
1.	Domestic		
	(a) BPL Consumers	8,58,162	34.93
	(b) Others	12,46,406	50.73
2.	Non-domestic	1,67,817	6.83
3.	Agriculture	1,32,661	5.39
4.	Industries	21,748	0.89
5.	Public Utilities	8,383	0.34
6.	Temporary supply	21,817	0.89
	Total LT	24,56,994	100
	HT Consumers (0.04%)		
7.	Railway Traction	21	2.23
8.	Coal Mines	20	2.12
9.	Cement factories	12	1.27
10.	Heavy Industries > 20 MVA.	2	0.21
11.	Power intensive	241	25.56
12.	Other HT industries	302	32.03
13.	HT industries with low load factor	134	14.21
14.	General (Residential)	38	4.03
15.	General (non-industrial)	142	15.06
16.	Public Water Works	14	1.48
17.	Irrigation	17	1.80
	Total HT	943	100
	Total consumers (LT+HT)	24,57,937	

All the consumers, other than the BPL consumers and agricultural pumps, are metered. However, some BPL and agricultural consumers are also metered. The consumption of BPL and agricultural consumers who are not metered, is assessed on the basis of average consumption.

Of the total consumers in LT category, domestic consumers account for 86% out of which 35% are BPL consumers. The consumers under non-domestic and agriculture categories are 7% and 5% respectively. However, the number of industrial consumers is only 1% of the total LT Consumers. Similarly in HT category, the bulk of consumers are from other HT industries and power intensive industries with a percentage of 32 and 26 respectively. The lowest number of consumers are in 'Heavy industry above 20 MVA' category which presently are only two.

4.7.2 Projected Energy Sales

CSEB has furnished the figures of sale of energy for the last five years (2002-06) along with growth rates upto 2005. The year-wise energy sales during the last four years (2002-05) and estimated sales for the year 2005-06, extrapolated on the basis of the data available for part of the year, and the projected sales for the year 2006-07, are given in Table-4.57 below:

Table-4.57
Category-wise Energy Sales (2002-05)

									(MUs)
Sl. No.	Category	FY 02	FY 03	FY 04	FY 05	CAGR %	2005-06 (Extra-polated)	Growth over 2004-05 (%)	2006-07 (projected sales)
	LT Consumers								
1.	BPL Consumers	109	117	130	141	8.8%	258	183	346
2.	Other Domestic	778	854	986	1,058	10.8%	1164	10	1289
3.	Non-domestic	166	186	212	235	12.4%	271	15	301
4.	Agriculture – Metered	0	0	4	5	0.0%	63	-	181
5.	Agriculture – Flat	0	0	250	261	0.0%	409	157	409
6.	Industry	228	270	301	328	12.8%	341	4	372
7.	Public Utilities (PWW & SL)	68	75	84	95	11.9%	102	6	114
8.	Temporary Supply	83	82	68	92	3.4%	109	18	113
	Sub Total: LT	1432	1585	2034	2215	15.7%	2717	22.7	3125
	HT Consumers								
9.	Railway Traction	483	495	530	586	6.7%	617	5.3	655
10.	Coal Mines	401	383	401	391	-0.8%	406	3.8	430
11.	Cement Factories	294	633	631	370	8.0%	283	-24	283
12.	Heavy Industries>20 MVA	1040	1231	1416	1380	9.9%	1568	13.6	1568
13.	Power intensive	149	454	923	1258	103.8%	1457	15.8	1601
14.	Other HT industries	518	411	413	579	3.7%	399	-31	402
15.	HT Industries Low load factor	-	-	-	-	-	67	-	72
16.	General (Residential)	0	0	0	96	0.0%	227	-	267
17.	General (Non-Industrial)	316	308	339	262	4.3%	141	-	148
18.	Public water works	20	22	26	27	11.2%	30	11	31
19.	Irrigation	6	6	6	9	15.0%	5	-	6
20.	Temporary Connection	0	0	0	0	0.0%	0	-	0
21.	Sub Total HT:	3226	3943	4684	4959	15.4%	5199	0	5464
22.	Interstate Sales				90				
23.	GRAND TOTAL	4658	5528	6718	7264	16.0%	7916	8.98	8589

The energy sales figures for the years 2002 to 2005 are based on actuals. However for 2005-06, the energy sales of HT categories are on actual basis and LT categories are extrapolated on the basis of data available for part of the year.

It is seen from the above that the CAGR for various categories of consumers for the years 2002 to 2006 under the LT category is about 9 to 13%, the growth rate for BPL consumers, agricultural (metered) and agriculture (flat) being higher than others. It is stated by the Board that approximately one lakh additional BPL consumers were added during 2005-06 and the consumption per BPL households is taken at 30 kWh / month from the 1st August 2005 against 15 KWh/month earlier, as approved by the Commission. In the case of agricultural pumps, the load factor of the pumpset has been taken at 15% instead of 10% approved by the Commission earlier. This increase is stated to be based on sample meters. This has increased the energy consumption of agricultural pumpsets substantially. The consumption for the LT industry and Public Utilities has shown a growth of about 12%.

The LT consumption during 2005 – 06 has gone up by 22.7% over the consumption during 2004 – 05. The increase, it has been explained, is on account of increase mainly in BPL consumers and agriculture pump sets.

A number of consumers associations / individuals have commented on the sales projected particularly to BPL and agricultural pumpsets. They generally feel that higher growth is projected to show lower T&D losses. The Board in its response has clarified the basis for these projections and has submitted the basis for the estimated category-wise energy sales for 2006-07. The category-wise sales projected by the Board and the Commission's observations thereon are discussed below:

(a) LT CONSUMERS

BPL Consumers

The Board has projected an addition of 2.3 lakh new BPL consumers during the year 2006–07 as per State Government policy. The average consumption of these consumers is taken at 30 KWh / month as approved by the Commission earlier. The estimated energy sales to this category is 346 MUs.

Commission's views:

Prima facie the additional consumption projected under this category is very large and the targets for new connections, going by past trends of new connections provided, appear to be unattainable. The Commission had approached the State Government for clarification since a reference has been made by the Board to State Government policy. It has been confirmed by the State Government that these targets have not been fixed by them and that these have been fixed by the Board only, under the Board's own programme and RGGVY. This target is not practicable going by past achievement. Even if the last year's achievement is doubled, it comes to about 1.5 lakhs. The Commission has hence taken into account electrification of 1.5 lakhs BPL households during 2006-07 and consumption level of 332 MUs at 30 units per household per month is approved against 346 MUs projected by the Board. All new connections shall be metered only.

Other Domestic Consumers

The consumption by other domestic consumers has been projected by the Board applying the three year growth rate of 10.8%. It is stated that the slab-wise consumption under this category is considered on historical basis of actual energy sales in each of the slabs. The estimated energy sales to other domestic consumers is 1289 MUs.

The projected consumption of 1289 MUs is considered reasonable by the Commission as it is based on sustained past growth.

Non-Domestic

The past growth of this category of consumers has been about 12.4%. The Board has, however, assumed an increase of about 11% over the energy sales of 2005 – 06 on the ground that the growth has slowed down during recent years. The estimated energy sales are 301 MUs for this category which would appear to be in order.

Agricultural Consumption

It is submitted by CSEB that they propose to add 35,000 metered agricultural services during 2006-07 and the energy consumption projected is estimated based on an average connected load of 4 HP / per pumpset working at a load factor of 15%. The load factor adopted is stated to be based on actual load factor observed from sample meters. The estimated consumption is about 11% more than the consumption of 2005-06. The consumption by unmetered pump sets, under flat rate tariff category, is retained at 409 MUs, as the Board does not propose to connect any more unmetered pump sets. The estimated consumption of metered pumpsets is 181 MUs.

Some of the objectors have questioned the projected load factor of 15% for agriculture as being high and have urged that it should be kept at 10% as was approved by the Commission in the last tariff order. The sample study has been considered totally inadequate to arrive at any near accurate assessment of consumption. Also the load factor for metered and unmetered consumers is different as proposed in the petition.

Commission's views:

It has been stated that 15% load factor is adopted based on sample metering. The sample metering provided has been found to be very limited and also not representative. However, since power supply to pumpsets is available for over 20 hours in a day, it is likely that pumpsets work for a longer period. In other States (e.g. AP) even with 8 to 9 hours power supply to pumpsets, the load factor is about 15%. Hence the 15% load factor appears reasonable and is accepted.

The number of metered pumpsets at the end of 2005-06 was reported to be 26,515, which is likely to increase by another 35,000 during the year 2006-07. As all the pumps will not be energised at one time but through out the year, the consumption of metered agriculture consumers would be less in comparison to that of the unmetered pumps which has been projected at 409 MUs, against anticipated sales projection for metered consumers at 181 MUs. Higher consumption by unmetered connections, who pay electricity charges at flat rate, may be expected. Metered consumers are likely to be more cautious about use of electricity. The total consumption by metered and un-metered pump sets is hence approved at 590 MUs as projected by the Board.

LT Industries

The past average growth (2002-05) in consumption of this category was 12.8%; but during 2005-06 it dropped to about 4% over 2004-05. The Board has, however, assessed that the growth would be about 9% in 2006-07 over the consumption of 2005-06 and accordingly projected the sales for 2006-07 at 372 MUs.

Commission's views:

Though the consumption of this category showed lower growth (4%) during 2005-06, against a growth rate of 12% during earlier years, the projected growth at 9% seems to be in order since industrial activity is picking up in the State and the trend of past growth has been higher at 12% except for one year. The Commission accepts sales at 372 MUs for the year 2006-07.

Public Utilities

The past growth of this category which comprises of public water works and public lighting, was of the order of 12%. CSEB expects the same level of growth for 2006-07 and hence has projected the sales at 114 MUs for the year 2006-07.

The Commission approves the projected growth for the category at 12% and the sales at 114 MUs.

(b) HT CONSUMERS

CSEB has projected the sales for 2006-07 under HT category as given below:

Railway Traction

Railway traction has recorded an average growth of 6.7% during the period 2002-05 and CSEB expects almost the same level of growth during 2006-07 also and has hence considered growth of 6.32% for the year 2006-07 over 2005-06 with sales projected at 655 MUs.

Coal Mines

The coal industry recorded a decline in growth during the four year period of 2002-05. CSEB, however, has projected higher consumption of 5.6% for 2006-07 over 2005-06, based on the pending applications for new connections and additional load in existing services. On this basis the sales have been projected at 430 MUs for 2006-07.

Cement Factories

The cement factories recorded a negative growth in consumption during the last four years. CSEB feels that the industry may maintain 2005-06 level of consumption during 2006-07 as well, and has accordingly projected a consumption of 283 MUs by the cement industry for 2006-07.

Heavy Industries > 20 MVA

This category of industry recorded a growth of about 10% during the past four years. However, CSEB estimates the consumption during 2006-07 to be at the level of 2005-06. It is stated that one of the major consumers viz. BALCO, has reduced consumption because of its captive power plant; and secondly the residential colony load of BSP is to be transferred to a separate category under HT (Residential). In view of this, the Board feels that the demand for 2006-07 would be at the same level as in 2005-06 at 1568 MUs.

Power Intensive Industries upto 20 MVA

This category recorded a very high growth (104%) during the past three years (2002-05) but recorded a growth of about 16% during 2005-06 over 2004-05. The Board feels that the past growth rate would not be maintained and estimates the sales to such industries to be 1601 MUs, an increase of 9%, taking into consideration the pending applications for new connections and enhancement of load of existing consumers. These are mostly steel based industries. Due to sufficient availability of iron ore and coal in the State, there has been a spurt in the growth of industries in this category in recent years.

Other HT Industries

This category of consumers recorded a growth of about 4% during (2002-05) and a negative growth during 2005-06 over 2004-05. The sales during 2005-06 were 399 MUs against 579 MUs during 2004-05. The decline in consumption is mainly because of re-categorisation of consumers for tariff purpose and to an extent, migration of consumers to other categories. The Board has, however, projected sales of 402 MUs during 2006-07 almost at the same level as of 2005-06, considering pending applications for new connections etc.

HT Industries with low load factor

This consumer category was introduced by the Commission during 2005-06 and the consumption was 67 MUs during the year. CSEB has projected sales at 72 MUs, an increase of 7% over 2005-06 taking into account the pending applications for new loads and additional load in the existing services.

HT Bulk Supply (Residential)

This category recorded higher consumption during 2005-06. Considering the shift of BSP residential load to this category and also additional services likely to materialise, the sales of this category is estimated to be at 267 MUs during 2006-07.

HT (Non-Industrial)

This category recorded a growth rate of 4.3% during the past four years (2002-05), but had a negative growth during 2005-06. The Board estimates sales at 148 MUs for 2006-07, a growth of about 4% over 2005-06.

Public Water Works

The sales to this category was of the order of 20 to 27 MUs during 2002-05, but the sales during 2005-06 were higher at 30 MUs. CSEB has projected the sales for 2006-07 at 31 MUs.

HT Irrigation

The average sales to this category was hardly about 6 MUs during 2002-05 and recorded 5 MUs during 2005-06. CSEB has projected sales of 6 MUs during 2006-07.

Inter-State Sales

No inter-state sales are proposed during 2006-07.

Commission's views:

The projected growth for various categories of HT consumers is considered reasonable based on past growth, pending applications for new loads and additional loads in existing services and also the growth potential for industry in the State. The overall growth projected works out to 5% which is considered reasonable. The energy sales projected for each of the categories under HT is approved by the Commission. The sales as above has been projected on the assumption that all the existing customers of CSEB would continue to procure power from the Board.

4.7.3 Category-wise Energy Sales

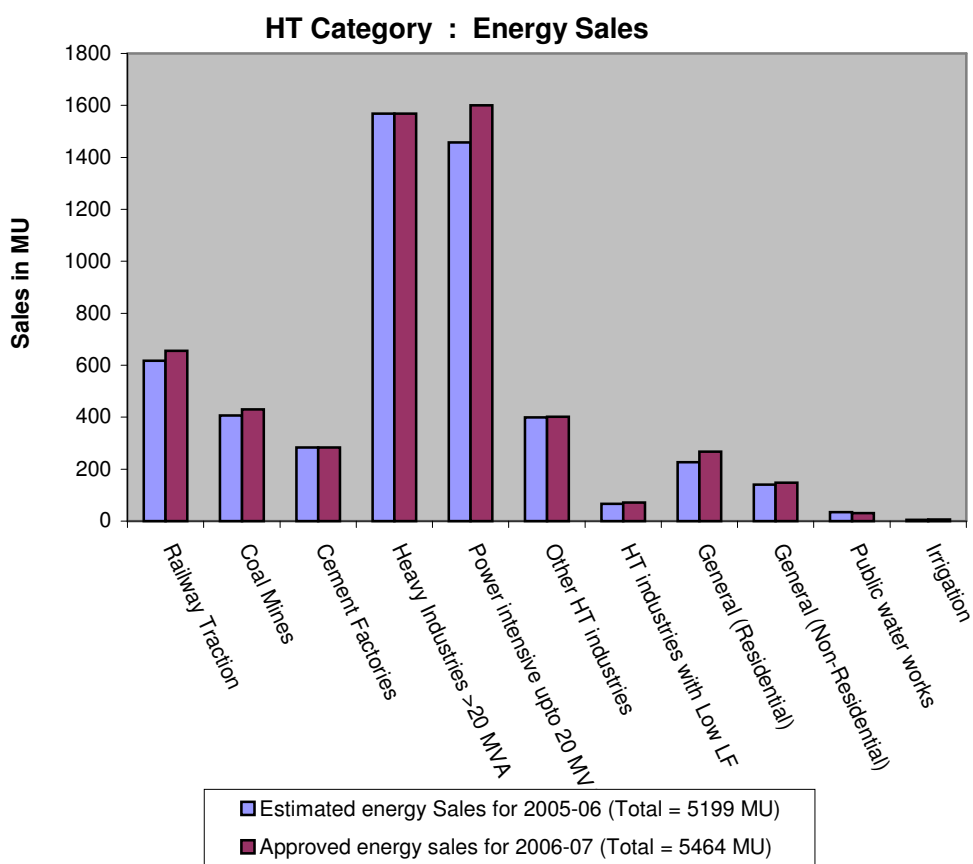
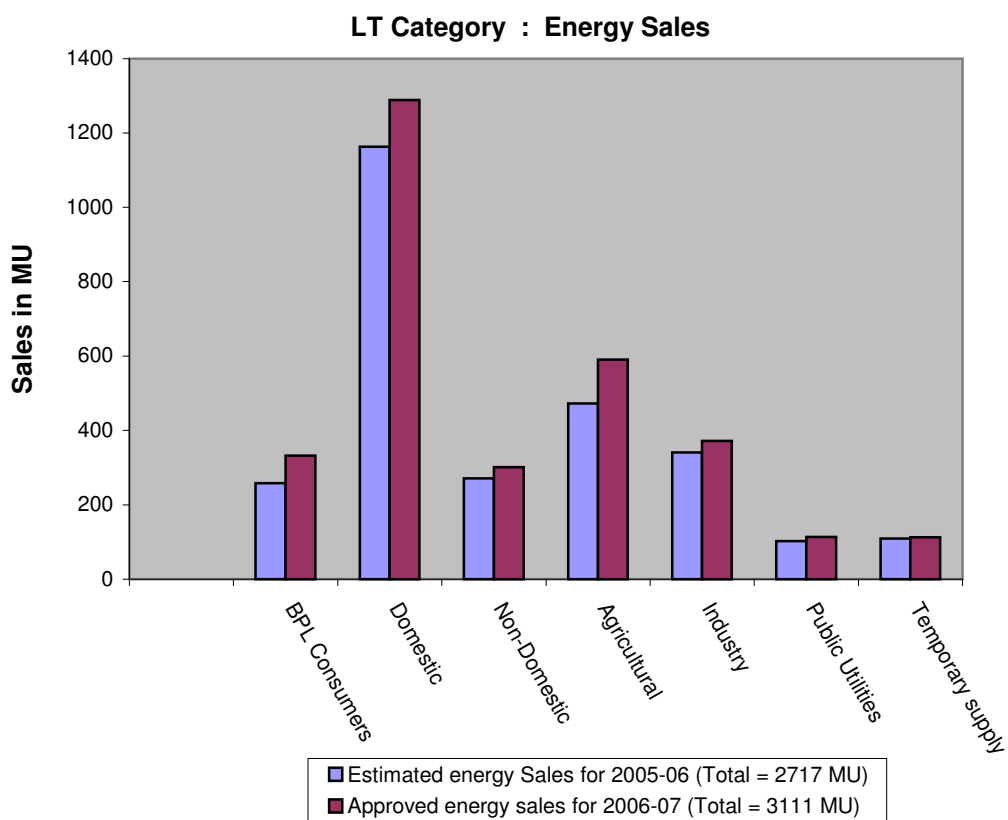
As discussed above, the Commission approves the category-wise energy sales for 2006-07 as projected by CSEB, except in the case of BPL consumers. The energy sales approved by the Commission are given below:

Table-4.58
Energy Sales 2006-07

(MUs)

Sl. No.	Category	Energy Sales projected by CSEB	Energy Sales Approved by the Commission
	LT – Consumers		
1.	BPL Consumers	346	332
2.	Domestic	1289	1289
3.	Non-Domestic	301	301
4.	Agricultural		
	i) Metered	181	181
	ii) Un-metered	409	409
5.	Industry	372	372
6.	Public Utilities (water supply and street lighting)	114	114
7.	Temporary supply	113	113
	Sub-Total LT	3125	3111
	HT Consumers		
1.	Railway Traction	655	655
2.	Coal Mines	430	430
3.	Cement Factories	283	283
4.	Heavy Industries >20 MVA	1568	1568
5.	Power intensive upto 20 MVA	1601	1601
6.	Other HT industries	402	402
7.	HT industries with Low LF	72	72
8.	General (Residential)	267	267
9.	General (Non-Residential)	148	148
10.	Public water works	31	31
11.	Irrigation	6	6
	Sub-Total HT	5464	5464
	Total Energy Sales	8589	8575

The Commission approves the total energy sales at 8575 MUs for the year 2006-07 against 8589 MUs projected by the Board.



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

Table- 4.59
Voltage level-wise Sales

Voltage level	Approved sales(in MUs)	% of sale
230/440 V (LT)	3111	36.28
11 KV (HT)	59	0.69
33 KV (HT)	2478	28.90
132/220 KV (EHT)	2927	34.13
Sub total (HT + EHT)	5464	63.72
Total	8575	100.00

4.7.4 Transmission & Distribution (T&D) Losses

CSEB has projected transmission and distribution losses at 34.51% for the year 2006-07. The losses have been computed by deducting the consumption of BPL and agricultural consumers (assessed) and metered consumption by other consumers, from the input of energy into the transmission system.

The losses during 2004-05 were 38.99%, with transmission loss at 3.62% and distribution loss at 36.70%; and in 2005-06, the losses have reportedly been at 36.51%, as against 35.81% approved by the Commission in the last tariff order, with transmission loss of 3.93% and distribution loss of 33.91%.

For 2006-07, the transmission loss has been projected at the same level as in 2005-06 i.e. 3.93% while distribution loss is proposed to be reduced by 2% to 31.83% as detailed in Table-4.60 below:

Table-4.60
Transmission & Distribution Losses

Sl. No.	Particulars	(MUs)		
		FY 05 Actuals	FY 06 Estimated	FY 07 Projected
1	Total Energy Input to Transmission	11848	12468	13114
2	Less: Interstate Sales	90	0	0
3	Less: Output to Distribution Interface	11332	11978	12599
4	Transmission Loss	426	490	515
5	Transmission Loss (% of System Input)	3.62%	3.93%	3.93%
6	Input to Distribution System	11332	11978	12599
7	Less: Assessed Consumption by BPL	141	258	346
8	Less: Assessed Consumption by Agriculture pumpsets	261	409	409
9	Less: Metered Consumption	6771	7249	7834
10	Distribution Loss	4159	4062	4010
11	Distribution Loss (% to Distribution Input)	36.70%	33.91%	31.83%
12	Distribution Loss (% to System Input)	35.37%	32.58%	30.58%
13	Total Loss (% of System Input)	38.99%	36.51%	34.51%

It is submitted by CSEB that most of the future loads would be of BPL consumers in rural areas resulting in extension of 11 kV and LT lines on larger scale. Hence the losses are likely to go up. The implementation of RGGVY in rural areas will also add to the losses.

Commission's views:

The T&D loss estimates submitted by CSEB are not based on measurement of loss by providing meters on all the feeders and distribution transformers. The losses are computed on the basis of the difference between the energy input into the system and assessed energy for BPL and agricultural consumers and metered energy consumption by other consumers.

The Commission in its tariff order for 2005-06 had approved the T&D loss at 35.81%, with transmission loss at 3.71% and distribution loss at 35.00%. The Board could not meet the loss levels fixed by the Commission and the loss levels for 2005-06 are stated to be 36.51% against 35.81% fixed by the Commission. Thus there is a shortfall of 0.7% over the target fixed by the Commission for 2005-06.

The losses projected for 2006-07 are as given in Table-4.61 below:

Table-4.61
Transmission & Distribution Losses – 2006-07

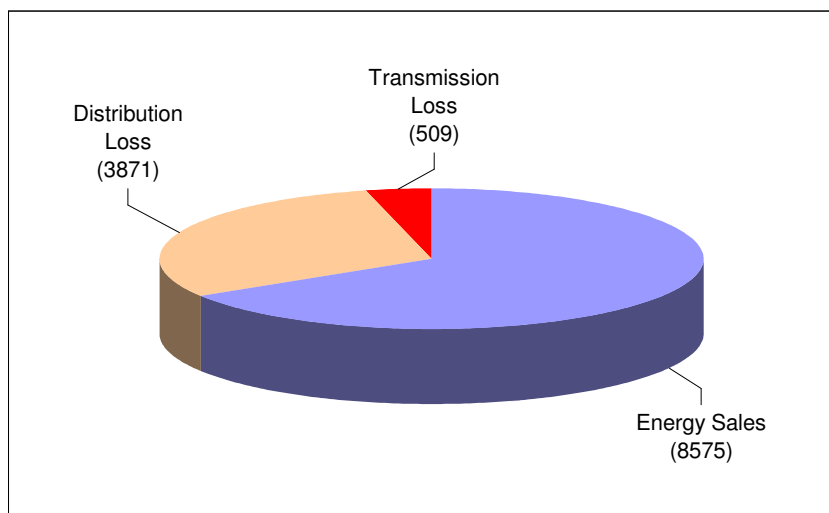
Sl. No	Particulars	Projected by CSEB	Approved by the Commission
	Transmission Loss		
1	Energy Input to Transmission System	13114	12955
2	Energy Output to Distribution Interface	12599	12446
3	Transmission Loss	515	509
4	Transmission Loss (%)	3.93	3.93
	Distribution Loss		
5	Energy Input to Distribution System	12599	12446
6	Energy Sales	8588	8575
7	Loss in Distribution System	4011	3871
8	Distribution Loss (%)	31.83	31.10
9	Overall T&D Loss	34.51	33.81

While the Commission approves the transmission loss at 3.93%, the distribution loss at 31.83% is considered high particularly when CSEB is supplying 64% of the energy to HT consumers and substantial LT energy in urban areas. With the implementation of APDRP in urban areas and increase in meterisation, T & D losses should come down. In any case, with the highly favorable consumer profile of CSEB with preponderance of HT consumers

accounting for a consumption level as high as about 64%, which would be a matter of envy for other SEBs / utilities, a high level of losses is unacceptable. It appears, the Board has not seriously addressed this issue and has not taken effective steps to reduce the system loss. Meters should be provided on all distribution transformers for effective energy audit to arrive at the technical and non-technical losses. This is required to be done on top priority to arrive at realistic loss levels.

In regard to extensive rural electrification proposed under Rajeev Gandhi Grameen Vidyuthikaran Yojna (RGGVY) and other schemes, the Board has to consider the systems such as high voltage distribution with little of LT network. The Board has to take necessary steps to see that the losses do not go up.

Energy Input (Approved by Commission) (12955 MUs)



The Commission directs that the distribution loss shall be brought down to 31.10% during 2006-07 and the overall loss to 33.81%, thus making the loss reduction target of 2.7% during 2006-07, which is 2%, as proposed by the Board, plus the shortfall of 0.7% of the target for 2005-06. The Commission further directs that the T&D losses would be further reduced by 3% in the year 2007-08 bringing it to 30.81%. These targets are given well in advance to enable the Board to plan and take necessary steps to achieve the target in the years ahead so that the operational efficiency in the distribution sector is at par with other utilities operating in the country. These are firm targets and in case the Board is unable to achieve these targets, the deficit in reduction of loss will be borne by the Board as deficiency in performance and the efficiency gains will be retained by the Board. The Commission is not asking for sharing of the efficiency gains with the consumers at present.

The MYT regime which may be introduced next year will take into account this loss reduction target given in this order. The targets may however, be reviewed after the completion of loss study being under taken by the Board, on the basis of its findings.

4.7.5 Energy Requirement

The energy requirement is the sum of energy sales (metered and assessed) and T&D loss in the system estimated by the Board. The energy requirement projected by CSEB for 2006-07 is 13114 MUs as given below:

Table-4.62
Energy Requirement proposed by CSEB and approved by the Commission

(MUs)			
Sl. No.	Particulars	Projected by CSEB	Approved by the Commission
1	Metered sales	7834	7834
2	Assessed Consumption for BPL Consumers	346	332
3	Assessed Consumption for Agricultural Pumpsets	409	409
4	Total Energy Sales (1+2+3)	8588	8575
5	T&D Loss	4526 (34.50%)	4380 (33.81)
6	Energy Requirement (4+5)	13114	12955

Commission's views:

As discussed above, the Commission has fixed the T&D loss target at 33.81% against 34.51% projected by the Board and has also reduced the consumption of BPL consumers to 332 MUs. Taking these modification into account, the energy requirement works out to 12955 MUs as given in the table above. This energy requirement of 12955 MUs for the year 2006-07 is approved by the Commission.

This requirement has to be met from CSEB's own generation (thermal & hydel) and purchases from central generating stations and other sources.

4.7.6 Energy from Own Generation

As discussed in para 4.4.4 (Table-4.19) under generation, the net energy available (ex-bus) from Board's own generation, as approved by the Commission, would be 8517 MUs.

4.7.7 Energy Balance

The energy balance i.e., the energy sales to various categories of consumers which is the energy requirement, and the energy available which is sum the of, energy from own generation and energy to be purchased, as approved by the Commission, is given below in Table-4.63:

Table-4.63
Energy Balance

		(MUs)
A	Energy Requirement	
1	Metered Sales	7834
2	Assessed Consumption BPL Consumers	332
3	Assessed Consumption Agricultural Pumpsets	409
4	Total Energy Sales	8575
5	T&D Loss (33.81%)	4380
6	Energy Requirement	12955
B.	Energy Available	
1	Own Generation (ex-bus)	8517
2	Purchases	4438
	Total	12955

4.7.8 Purchase of Energy

The total purchase required has been assessed at 4438 MUs. The transmission loss external to the CSEB system has to be added to arrive at the quantum of energy to be purchased from various sources.

Transmission loss external to the CSEB system

It has been submitted by CSEB that the external transmission loss on purchase from Central generating stations in the Western Region is 5.01%. The external transmission loss on purchase of power from traders would be about 9% 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.

Table-4.64

Power Purchases – Projected by CSEB and approved by the Commission

Sl. No.	Source	Energy (MU)	
		Projected by CSEB	Approved by the Commission
I	Central Sector Stations		
1	KSTPS	1467.69	1467.69
2	VSTPS –I	44.65	44.65
3	VSTPS-II	37.73	37.73
4	KGPS	17.09	17.09
5	JGPS	21.32	21.32
6	FSTPS	88.85	88.85
7	Kh STPS	103.96	103.96
8	TSTPS	126.91	126.91
9	NPC	173.36	173.36
	Total Central Sector	2081.55	2081.55
II	Captive Plants + IPP		
1	Jindal (30 MW)	136.08	136.08
2	Jindal (70 MW)	241.92	241.92
3	Balco	414.72	414.72
4	Bio-mass based power plant	270.57	270.57
5	Firm Power from Captives	464.72	464.72
	Total Captive + IPP Power	1528.01	1528.01
III	Power Traders	1357.63	810.00
IV	UI drawal	18.60	18.44
	Total Power Purchase	4985.80	4438.00

CSEB has projected purchase from central generating stations and other sources for 2006-07 as given in Table-4.64 above. This is based on T&D loss and the energy requirement estimated. The power purchase from central generating stations is stated to be estimated on the basis of the central sector allocation for Chhattisgarh. The State has a firm allocation of 234 MW and a share of 49.48 MW in unallocated power. This is as per the revised allocation made by Ministry of Power with effect from 15th November 2005. The total share of Chhattisgarh is thus 283.48 MW which, it is presumed, would be continued during 2006-07. In addition, it is assumed that an additional 24 MW would be available from NPC, Tarapur station for 8 months during 2006-07. The energy available from the above central generating stations for the year 2006-07 have been projected at the same level as was available in the year 2005-06. The balance requirement is proposed to be purchased from captive power plants and IPPs in the state and power traders. Some UI drawals have also been taken into account.

Commission's views:

As discussed above the energy approved to be purchased is 4438 MUs. Out of this 2081.55 MUs would be from central generating stations; 1528 MUs would be purchased from captive power plants and IPPs located in the state and the balance 828 MUs has to be purchased from traders and received

through UI drawals etc. The Commission approves the purchase of energy from various sources as given in the table above to meet the energy requirements of the State. Though over-drawals under UI is not to be encouraged, this becomes inevitable sometimes under shortage conditions and hence a small quantum of 18 MUs is allowed.

Power purchases from various sources as approved are summed up in the Table below:

Table-4.65
Power Purchases from Various Sources

Sl. No	Source	(MUs)
1	Central Generating Stations	2082
2	Captive Power Plants + IPP	1528
3	Power Traders	810
4	UI Over drawals	18
5	Total	4438

4.7.9 Expenses

4.7.9.1 Power Purchase Expenses

CSEB has proposed the purchase of 4985.80 MUs for 2006-07 at a total cost of Rs.1418 crore as detailed in Table-4.66 below:

Table-4.66
Energy Purchase Proposed by CSEB

Sl. No.	Source	Shar Capa (MW)	Energy (MU)	Average energy charges (Rs./KWh)	Total Cost (Rs. Crore)
I	Central Sector Stations				
1	KSTPS	210+7.72*	1467.69	1.04	152.86
2	VSTPS –I	5.55*	44.65	1.49	6.65
3	VSTPS-II	4.46*	37.73	1.52	5.25
4	KGPS	2.92*	17.09	5.54	9.47
5	JGPS	2.95*	21.32	2.57	5.48
6	FSTPS	10.72*	88.85	2.16	19.23
7	Kh STPS	5.55*	103.96	1.94	20.22
8	TSTPS	6.7*	126.91	0.77	9.72
9	NPC	24+2.91*	173.36	2.66	46.03
	Total Central Sector	283.48	2081.55	1.32	275.42
II	Captive + IPP				
1	Jindal (30 MW)	-	136.08	2.32	31.57
2	Jindal (70 MW)	-	241.92	2.32	56.13
3	Balco	-	414.72	2.80	116.12
4	Bio mass based power plant	-	270.57	2.67	72.24
5	Firm Power from Captives	-	464.72	2.32	107.82
	Total Captive + IPP Power	-	1528.01	2.51	383.88
III	Power Traders	-	1357.63	5.12	695.23
IV	UI Over drawal / Under drawal	-	18.60	3.37	45.55
V	PGCIL–Transmission Charges	-			17.99
	Total Power Purchase Cost	-	4985.80	2.84	1418.06

* Denotes allocation out of un allocated quota.

The proposed purchase of 4985.80 MUs at a total cost of Rs. 1418.06 crore includes UI over draws of 18.60 MUs and transmission charges of Rs.17.99 crore to be paid to PGCIL. The quantum of energy and average cost are for energy as delivered into the CSEB system. The average energy charges include other charges like FPA, Income Tax etc. apart from fixed and variable charges.

Commission's views:

CSEB has taken the average delivered cost of purchase at Rs. 1.32 / KWh for power purchase from the central generating stations. This is stated to be based on average cost of power purchase on the basis of actual payment during 2005-06.

The average delivered cost of purchase from captive power plants is projected to be Rs. 2.51 per KWh against average cost of Rs. 2.30 per KWh during 2005-06. The increase is mainly due to purchase of 270.57 MUs from biomass based power plants at a minimum price of Rs. 2.67 per KWh against a much smaller quantity of 0.39 MUs purchased during 2005-06. The purchase tariff for biomass based non-conventional energy sources has been fixed by the Commission. The average unit rate of power purchase from all such plants of these sources for the year 2006-07 is Rs. 2.69 per unit. The cost of power purchased from BALCO is approved at an average rate of Rs. 2.78 per KWh against Rs. 2.80 per KWh projected by CSEB. The weighted average cost of Rs. 2.51 per KWh for purchases from captive power plants is approved.

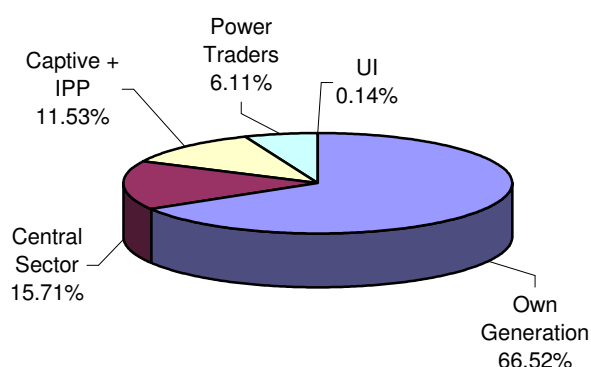
CSEB has proposed to purchase power from power traders at Rs. 5.12 per KWh. It is observed from the purchases made during the last three months of April, May and June, 2006, which were summer months during which rates are generally high, that the average cost works out to Rs.4.39 per KWh. However, the Board has not entered into long-term purchase contract with any trader. The purchases are generally made on short-term basis and at prices ruling in the market. Therefore, an increase of 10% over the last three months' average of Rs. 4.39 per KWh for purchases during 2006-07 would be reasonable. Accordingly, the average purchase price from traders in 2006-07 shall be Rs. 4.83 per KWh.

Based on the quantum of power purchase and costs discussed above, the Commission approves power purchase of 4438 MUs for the year 2006-07 at a total cost of Rs.1113.16 crore as per details given in the Table below:

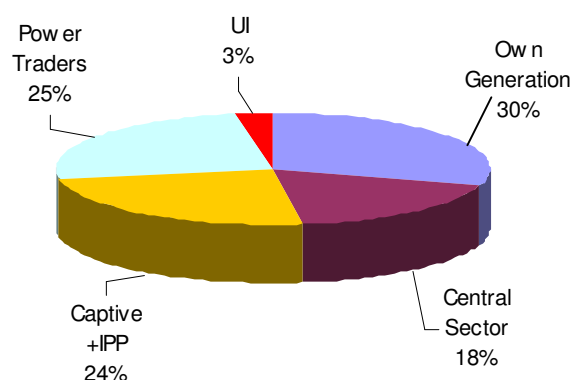
Table-4.67
Power Purchase Cost Approved by the Commission

Sl. No	Source	Share in Capacity (MW)	Energy (MU)	Average energy charges (Rs./Kwh)	Total Cost (Rs. Crore)
I	Central Sector Stations				
1	KSTPS	210+7.72	1467.69	1.04	152.86
2	VSTPS –I	5.55	44.65	1.49	6.65
3	VSTPS-II	4.46	37.73	1.52	5.25
4	KGPS	2.92	17.09	5.54	9.47
5	JGPS	2.95	21.32	2.57	5.48
6	FSTPS	10.72	88.85	2.16	19.23
7	Kh STPS	5.55	103.96	1.94	20.22
8	TSTPS	6.70	126.91	0.77	9.72
9	NPC	24+2.91	173.36	2.66	46.03
	Total Central Sector	283.48	2081.55	1.32	275.42
II	Captive + IPP				
1	Jindal (30 MW)	-	136.08	2.32	31.57
2	Jindal (70 MW)	-	241.92	2.30	55.64
5	Balco	-	414.72	2.78	115.29
11	Bio-mass based power plants	-	270.57	2.69	72.73
12	Firm Power from Captives	-	464.72	2.32	107.82
	Total Captive + IPP Power	-	1528.01	2.51	383.05
III	Power Traders	-	810.00	4.83	391.15
IV	UI Over drawal/Under drawal	-	18.44	-	45.55
V	PGCIL-Transmission Charges	-	-	-	17.99
	Total	-	4438.00	2.42	1113.16

Power Generation & Purchase (06-07)



Power Purchase Cost (06-07)



4.7.9.2 Regulation of purchase of power

The proviso under Section 62(1)(a) of the Electricity Act. 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 from the traders for different periods of the day at C.G. periphery for the year 2006-07 would be as follows:

Peak period:	-	Rs. 5.19/KWh
Off peak period:	-	Rs. 4.69/ KWh
Round the clock:	-	Rs. 4.83/KWh

The rates specified above are 10% higher than the average rates for different periods of the day, for the recent three months (i.e., April, May and June'06) considered as the base for determination of power purchase cost from traders. **The Commission further directs that the quantum of energy purchase from traders during 2006-07 should not be more than the quantum as approved by the Commission without the specific approval of the Commission.**

4.7.9.3 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 average unit cost of power purchase from individual sources. However, the energy to be purchased from biomass based non-conventional energy plants have 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 to be purchased from Jindal (30 MW) is excluded from the merit order for purchase on the merit of the PPA. The details of power purchase by the Board from different sources is discussed in para 4.7.9.1 and Table-4.67. The stations / sources are listed in Table-4.68 below in the merit order for purchase by the Board:

Table-4.68
Merit Order for Power Purchase

Order	Source of Power	Energy (MU)	Average unit cost (Rs./Kwh)
1	TSTPS	126.91	0.77
2	KSTPS	1467.69	1.04
3	VSTPS –I	44.65	1.49
4	VSTPS-II	37.73	1.52
5	Kh STPS	103.96	1.94
6	FSTPS	88.85	2.16
7	JGPS	21.32	2.57
8	Jindal (70 MW)	241.92	2.30
9	Firm Power from Captives	464.72	2.32
10	NPC	173.36	2.66
11	Balco	414.72	2.75/2.80
12	Power Traders	810.00	4.83
13	KGPS	17.09	5.54

4.7.10 Operation and Maintenance (O&M) Expenses

O&M expenses cover Employee cost, Repair and Maintenance costs and Administrative and General Expenses. These costs are discussed below:

(a) Employee Cost

The employee cost comprises salaries and wages, dearness allowance, terminal benefits in the form of pension and gratuity and staff welfare expenses. The total employee cost for the Board as a whole has been discussed in para 4.5.2 of this order. The costs allocated by the Board have been reworked on the basis of the number of employees assigned to the distribution function. The projection by the Board and approved expenses are given below:

Table-4.69
Employee Cost – Distribution

(Rs. crore)					
Sl. No.		2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved by the Commission)
1	Employee Cost	127.84	140.46	181.80	292.98
2	Terminal Benefits	1238.20	106.22	68.04	117.27
3	Total Cost	366.05	246.68	249.83	410.25

Commission approves the employee cost for Distribution segment at Rs. 410.25 crore against Rs.249.83 crore projected by CSEB. The large difference is on account of error in allocation to the three functions by CSEB as discussed in para 4.5.2.

(b) Repair and Maintenance (R&M) Expenses

CSEB has projected the R&M expenses at Rs.65.14 crore for distribution function for the year 2006-07. The R&M expenses proposed in the tariff petition for distribution function are given in Table below. The expenses for 2006-07 include a provision of Rs.30.00 crore for renovation of 6000 distribution transformers.

Table-4.70
Repair and Maintenance Expenses – Distribution

(Rs. crore)			
2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved by the Commission)
14.23	31.94	65.14	62.5

Commission's views:

The R&M expenses projected by the Board for distribution is on a higher side in comparison to the actual expenses incurred in the year 2005-06. This is due to a provision of Rs. 30 crore towards renovation of 6000 distribution transformers with a view to improve power supply and ensure better service. The Board has taken up renovation of distribution transformers in a big way in view of the age of most transformers. The Commission feels that this is necessary and hence, Rs. 30 crore for renovation of the transformers is approved. **However, the Board is directed to look into the cost factor closely as the estimated cost of renovation appears to be high.** The expenses allowed towards regular R&M expenses is Rs. 32.5 crore which is more or less at the same level as for the year 2005-06 and works out to about 3.42% of the value of gross fixed assets of the distribution function. Hence a total Rs. 62.5 crore is allowed as R&M expenses.

(c) Administration and General Expenses

CSEB has projected an expenditure of Rs.34.71 crore towards Administration and General expenses for distribution as a whole including an amount of Rs.16.36 crore towards privilege fees to Government of Chhattisgarh and donation to Chief Minister's relief fund as given in Table-4.71 below:

Table-4.71
A & G Expenses – Distribution

(Rs. crore)			
2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved by the Commission)
58.30	27.63	34.71	18.35

Commission's views:

The details regarding A&G expenses for the Board as a whole has been discussed in para 4.5.2.(c). The direct Administration and General expenses, projected under Distribution for the year 2006-07 are Rs.18.35 crore which is about 10% more than last year's expenses of Rs.16.68 crore. This is considered reasonable. Hence, the Commission approves A&G expenses at Rs.18.35 crore for the year 2006-07 under Distribution, against Rs.34.71 crore claimed by the Board by excluding contribution towards Chief Minister's Relief Fund etc. which is not allowed as discussed in para 4.5.2 (c).

O&M Expenses

The Commission approves the total O&M expenses under various heads for distribution function for the year 2006-07 as given in Table-4.72 below:

Table-4.72
O&M Expenses – 2006-07

(Rs. crore)

SI No.	Function	Projected by CSEB	Approved by the Commission
1	Employee Cost	250	410.25
2	R&M Expenses	65	62.50
3	Administration & General Expenses	35	18.35
	Total	350	491.10

The Commission approves O&M costs of Rs. 491.10 crore for the year 2006-07 against Rs.350 crore claimed by the Board. The large difference is mainly on account of difference in employee cost.

An amount of Rs.7.27 crore is reduced towards capitalization of expenses.

4.7.11 Interest and Financing Charges

For distribution function CSEB has claimed Rs. 73.00 crore as interest and finance charges which include Rs. 18.03 crore interest on the loans of Rs. 205.46 crore from State Government outstanding at present. This works out to be 8.7%. Other interest and finance charges include interest on existing and proposed loans from financial institutions and Banks etc. and the cost of raising finance. On the total long-term loans from financial institutions and Banks etc. Rs. 398.85 crore, comprising of existing loans Rs. 264.18 crore and proposed loans Rs. 134.67 crore, CSEB has claimed interest to the tune of Rs. 28.05 crore which works out to 7%. Rs. 20.93 crore has been provided for payment of interest on consumers' security deposit @ 6% p.a. The opening balance of consumers' security deposit as on 01-04-2006 was Rs. 325.22 crore and the projected addition during the FY 2006-07 is estimated at Rs. 47.37 crore. The above amount of interest payable on consumers' security deposit for FY 2006-07 has been calculated on the opening balance and an amount equivalent to half of the projected addition for averaging purposes. The payment of interest on consumers' security deposit has been made mandatory by the Commission under the provisions of Regulation 8 of CSERC (Security Deposit) Regulations, 2005. In view of the above discussion, the Commission approves interest and finance charges at Rs. 73 crore and interest and other expenses capitalized at Rs. 16.25 crore, as projected by CSEB.

The details of interest and finance charges for distribution function proposed by CSEB and approved by the Commission are given in the Table-4.73 below:

Table-4.73
Interest and Finance Charges – 2006-07

(Rs. crore)

Sl. No.		Projected by CSEB	Approved by the Commission
1.	Interest and Finance charges on State Government loans, Bonds and Advances.	23.19	23.19
2.	Interest and Finance charges on long-term loans etc.	24.02	24.02
3.	Interest on working capital	0.00	0.00
4.	Other interest and finance charges and other charges	4.86	4.86
5.	Interest on security deposits of consumers	20.93	20.93
6.	Total interest charges	73.00	73.00

4.7.12 Capitalization of Interest & Other Expenses

The interest and other expenses proposed to be capitalized during 2006-07 and approved by the Commission for Distribution is given in Table-4.74 below:

Table-4.74
Capitalisation of Expenses

(Rs. crore)

i) Interest capitalized	8.97
ii) Other expenses capitalized	7.27
Total	16.24

4.7.13 Depreciation

The matter regarding depreciation charges on the assets of the Board has been discussed in detail in para 4.5.5 of this order. The total depreciation allowed by the Commission for the assets of distribution function is Rs.18.00 crore against Rs.26.00 crore claimed by CSEB.

4.7.14 Reasonable Return

The issue of reasonable return to be allowed to CSEB for FY 06-07 has been discussed in detail in para 4.5.6. The reasonable return allowed by the Commission for the distribution function is Rs.75.81 crore against Rs.77.41 crore claimed by CSEB.

The Commission has allowed reasonable return at a uniform rate of 14% for generation, transmission and distribution functions. In spite of the Board's less than adequate performance in the matter of reforms in the distribution sector, the amount of reasonable return has not been reduced mainly because of the higher risks involved in the distribution function. However, the Commission is convinced that this should not be

the case in future. The Commission would consider reasonable return at 14% for distribution in future only if the Board achieves the performance parameters laid down for at least meterisation and loss reduction.

4.7.15 Provision for Income Tax

The details of provision for payment of income tax for FY 06-07 has been discussed in para 4.5.7. Accordingly, the Commission approves an amount of Rs. 74.86 crore for the distribution function against Rs.83.28 crore claimed by CSEB.

4.7.16 Doubtful and Bad Debts

The Board has submitted that an amount of Rs.300 crore will be necessary for writing off of doubtful and bad debt during 2006-07. On a conservative estimation, it has proposed a provision of Rs.100 crore for bad and doubtful debts during 2006-07.

Commission's views:

As per Regulation 23 of the Commission's Regulation on "Terms and Conditions for Determination of Tariff", the provision for writing off of bad and doubtful debts of distribution licensee shall be allowed upto 1% of the receivables subject to actual writing off of bad and doubtful debts.

The Commission accordingly approves a provision of Rs.30.09 crore which is 1% of the total revenue for the year towards bad and doubtful debts for the year 2006-07.

4.7.17 Other Income

The Board has projected an amount of Rs.342 crore as other income for the Board as a whole. An amount of Rs.273.29 crore is from distribution function, this includes Rs.40.00 crore towards peak hour surcharge, which the Board has proposed to levy. The Commission has not approved the proposal for peak hour charge. The parallel operation charges, which was shown under transmission function, is the income of distribution function. The Board has proposed to increase the rate of POC from the present Rs. 10 per KVA to Rs. 20 per KVA, which is not accepted by the Commission. So the revenue from parallel operation charges at the existing rate, would be Rs. 20 crore against the proposed Rs. 40 crore. Hence an amount of Rs.253.29 crore is approved under other income for distribution. The other source of income of CSEB has been discussed in para 4.10.1.

4.7.18 Annual Revenue Requirement- Distribution

The distribution function ARR as projected by the CSEB for 2006-07 and as approved by the Commission is given in Table-4.75 below:

Table-4.75
**Distribution ARR projected by CSEB and Approved by the
Commission for 2006-07**

Sl. No.	Particulars	Projected by CSEB	Approved by the Commission
	Energy available for Distribution (MU)	12599	12446
	Sale of power (MU)	8589	8575
	Distribution Losses (%)	31.83	31.10
	Costs (Rs. crore)		
1.	Cost of Generation function	1088.07	968.07
2.	Power Purchase Cost	1418.06	1113.16
3.	Cost of Transmission function	289.57	165.41
4.	Repairs and Maintenance Costs	65.14	62.50
5.	Employee costs	249.83	410.25
6.	Administration and General Expenses	34.71	18.35
7.	Depreciation	26.00	18.00
8.	Interest and finance charges	73.00	73.00
9.	Less Interest and Expenses Capitalized	(-) 16.25	(-) 16.25
10.	Provision for Bad debts and other debits	100.00	30.22
11.	Income Tax and Net prior credit / charges	83.28	74.86
12.	Total Costs (I)	3411.41	2917.57
13.	Add Reasonable Return (II)	77.41	75.81
14.	Less Other Income (III)	(-) 273.29	(-) 253.29
15.	Distribution ARR (I) + (II) – (III)	3215.53	2740.09
16.	Average Cost of Supply (Rs./Unit)	3.74	3.20

4.8 WHEELING CHARGES

Wheeling charges for the open access consumers in distribution network determined from the Distribution costs as approved by the Commission, is given in Table-4.76 below:

Table-4.76
Approved Distribution Costs

Sl. No.	Particulars	Approved by the Commission
		(Rs. crore)
1.	Repair and Maintenance costs	62.50
2.	Employee costs	410.25
3.	Administrative and General expenses	18.35
4.	Depreciation	18.00
5.	Interest and Finance charges	73.00
6.	Less Interest and finance charges capitalized	(-) 16.24
7.	Provision for Bad debts	30.22
8.	Provision for Income Tax	74.86
9.	Reasonable Return	75.81
10.	Less other income	253.29
11.	Total	493.46

The wheeling charges shall be based on the costs of distribution licensee for its wire business. The cost of distribution licensee for his wire business has to be calculated by excluding interest on security deposit from consumers' contribution from the total distribution cost given in the above table. The wheeling charges worked out for 33 KV voltage level is given in Table-4.77 below:

Table-4.77
Wheeling charges

I	Energy input to transmissions system	12955 MU
II	Losses in transmission (3.93% as approved)	509 MU
III	EHV sales (as approved by the Commission)	2927 MU
IV	Energy input to 33 KV system [I -(II + III)]	9519 MU
V	Total distribution cost as per approved ARR	Rs. 493.46 Cr.
VI	Distribution cost for wire business (excluding interest on security deposit from consumers of Rs. 20.93 crore)	Rs. 472.53 Cr.
VII	Distribution cost for 33 KV voltage level (assuming 35% of VI)	Rs. 165.39 Cr.
VIII	Wheeling charges for 33 KV voltage level	17.37 Paise/unit

The distribution system loss at the voltage at which the open access transaction is undertaken, shall be borne in kind and debitable to energy account of open access consumers. The loss for 33 KV level is taken as 6%, which was allowed last year in the absence of any study regarding losses. The study is yet to be undertaken. However, considering that 6% even otherwise is on the lower side, it is proposed to be continued.

4.9 ANNUAL REVENUE REQUIREMENT OF CSEB

The ARR projected by the Board and approved by the Commission for the year 2006-07 is as given in the Table-4.78 below:

Table-4.78
Annual Revenue Requirement of CSEB - 2006-07

Sl. No.	Item	2004-05 (Actuals)	2005-06 (Estimated)	2006-07 (Projected)	2006-07 (Approved by Commission)
	Energy available (MU)	11848	12468	13114	12955
	Sale of Power (MU)	7264	7916	8589	8575
	T&D Losses (%)	38.99	36.51	34.51	33.81
	Costs (Rs. crore)				
	Generation Cost (fuel cost only)	423.18	461.12	507.76	471.00
1.	Power Purchase Cost	799.05	899.26	1418.06	1113.16
2.	Repairs and Maintenance Costs	152.79	147.99	192.79	147.30
3.	Employee costs	945.65	637.28	645.42	638.16
4.	Administration and General Expenses	151.08	72.86	89.12	47.12
5.	Depreciation	40.80	46.25	69.00	61.00
6.	Interest and Finance Charges	132.18	175.03	286.90	286.90
7.	Less Interest and Expenses Capitalized	12.48	42.59	94.99	94.99
8.	Provision for Bad debts and other debits	15.28	148.99	100.00	30.22
9.	Income Tax and Net prior credit / charges	90.86	223.00	178.00	160.20
10.	Total Costs (I)	2738.41	2769.18	3392.06	2860.07
11.	Add Reasonable Return (II)	126.80	146.69	165.46	162.02
12.	Less Other Income (III)	487.05	218.24	342.00	282.00
13.	ARR (I) + (II) – (III)	2378.16	2697.63	3215.53	2740.09
14.	Average Cost of Supply(Rs. / Unit)	3.27	3.41	3.74	3.20

Commission's views:

On the basis of the discussion in this chapter, the different cost elements for the CSEB as a whole are approved as mentioned in Table-4.78 above. It can be observed from the approved costs for the Board, for the year 2006-07 that a major part of the expenses is earmarked for power purchase (40.6%), while the quantum of power to be purchased is only 38.47% of the total energy requirement. Hence, this should be a matter of concern for the utility. In a

power shortage situation, there is no other option but to purchase costly power from traders. The next major expenses are towards employee costs which is 23.29 % of the total cost due to provision for employees' terminal benefits. If the proposed additional contribution to Gratuity and Pension fund of Rs. 100 crore is not taken into consideration the total expenditure on employees comes to 19.6%.

The Commission approves the total ARR of Rs. 2740.09 crore for CSEB as a whole for the year 2006-07.

4.10 REVENUE ESTIMATION AND GAP

The income of CSEB comprises of tariff and non-tariff income (other income). As the non-tariff income is deducted while estimating the revenue requirement of the Board, this is discussed in isolation for the whole utility in para below:

4.10.1 Other Income (Non-Tariff Income)

CSEB projected non-tariff income of Rs.342.00 crore during the year. The regular avenues of such non-tariff income are meter rent, interest on FD investments and advances; surcharge for delayed payments, recovery from theft of energy, miscellaneous charges from consumers and miscellaneous receipts etc.

In addition CSEB proposed certain changes in the existing open access charges and others charges in the petition. These charges include –

- Parallel Operation Charges,
- Open access charges,
- Wheeling charges, and
- Peak hour consumption surcharge.

These charges are also included under other income subject to approval of the Commission. The Board has explained the need to recover such charges from the consumers and other beneficiaries.

The details of non-tariff income proposed by the Board and approved by the Commission are given below:

Table-4.79
Other Income (Non-Tariff Income)

(Rs. crore)				
Particulars	FY 05 (Actual)	FY 06 (Estimated)	FY 07 (Projected)	FY 07 (Approved)
Interest on FD Investments	45.93	41.50	30.00	30.00
Trading (Including one-time Incentives & settlement by REC, NTPC)	254.34	15.18	16.70	16.70
Parallel operation charges	0.00	0.0	40.00	20.00
Peak hour surcharge	0.00	0.00	40.00	0.00
Open access charges	0.00	0.00	5.00	5.00
Other items (meter rent, misc. receipts, Delayed payment surcharge)	186.78	161.55	210.30	210.30
Total	487.05	218.24	342.00	282.00

Commission's views:

The items considered in the other income category are discussed below:

Interest on Fixed Deposit & trading income:

The interest to be earned by the CSEB from its fixed deposit in the year FY 06-07 is approved at Rs. 30 crore as proposed. This shows a reduction over last year as a part of the fixed deposit has been proposed to be utilized towards capital investment. The income from trading other than electricity are the earning from the one time incentives and settlements by REC and NTPC dues.

Parallel Operation Charges:

The Commission in its order passed on 6.2.2006 in petition No. 17/2005(M) has reduced the Parallel Operation Charges from Rs.16 per KVA to Rs.10 per kVA. The Board has now proposed to increase the charges to Rs.20 per KVA. The Commission sees no reason why the orders already issued should be reviewed. In any case, the matter is under consideration of the Hon'ble Appellate Tribunal for Electricity in an appeal filed against the order aforementioned. Therefore, the Commission does not approve of any change in these charges. Hence income against this head is approved as Rs. 20 crore in place of Rs. 40 crore.

Peak hour Surcharge:

CSEB has proposed levy of surcharge for peak hour consumption and estimated revenue of Rs.40 crore on this account. The issue is discussed separately in this order in chapter 5. The Commission doesn't find it suitable

to levy surcharge on peak hour consumption, as time of the day tariff will continue to be implemented. Hence, the income from peak hour surcharge is not considered under other income.

Open Access Charges:

The Board has estimated revenue of Rs.5 crore under Open Access Charges recoverable from the consumers and others who utilize the open access facility on the transmission network. The Commission had already approved the open access on the intra-state transmission system of CSEB and the beneficiaries / utilities who utilized this facility have to pay transmission charges and surcharges. The estimated revenue of Rs.5 crore under this head is approved.

Wheeling Charges

As in the case of open access on transmission, the Commission has approved open access in distribution also. However, the Board does not anticipate the utilization of open access in the distribution and hence does not expect any revenue from wheeling charges.

The Commission approves total other income at Rs. 282 crore for the year 2006-07, against Rs.342 crore projected by the Board. The function-wise segregation as proposed by the Board and as approved by the Commission, has been discussed in respective paras.

4.10.2 Income from existing tariff

Income from supply of electricity to consumers is estimated based on the tariff applicable to different category of consumers and the quantity of electricity estimated to be sold to them.

CSEB has projected the revenue from existing tariffs at Rs.2903 crore based on consumer category-wise energy sales projected for 2006-07. While calculating the revenue, the Board had considered 100% of the contract demand for arriving at the total revenue from demand charges for HT consumers. Later, the Board amended the revenue to Rs.2746 crore considering the demand charges on 75% of the contract demand of HT consumers. The revenue estimated by the Board and the Commission is given below:

Table-4.80
Revenue from Existing Tariff for 2006-07

(Rs. crore)

Sl. No.	Category	Estimation by CSEB	Estimation by the Commission (with approved sale)
	LT Consumers		
1	BPL Consumers	56	54
2	Domestic	225	225
3	Non-domestic	132	132
4	Agriculture – metered	22	22
5	Agriculture – Flat	33	33
6	Industry	141	141
7	Public Utilities	19	19
8	Temporary supply	28	28
	Total LT	655	653
	HT Consumers		
9	Railway Traction	246	267
10	Coal Mines	170	170
11	Cement Factories	116	116
12	Heavy Industries >20 MVA	609	609
13	Power intensive (now steel industry)	580	580
14	Other HT industry	174	174
15	HT Industry with low LF	35	35
16	Bulk supply and residential	82	82
17	General (Non-Industrial)	69	69
18	Public water works	7	7
19	Irrigation	2	2
	Total HT	2091	2111
	Total LT + HT	2746	2764

Commission's View

A large number of consumers' association / consumers have pleaded that the revenue estimation by the Board is faulty. According to them the basis of estimation of revenue from demand charges of HT consumers should neither be 75% nor 100%. The consumers have to pay the demand charges for a minimum of 75% of contract demand, while 100% of contract demand is not likely to be the recorded demand of most of the consumers. They have pleaded that the average percentage demand recorded in each category for the year 2005-06 be adopted for computation of revenue.

The Commission has considered this plea but feels that the estimation based on 75% of contract demand for HT consumers is justified as it ensures minimum guaranteed revenue earning by the Board. Hence, the Commission generally agrees with the estimation of revenue made by the Board.

Accordingly, the revenue for the year 2006-07 from the approved sales at the existing tariff is estimated by the Commission is Rs. 2764 crore, as given in the Table-4.80 above. The revenue from BPL categories is reduced on account of lowered approved sales. However, the revenue from Railway Traction had been wrongly estimated by the Board which has been corrected.

The Commission, however, would like to mention that the modification made by the Board in the revenue estimation after a long time of submission of the tariff application only goes to show the lack of seriousness with which a tariff petition is treated by the Board. As such the Board took considerable time in the submission of the tariff petition even while they had the assistance of an experienced consultant. Despite that a serious mistake in revenue estimation is very unfortunate. The Commission only hopes that the Board would take adequate care in future in matters like assessment of its revenue and expenditure.

4.10.3 Revenue Gap

Based on the analysis and scrutiny of various items of expenses and the Annual Revenue Requirement of CSEB for the year 2006-07 as approved by the Commission, the revenue gap is worked out as under:

Table-4.81
Revenue Gap

		(Rs. crore)	
		Claimed by CSEB	Approved by the Commission
1.	Aggregate Revenue Requirement	3657.52	3022.09
2.	Less: Non-tariff income	342.00	282.00
3.	Revenue Requirement from sale of power	3215.52	2740.09
4.	Revenue at existing tariffs	2746.00	2764.00
5.	Surplus / (Deficit) (4-3)	(469.52)	23.91

Thus in place of a revenue deficit of Rs. 469.52 crore as estimated by CSEB, the Commission approves a surplus of Rs. 23.91 crore. The Commission has determined the tariff of various categories of consumers on this basis.

4.10.4 Revenue from approved tariff

The expected revenue from the approved tariff, given in the tariff schedule, with the average tariff for the year 2006-07 for various categories of consumers is given in Table-4.82 below:

Table-4.82
Estimated Revenue from Approved Tariff for 2006-07

Sl. No.	Category	Approved sales (In MU)	Revenue estimation at approved tariff (Rs. in Cr.)
	LT Category		
1	BPL Consumers	332.00	53.61
2	Domestic	1289.00	231.49
3	Non-domestic	300.70	131.01
4	Agriculture – metered	180.55	22.48
5	Agriculture – Flat	409.11	33.58
6	Industry	371.76	148.02
7	Public Utilities	114.23	21.48
8	Temporary supply	112.83	29.87
	Total	3111.00	671.54
	HT Category		
9	Railway Traction	655.45	263.15
10	Coal Mines & Heavy Industries	1998.32	770.28
11	Cement Factories	283.18	114.62
12	Steel Industries	1601.25	568.11
13	Other HT industry	401.78	162.23
14	Industry with low load factor and startup power	72.21	33.45
15	Bulk supply and residential	267.38	81.34
16	General (Non-Industrial)	147.81	66.10
17	Public water works	31.27	7.49
18	Irrigation	5.68	1.78
	Total HT	5464.00	2068.55
	Total LT + HT	8575.00	2740.09

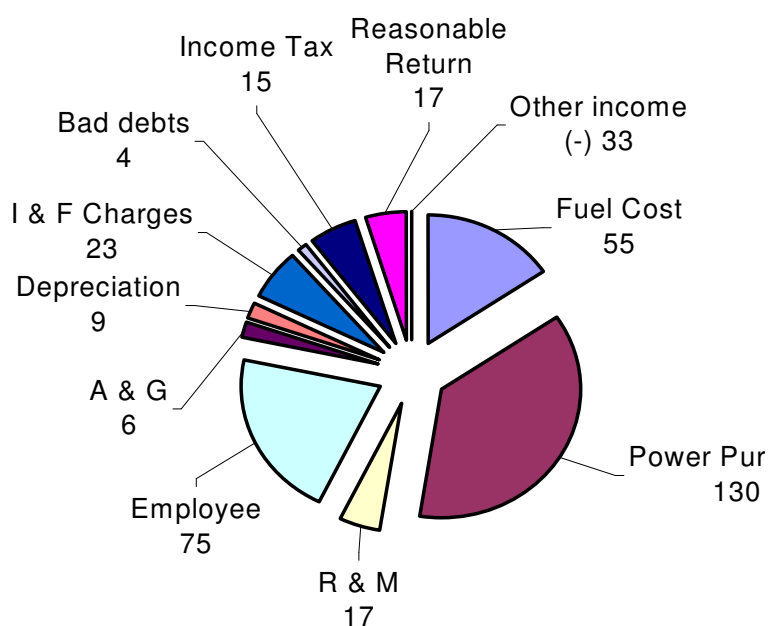
4.11 COST OF SUPPLY

The average cost of supply on the basis of approved ARR works out to be Rs.3.20 per unit as given in the table-4.78. This cost of supply is the average cost of supply for all the consumer categories and all the voltage levels. Computation of consumer category-wise and voltage-wise cost of supply have not been submitted by CSEB in the absence of necessary study. Such data are required if the incidence of cross-subsidy is to be worked out. The Board should take up this study most urgently. Direction is being issued to CSEB separately on this. The component-wise cost of supply per unit, as approved by the Commission, is depicted in the Table-4.83 and the pie chart below:

Table-4.83
Component wise Cost of Supply per unit

Sl. No	Details	Cost of supply Ps./Unit	% of total cost
1	Fuel Cost	55	17.19
2	Power Purchase Cost	130	40.63
3	R & M Costs	17	5.31
4	Employee costs	75	23.44
5	A & G Expenses	6	1.88
6	Depreciation	7	2.19
7	Interest and Finance Charges	23	7.19
8	Provision for Bad debts	4	1.25
9	Income Tax	19	5.94
10	Reasonable Return	17	5.31
11	Other income	(-) 33	-10.31
	Total	320	100.00

Cost - Ps./Unit (320)



It can be observed from the above that power purchase cost and fuel cost component accounts for 155 paise i.e 57.8% of the average cost of supply of 320 paise per unit. The next major component is towards employee costs which is 75 paise per unit which is high due to provision for employees' terminal benefits and proposed additional contribution to Gratuity and Pension fund.

4.12 AVERAGE EHT/HT TARIFF FOR 2006-07

The average tariff for EHT/HT consumers has been calculated taking into consideration the billing demand and its expected load factor which works out to Rs. 3.79 per KWh.

4.13 CROSS SUBSIDY

In the business of electricity distribution, the tariff structure of different consumers has been so distorted over the years that some consumer categories are making up for other group of consumers. The tariffs of different consumer categories in relation to the cost of supply has been such that a group of consumers have higher tariff than the CoS, while others have lower than CoS. This subsidy among consumer classes or within the same consumer class is the element of cross-subsidy. The level of cross subsidy with the tariff determined is given in the Table-4.84 below:

Table-4.84
Cross subsidy with Revised Tariff for 2006-07

Sl. No.	Category	Average Unit Rate (Rs./unit)	Average Cost of Supply (Rs./unit)	Cross subsidy (Rs./unit)
	LT Consumers			
1	BPL Consumers	1.61	3.20	-1.59
2	Domestic	1.80	3.20	-1.40
3	Non-domestic	4.36	3.20	1.16
4	Agriculture – metered	1.24	3.20	-1.96
5	Agriculture – Flat	0.82	3.20	-2.38
6	Allied Agriculture	3.00	3.20	-0.20
7	Industry	3.98	3.20	0.78
8	Public Utilities	1.88	3.20	-1.32
	Total LT	2.15	3.20	
	HT Consumers			
9	Railway Traction	4.01	3.20	0.81
10	Coal Mines & Heavy Industries	3.85	3.20	0.65
11	Cement Factories	4.05	3.20	0.85
12	Steel Industries	3.55	3.20	0.35
13	Other HT industry	4.04	3.20	0.84
14	Industry with low load factor and startup power	4.63	3.20	1.43
15	Bulk supply and residential	3.04	3.20	-0.16
16	General (Non-Industrial)	4.47	3.20	1.27
17	Public water works	2.40	3.20	-0.80
18	Irrigation	3.13	3.20	-0.07
	Total HT	3.79	3.20	
	Total LT + HT	3.20	3.20	

4.13.1 Reduction in Cross Subsidy

Section 61(g) of the Electricity Act, mandates the Commission to progressively reduce and eliminate the cross subsidy over a period of time to be specified. The NTP reiterates that the Commission would notify a road map within six months, of notification of the policy, with a target that the tariffs are within $\pm 20\%$ of the average cost of supply latest by the end of year 2010-2011. The road map would also have intermediate milestones, based on the approach of a gradual reduction in cross subsidy. (para 8.3 of NTP)

It may be seen from table-4.84 above that the cross subsidy from all the subsidizing categories of consumers have reduced over the existing tariff while the tariffs of the subsidised categories has been increased to an extent. On the whole, the margin in the cross subsidy has been reduced in this tariff order.

The Commission, however, has not been able to lay the road map for reduction in cross subsidy mainly because of lack of necessary data. Cross subsidy depends on the cost of supply and the average tariff for different consumer categories. In the absence of performance parameters based on reliable baseline data, consumer category-wise consumption data and the growth pattern of consumers and data on voltage-wise losses, the cost of supply and average tariff cannot be ascertained. The Commission, however, has made an effort to reduce the cross subsidy.

4.13.2 Cross subsidy Surcharge

The cross subsidy surcharge to be levied from the open access consumers as approved by the Commission, is given in Table-4.85 below:

Table-4.85
Cross subsidy Surcharge

Category of consumers	<i>EHT Consumers (at 132/220 KV)</i>	<i>HT Consumers (at 33 KV)</i>
Average rate of subsidizing category consumers (Rs. per Unit)	3.88	3.75
Average cost of supply (Rs. per Unit)	3.20	3.20
Cross subsidy (Rs. per Unit)	0.68	0.55

The cross subsidy surcharge as above has been worked out only in respect of such consumers who are presently eligible for availing open access.

Chapter 5. Tariff Principles and Design

5.1 INTRODUCTION: TARIFF PRINCIPLES

- 5.1.1** As the Commission has already mentioned, in determining the revenue requirement of CSEB, for the year 2006-07, and the retail tariff, the Commission has been guided by the provisions of the Electricity Act 2003, the National Electricity Policy (NEP), the National Tariff Policy (NTP), and the Regulations on Terms and Conditions of Tariff issued by the Central Electricity Regulatory Commission. The Commission has also notified Regulations on Terms and Conditions of Tariff in March this year. Section 61 of the Act lays down the broad principles which should guide determination of retail tariff. These principles are that the tariff should “progressively reflect cost of supply of electricity” and also “reduce and eliminate cross subsidies” within the period to be specified by the Commission. The Act lays special emphasis on safeguarding of consumer’s 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 this year, 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.
- 5.1.2** The NTP mandates that the Multi-year tariff (MYT) framework be adopted for determination of any tariff from 1st April, 2006 (para 5). However, the Commission is not in a position to introduce MYT regime in the State mainly because of lack of requisite data. The present MIS and regulatory reporting system of the licensee is very inadequate for any such exercise. The audited accounts of the Board are not yet available; there has been no study to assess voltage-wise losses in the absence of meters at all distribution transformers and consumers. Technical and commercial losses are yet to be segregated and quantified voltage-wise. Under these conditions it would not be practicable to implement the MYT framework this year. The Commission taking into account all factors, has decided to introduce MYT from the year 2008-09.
- 5.1.3** 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. In this effort, however, it has 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. This shall be addressed in the next tariff order after the report of the consultant already engaged for this

task by the Board, is available. However, an attempt has been made to reduce cross-subsidy further in this second tariff order of the Commission.

- 5.1.4** In working out the cost of supply the Commission has gone on the basis of average cost of supply, in the absence of relevant data for working out consumer category-wise cost of supply. With regards to method of price regulation the Commission has broadly followed, as already mentioned, the Rate of Return Regulation (ROR) method. However, in this tariff order an element of incentive and disincentive related to the performance of the utility, in the critical matter of AT&C loss reduction, has been introduced. The Commission has set a loss reduction target not only for the current year but also for the year 2007-08 without any stipulation regarding sharing of the efficiency gains between the CSEB and its consumers. Thus better performance will result in substantial efficiency gains to the Board and conversely, shortfall in performance will result in losses.

5.2 TARIFF PROPOSED BY THE BOARD AND APPROVED BY THE COMMISSION:

- 5.2.1** The retail tariff proposed by the Board is on the basis of a net revenue gap of Rs.469 crore of which the proposals for revision of tariff are designed to earn an additional revenue of only Rs. 164 crore. The Board has requested creation of regulatory asset for the remaining Rs.305 crore. However, on detailed scrutiny of the revenue requirement filed by the Board, the Commission has arrived at a more realistic revenue requirement which can be met not only from the revenues at current rate of tariff but would leave a surplus of Rs.23.91 crore. The Commission has, therefore, proceeded to reduce and rationalize the tariffs on the above basis. The average cost of supply has been worked out at Rs.3.20 as against Rs.3.74 per unit projected by the Board and Rs.3.41 estimated for the last year. Tariffs below the average cost of supply have been marginally increased and HT tariffs which were much higher than the cost of supply, reduced to some extent. The percentage increase and reduction in case of individual categories have been different, depending on various factors mentioned in the tariff design.
- 5.2.2** Before the Commission passed the first tariff order on 15.6.2005 which was made applicable with effect from 1.7.2005, the tariff prevailing in the erstwhile M.P. Electricity Board since March 1999 was applicable in this State. This tariff was typically characterized by heavy cross-subsidization and was not based on commercial principles. The main task of the Commission in the first tariff order was, therefore, rationalization of the tariffs. In this process 29 HT tariff categories at different voltage levels were brought down to 19 and 24 LT categories to 15. This process has been carried forward in this order.
- 5.2.3** As per the guidelines of the NEP a minimum consumption of one unit/household per day for BPL consumers at concessional tariff was ensured in the last tariff order and this concessional tariff set at 50% of the average

cost of supply. This is being continued. So far as other domestic consumers are concerned, the tariffs have been rationalized and the tariff rates have been made non-telescopic. This would ensure that domestic consumption at higher slabs attract higher tariff while domestic tariff in general continues to be below the average cost of supply. In the LT tariff, a new category "Agriculture Allied" has been introduced for all economic activities which are not agriculture per se but are allied to agriculture. This tariff has been fixed above the highly subsidized tariff for agriculture, but much below the non-domestic tariff, which is applicable to these consumers presently.

5.2.4 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 HT tariff has been designed on the basis of the average load factor of each consumer category achieved during the year 2005-06. The necessary information in this regard has been obtained from the CSEB. Certain provisions made in the last tariff order such as encouragement of HT consumption and bulk supply is being continued in this order.

5.2.5 A provision of a minimum charge has been part of the tariff since long, for the purpose of recovery of the fixed costs of the utility. The Commission is of the view that the minimum charge provision can be done away with with the gradual increase in demand/fixed charges to meet the fixed costs of supply of the utility. This should be possible when adequate data are available regarding recovery of fixed cost. In the absence of such data, the minimum charge provision has been retained in the tariff design with slight modification of the load factor base for HT consumers.

5.3 TARIFF CATEGORIES

The Commission approves the following tariff categories:

A. LT Categories: LT tariffs shall be applicable for connections up to maximum connected load of 75 KW/100 HP except for tariff category LV-5.3. There are 6 categories now, excluding LT temporary supply.

1. Domestic light, fan and power. Single phase and three phase connections.

- | | | | |
|----|------------------------------|---|------------------|
| a. | BPL consumer
(0-30 Units) | - | Un-metered |
| | | - | Metered |
| b. | 0-200 units | } | (non-telescopic) |
| c. | 0-400 units | | |
| d. | 0-700 units | | |
| e. | 0-Above 700 units | | |

2. Non-domestic light, fan and power. Single phase and three phase connections.
 - a. 0-500 units
 - b. 0-Above 500 units - (Non-telescopic)
 3. Agriculture.
 - a. Metered for all consumers above 5 HP and those of upto 5 HP who opt for metered connections
 - b. Un-metered for all consumers up to 5 HP who opt for flat rate
 4. Agriculture allied - New category introduced.
 5. Industries
 - a. Flour mills, hullers and power looms up to 15 HP.
 - b. Other industries - up to 25 HP
- Above 25 HP to 100 HP
 - c. Demand based tariff for LT industries with minimum 15 KW and a maximum of 75 KW contract demand. A maximum of 150 HP connected load shall be permissible.
 6. Public utilities - Water works and street lights
 7. Temporary supply
- B. HT Categories:** The total categories excluding temporary supply will be 10. Voltage-wise tariffs have been fixed for these categories.
1. Railway traction - 220/132 KV
 2. Cement factories - 220/132 KV
- 33 KV
 3. Coal mines and Heavy industries (with contract demand above 20 MVA for Heavy industries)
 - 220/132 KV
 - 33 KV
 4. Steel industries (with contract demand up to 20 MVA)
 - 220/132 KV
 - 33 KV

5. Other industries (with contract demand up to 20 MVA)
 - 220/132 KV
 - 33 KV
 - 11 KV
6. Industries with low load factor and Start up power tariff
 - 220/132 KV
 - 33 KV
 - 11 KV
7. Bulk supply and residential
 - 220/132 KV
 - 33 KV
 - 11 KV
8. General purpose – non-industrial
 - 220/132 KV
 - 33 KV
 - 11 KV
9. Public Water works
 - 33 KV
 - 11 KV
10. Irrigation
 - 33 KV
 - 11 KV
11. Temporary supply

5.4 LT TARIFF

5.4.1 Domestic

- a. The domestic category has been classified into two sub -groups
 - Below poverty line (BPL) consumers
 - Other consumers

Consumers classified as BPL by the State Government have been provided with a very low tariff in line with the guidelines of NEP and NTP. A flat rate up to consumption of 30 units per month was fixed in

the last tariff order at Rs.50/-, which has not been changed. This is based on 120 Watts connected load and at load factor of 35%. If the consumption of a metered BPL consumer exceeds 30 units per month or the connected load of any unmetered connection is found to be more than 120 Watts, billing shall be done for the units assessed at 35% load factor at appropriate slab of domestic tariff applicable for other non-BPL domestic consumers. Such consumers shall cease to be covered under BPL category thereafter. No change has been made in the prevailing charges for BPL consumers and the tariff is still 50% of the average cost of supply.

This tariff will be applicable to such consumers as are BPL cardholders. Only one connection will be provided on the basis of one card on which rubber stamp shall be affixed as a token of having served BPL connection.

- b. Higher tariff has been fixed for the consumers falling in higher consumption slabs since they have better paying capacity. Average increase in the domestic tariff is 3.45% depending upon the consumption and the slab into which the consumer falls.
- c. The rates have been made non-telescopic. The tariff for a particular slab shall apply to all the units consumed in that slab. Telescopic rates have been done away with to rationalize the rates of domestic tariff. Since this is a subsidized category, the higher slabs will attract higher tariff which are closer to cost of supply.
- d. The minimum fixed charge of Rs. 30/- for single phase and Rs. 100/- per month for three phase connections has been retained as in the last tariff order. The fixed charge is payable on the basis of units consumed.
- e. Domestic tariff is much below the cost of supply and is highly subsidized. The tariff will be 55% of the average cost of supply.

5.4.2 Non-domestic

- a. The fixed charges for single phase consumers are being rationalized and a uniform fixed charge of Rs. 50/- is proposed to be taken from single phase connections, while for three phase connections it shall remain unchanged at Rs. 60 per KW per month.
- b. The slabs of energy charge have now been fixed as up to 500 units and above 500 units for single phase and three phase connections respectively. The energy charge, however, is being reduced by 5 paise per unit, in both the slabs.
- c. As the tariff for this category is high, subject to modification as above no other change is proposed. The monthly bill may change only due to change in the slab, as the earlier slab of 1000 units has now been reduced to 500 units. Due to this, the single phase consumers using

more than 500 and upto 1000 units per month may have about 1 to 2% increase in tariff. There would, however, be very few single phase consumers consuming more than 500 units per month.

- d. The tariff for this category is being continued as non-telescopic.

5.4.3 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.

The National Tariff Policy (NTP) lays stress on the imperative need of using ground water resources in a sustainable manner. The policy mandates that this be kept in mind in addition to the average cost of supply. This stipulation applies to this state much more than to many as mostly paddy is grown here which requires large quantities of water particularly in the summer months. Use of ground water for paddy during the summer months is not a sustainable use of such water. Unless there is perceptible change in the cropping pattern, the Commission may seriously consider adopting ways and means to curb such use to arrest depletion of ground water. Such measures will have to be area-specific depending on the present level of exploitation of ground water.

- a. The present average tariff for irrigation pumps for different capacities is only 25 to 40% of the average cost of supply, which has been maintained up to 5 HP. Flat rate for above 5 HP has been increased by only Rs. 10/- per HP per month so as to discourage un-metered consumption. There is no change in tariff for metered pump consumers.
- b. Un-metered flat rate tariff shall be applicable to pumps up to 5 HP who opt for flat rate tariff and only to the existing un-metered pumps above 5 HP. The Board shall provide meters immediately to remaining un-metered existing pump connections of capacity above 5 HP as directed in the last tariff order. Flat rate shall be applicable to such pumps till they are provided with meters.
- c. It was directed in the last tariff order that all new pumps connections above 5 HP load shall be served only after installation of capacitors of specified rating. It was further ordered that such consumers who fail to provide capacitors of specified rating by 31.12.2005 would be required to pay surcharge of 30 paise per unit/month. This provision shall continue and for such flat rate pump consumers, the surcharge shall be levied on assessed units on 15% load factor.
- d. A farmer can use the water from agriculture pump for the cattle kept for his own use.

It is clarified that this tariff will be applicable to agriculture pumps used for the irrigation including by drip and sprinkler systems for

crops, nursery, horticulture crops (growing vegetables and fruits), floriculture (growing flowers), growing of medicinal/herbal plants and jatropa plantation. The scope of this tariff has thus been enlarged in the interest of economic development of rural areas of the State.

5.4.4 Agriculture Allied services

The Board has proposed to introduce a new tariff category covering horticulture, floriculture, sericulture, tree plantation, poultry, fisheries, aquaculture, hi-tech agriculture, etc. At present the non-domestic tariff is applicable to these categories of consumers. A few consumers like poultry, fisheries, horticulture, floriculture, tree plantation etc. have represented that the tariff is high while all these activities are allied to agriculture. Since there is no category between agriculture and non-domestic, such consumers are at present categorized as non-domestic consumers. The Commission has also been requested to clarify the type of consumers to be included in 'high-tech agriculture' category proposed by the Board.

In consideration of the importance of these economic activities to development of the rural areas, **a separate tariff for poultry, hatchery, fishery, cattle breeding farms, tree plantation, tissue culture, seri-culture and aqua-culture, laboratories and food processing units etc., is introduced which is marginally less than the cost of supply. The average relief to these consumers would be about Rs.1.80 per unit and the relief in the electricity bill would be to the extent of 40% to 55%.**

5.4.5 L.T. Industries

- a. Subsidized tariffs for flourmills and hullers up to 15 HP load have been maintained; power loom upto 15 HP has been merged in this tariff. For other industries up to 25 HP load which now includes power looms having more than 15 HP load also, marginal increase in fixed and energy charges has been done for the sake of rationalization. This may result in 9% increase in the bill.
- b. The minimum energy charge of 25 units/HP/month shall remain unchanged.
- c. The two sub-categories of loads above 25 to 75 HP and above 75 to 100 HP have now been merged. Tariff in this sub-category shall now be applicable to industries with connected load above 25 HP and up to 100 HP.
- d. As all the industries having connected load above 100 HP have not so far been converted to HT as per the last tariff order, the tariff for such existing industries shall be 20% extra over the tariff LV-5.2.2.

- e. The existing demand based tariff shall continue with no change in the demand and energy charges.

5.4.6 Public Utilities

This tariff is applicable to both public street lights and public water works. The tariff for urban and rural utilities have now been merged but the tariff continues to be almost equal to 60% of the average cost of supply. But because of the merger, the tariff may increase marginally for supply in rural utilities.

5.4.7 L.T. Temporary supply

The tariff was reduced from two times of normal tariff of respective L.T. category to one and half times, in the last tariff order. The same rate shall continue for temporary connections. 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.

5.5 HT TARIFF

5.5.1 Railway Traction

In the last tariff order the tariff of this category was slightly reduced from the level applicable since March, 1999. The method of billing was however, changed from KWh to KVAh with the consent of the Railways. On the old L.F. of 33% taken in the last tariff order, the average tariff was Rs.4.16 per KWh.

In this order there is a reduction of 5 paise/KVAh in the energy charge (KVAh). Thus the average tariff has been reduced from Rs. 4.16 to Rs. 4.11 per KWh taking the same annual average load factor of 33%.

5.2.2 Cement factories

The energy charge for cement industry availing supply at 33 KV or 132/220 KV has been reduced by 5 paise/unit which in turn results in marginal reduction by 1.46% and 1.01% in 132/220 KV and 33 KV respectively, in the average unit rate.

5.3.3 Coal Mines and Heavy Industries

In the existing tariff, there are different tariffs for coal mines and heavy industries and each of these is in a separate tariff category. The tariff of these categories (coal mines and heavy industries) have now been merged to make one common tariff for these consumers. Besides coal mines, all connections having contract demand more than 20 MVA will also fall into this category.

This is a step forward in the direction of rationalization and simplification of tariffs. This merger and simplification shall result in no change in the tariff for coal mines availing supply at 132 KV, but a reduction by Rs. 15 per KVA in the demand charge availing supply at 33 KV. The average tariff of heavy industry will be reduced by 6 paise/unit on the annual average load factor (2005-06). An increase of 10 paise per unit in the energy charge has been affected while the demand charge of heavy industry has been reduced from Rs. 380 to Rs. 300 per KVA.

5.5.4 Steel industries

Steel and related industries occupy a special place in the industrial scene of the State. A separate tariff for such industries has, therefore, been designed. In the approved tariff, demand charge has been reduced by Rs. 10 and Rs. 15 per KVA at 132/220 KV and 33 KV respectively and energy charge by 15 p/unit for both 132/220 KV and 33 KV. This has resulted in decrease in average unit rate by approximately 5.5%. The provision for load factor incentive has been retained for this category. **This tariff is applicable to steel and related industries viz. ferro alloy, sponge iron, mini steel plants, rolling mills, steel casting units and wire drawing plants with or without galvanizing unit, having contract demand up to 20 MVA only.**

5.5.5 Other industries

The demand charge for this category has been fixed by reducing this charge by Rs.30 per KVA and the energy charges have been so fixed that the equivalent average tariff on the basis of the annual average load factor of 2005-06 comes to about 6% to 8% less than the prevailing tariff at different voltage levels.

5.5.6 Low load factor industries and Start-up power

This tariff is an optional tariff for HV-4 and HV-5 categories industries operating on single shift basis and hence having low load factor. The demand charge for such industries has been kept at half of the other industry categories (HV-5) and the energy charge has slightly been modified. There shall be a reduction of about 3% in their tariff as compared to the prevailing tariff. TOD meters are necessarily to be installed on such connections.

Start-up power required by generators including plants based on biomass, captive power plants, small hydel plants etc. shall now be billed as per this tariff from the effective date of this order. However, the condition that working has to be on single shift and the provision of TOD meter will not be applicable for start-up power connections. Similarly, start-up power consumers will be exempted from payment of a monthly minimum charge of units equivalent to any load factor on the contract demand, but will be required to pay only demand charge every month on the contract demand or recorded MD,

whichever is higher. However, to be eligible to avail this tariff, the generating unit has to have a contract demand which does not exceed 10% capacity of the highest generating capacity of generating station and restricts the drawal of power within 10% load factor every month. In case the load factor in a month goes beyond 10%, the generating unit will be required to pay twice the demand charge.

With the introduction of this specific startup tariff in this tariff order, the dispensation with regard to demand charge in respect of captive power plants and bio-mass based non-conventional energy generators (i.e. 50% the demand charge of HV-6 category of the last tariff order) granted by the Commission in orders dated 06.02.2006 and 11.11.2005 passed in petition nos. 17/2005(M) and 7/2005 respectively now stand withdrawn.

5.5.7 Bulk supply and residential

This category was introduced last year for providing supply separately to residential townships and colonies etc. The tariff for this category availing supply at 132/220 KV has been maintained at last years' level only. The average tariff for 33 KV and 11 KV sub-categories has been marginally reduced.

5.5.8 General purpose non-industrial

For this category of consumers, the demand charge (except for 132/220 KV sub-category) and energy charge have been reduced so as to give about 2.5% to 5% relief in the equivalent tariff.

5.5.9 Public water works

This is a subsidized tariff category. The energy charge has been increased by 10 and 15 paise per unit in 33 and 11 KV category giving increase of 4 to 6%. The tariff however, continues to be much below the average cost of supply.

5.5.10 Irrigation

The demand and energy charge for this category has only been marginally increased to bring the tariff close to the average cost of supply. The overall increase in the equivalent tariff would be between 6% and 10%. Even with this marginal increase, the tariff at 33 KV remains below the average cost of supply.

5.5.11 Temporary supply

This tariff is not proposed to be changed and will be continued at one and half times of the normal tariff of the respective category of HT connection.

5.6 TOD TARIFF

Presently there is a large gap between the availability of power and the demand, not only during peak hours but to some extent even during off peak hours. Hence there is a need to restrict the use of power during peak hours by levying extra charge on normal tariff. The objective is to have a flat load curve to the extent possible. With this in view TOD tariff was introduced. The Board has proposed levy of a peak hour consumption surcharge at the rate of additional 50% charges on normal energy charge for four hours from 6:00 PM to 10:00 PM in place of the present TOD tariff, on the ground that about 15% of the energy is availed during the peak load hours by those HT consumers who are eligible to opt for TOD tariff. The load curves indicate that peak loads generally occur between 6:00 PM and 10:00 PM and therefore restriction of consumption during this period will be helpful in the overall management of load on the system. The rate at which power is purchased during evening peak hours is significantly higher as compared to normal rates. Therefore the Board has proposed this surcharge on all HT consumers except Railway traction, coal mines, general purpose, public water works and HT irrigation consumers. With the introduction of this surcharge the present TOD tariff is proposed to be abolished. An income of Rs. 40 crore is estimated from the proposed surcharge.

Commission's views:

The Board's proposal is to levy peak hour consumption surcharge on HT industries only. Some of these industries are continuous process industries. The maximum contribution to peak load is not by these industries but by domestic and commercial light and fan consumers. The present load curve does not indicate peak load only during the evening peak hours but also during night hours and for a few hours even during day time, particularly in the morning hours. A number of consumers have also raised objection to the proposed levy of surcharge and have requested that the TOD tariff be continued as mandated under the NTP.

In view of above, the Commission does not approve of the proposal of the Board for levy of evening peak load hour surcharge. The existing TOD tariff shall continue with slight modification in the rates as indicated in the tariff schedule. Further, the Commission would like to extend the scope of TOD tariff to all the HT industrial consumers viz, Cement industry (HV-2), Coal mines and heavy industries (HV-3), Steel industry (HV-4) and other industries (HV-5). However, TOD tariff will continue to be optional for consumers.

5.7 POWER FACTOR INCENTIVE AND PENALTY

In case of HT connections, average power factor (PF) of 0.9 is applied on the contract demand for calculation of corresponding units at different load factors. Power factor incentive and penalty has been in vogue in the Board. If the average monthly PF of HT consumer increases above 95%, he is given an

incentive. Similarly, if the average PF falls below 90% in case of HT connection and 85% in case of LT connection, a penalty is levied. The scheme helps in reducing system losses and contributes to voltage improvement. Similarly, PF penalty has been imposed as a consumer has to maintain a PF, which should contribute to the reactive energy in the system. The Board has proposed that the power factor incentive be withdrawn. Their plea is that it does not help in reduction of losses and improvement in voltage. Increasing power factor beyond 0.95 in no way creates additional generation capacity as the MW capacity is fixed by the prime mover. 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 that the licensee shall also require its consumers to maintain the required power factor by installing capacitors. The Board has proposed 0.5% incentive on demand charge for every 1% improvement in power factor above 0.98.

Commission's views:

A number of consumers have opposed this proposal and have requested that the power factor incentive/penalty be maintained. However, none has offered any comments on the reasoning by the Board. The Urla Industries Association, representing L.T. consumers, has even stated that a number of the industrial consumers are not able to maintain the power factor of 0.85 on L.T. in spite of their best efforts. It is observed that aforesaid mentioned CEA's (Grid Connectivity) Regulations have not come into force. The Commission feels that it will not be possible for the consumers to abruptly improve the PF to the extent of 0.98. This is possible only in stages. This issue was referred by the Commission to the CEA seeking clarification. In reply, the CEA vide their letter No. 436 dated 22-08-06 has clarified that maintenance of power factor is to be done at all the network nodes and it is the responsibility of the consumer/distribution licensee to ensure that reactive power is balanced at each node and there is no drawal of reactive power by the consumers. This is desired to maintain the regulation of voltage, reduction of losses, etc. The CEA has recommended continuance of PF incentive.

In view of above, the Commission does not approve the Board's proposal. The power factor penalty/incentive shall be modified gradually looking to the improvement in grid parameters and the awareness of consumers about the need to improve technical performance of their installations. **The Commission, however, decides that the incentive/ penalty shall be applicable on the existing pattern only on energy charge and not on both the demand as well as energy charges. L.T. power factor surcharge shall remain as it is.**

5.8 LOAD FACTOR INCENTIVE

The load factor incentives were provided to cement industries and power-intensive industries in the last tariff order. The Board has suggested abolition of this incentive on the plea that power purchase requirements are increasing rapidly and power purchase rates can not be sustained if such concessions are given. The Board has stated to have faced many litigations arising out of such claims. The Board has also stated that since HT tariff has built in concession on load factor, there is no need to provide additional concession.

Commission's views:

The contrary view expressed by some consumers before the Commission was that it should not be abolished and some concession need to be provided to the consumers who use energy in bulk.

The rates of HT consumers in general are being slightly reduced. Therefore, the load factor incentive may not be required. **As the steel industry is the core industry of the state, a load factor incentive is being extended only to this category (HV- 4) so as enable this industry to compete in the national market.**

5.9 MONTHLY MINIMUM CHARGE

The Board has not proposed any change in the prevailing minimum charges applicable to various categories of consumers. As the demand/fixed charges increase so as to recover the fixed cost of the Board, the minimum charge should be gradually reduced. The Board has recently taken up a study on cost of supply, through a consultant. So far the Board has been unable to correctly state the amount recovered through levy of demand/fixed charge and minimum charge. As the figures firm up, a clear picture shall emerge to guide the Commission in taking appropriate action for removing the minimum charge for each category of consumers. Therefore, the minimum charges are being maintained for the present. However, it is observed that different category of consumers are required to pay a minimum monthly energy charge of the units equivalent to different load factor of the contract demand by applying an average PF of 0.90 plus the demand charge on the billing demand for the month, irrespective of whether any energy is consumed during the month or not. The load factor for different category of consumer varies from 10% to 40%. The Commission is of the view that it should be uniform for all categories of EHT consumers. **The Commission, therefore orders that for the purpose of calculating minimum monthly energy charges of the consumers, a load factor of 15% shall be uniformly applied.** This may result in overall increase in the electricity bill to the extent of 4% in respect of a few consumers where monthly LF remains below 15%. But it will generally be beneficial to all.

5.10 MISCELLANEOUS AND GENERAL CHARGES

In the tariff petition for FY 2006, the Board had stated that the miscellaneous and general charges were not revised after June 2000 although the material cost and labour cost had increased by about 20%. The Board had suggested a few charges based on the order dated 09.12.2004 of MPERC, since Chhattisgarh was part of the erstwhile Madhya Pradesh. The Commission had agreed to the charges proposed in its tariff order dated 15.06.2005. The Commission had, however, advised the Board to carryout a detailed exercise for fixation of each charge and submit the same before filing the next tariff petition. The Board has not yet submitted the details asked for. The Commission feels that under the circumstances, the Board may be permitted to continue recovery of miscellaneous charges at the existing rates till these are revised by the Commission after receipt of complete information from the Board. **In any case the proposal has to be submitted by the Board to the Commission within three months from the date of issue of this order failing which these charges will be reduced by 10% across the board.**

However, a few charges such as transmission charge, wheeling charge and cross subsidy surcharge have been fixed by the Commission in this order and are given in para 5.19 in this chapter.

5.11 TARIFF SCHEDULE FOR LOW TENSION CONSUMERS

LV-1: DOMESTIC

1. Applicability

This tariff is applicable to domestic light and fan; power for heaters, air conditioners, washing machines, cookers, refrigerators, ovens, mixers and other domestic appliances in a single private house/flat or any other residential premises, orphanages, homes for old/physically handicapped people and homes for destitutes; Dharamshalas; student hostels; Ashrams; Schools and hospitals (including X-rays etc.) run by charitable trusts; Government hospitals/ dispensaries, (excluding private clinics and nursing homes); farm houses; mosques; temples; churches; 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; fractional HP motors used for Shailchak by Kumhars in their residence and lawyers' chambers even outside their residences.

2. Character of Services

- (a) AC, 50 hertz, 230 Volts, Single-phase upto a load of 120W for BPL and 2 KW for others.
- (b) AC, 50 hertz, three phase, 400 volts for load above 2 KW upto 75 KW.

3. 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	BPL consumers				
1.1.1	Un-metered	-	-	Rs. 50/Connection/M	Nil
1.1.2	Metered	0 - 30 units	0.75 per unit	0.75	
1.2	Other Consumers	0 - 200 units	0.90 per unit	0.75	Single phase-
	Metered	0 - 400 units	1.00 per unit	1.00	Rs.30/- p.m.
		0 - 700 units	1.20 per unit	1.30	Three phase-
		0 - Above 700 units	1.30 per unit	1.45	Rs.100/- p.m.

Note: (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) When a portion of the dwelling is used for the conduct of a business other than those specified above, the entire consumption shall be billed under Non-domestic tariff LV-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, workshops and laboratories of Engineering Colleges/Polytechnics/ITIs), public buildings, town halls, 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, guest houses, marriage gardens, welding transformer and lathe machines for repair works and services, book binders, petrol pumps and service stations, lifts and other appliances in shopping centers and offices.

2. Character of Services

- (a) AC, 50 hertz, 230 Volts, Single-phase upto a maximum load of 2 KW.
- (b) AC, 50 hertz, three phase, 400 volts for load upto 75 KW/ 100 HP.

3. Tariff

	Category of consumers	Fixed Charge in Rs.	Unit slab (Non-telescopic)	Energy charge (Rs. per unit)
	LV-2: Non-Domestic			
2.1	Single phase connection	Rs. 50/- P.M. per connection	0 - 500 units 0- Above 500 units	3.75
2.2	Three phase connection	Rs. 60/- per KW / month		4.25

Note: All existing L.T. non-domestic connections above 100 H.P. and up to 150 H.P. were directed to avail H.T. supply by 31.12.2005 failing which 20% additional charge on total amount of monthly bill (fixed and energy charge and also VCA charge, if any) shall be levied.

LV-3 L.T. AGRICULTURE

1. Applicability

This tariff is applicable to agricultural pump used for the 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.

2. Character of Services

AC, 50 hertz, 230 Volt single phase upto a maximum of 2 KW and 400 Volt upto 75 KW/100 HP load.

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		
3.2.1	Upto 5 HP	-	Rs. 65 / HP / Month
3.2.2	Above 5 HP (For existing consumer)	-	Rs. 85 / HP / Month

4. Pilot lamp

One 40W bulb is permitted at or near the motor pump set in the power circuit.

5. 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 so far shall switch over to metered supply as early as possible but latest by 31.03.07 and till then those shall be billed at the rate of Rs.85 per HP per month (3.2.2)
- (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 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 15% L.F.

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 etc.

2. Character of Services

AC, 50 hertz, single phase 230 V upto a maximum of 2 KW and three phase 400 V upto 75 KW/100 HP load.

3. 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	2.50

4. Notes:

- (i) All 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 15 % LF.
- (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.

LV-5 L.T. INDUSTRY

1. Applicability

These tariffs are applicable to light and fan and power for flour mills, hullers, power looms, rice mills, dal mills, oil mills, ice factories, cold storage plants, grinders for grinding masala, ice candies, workshop & laboratories of engineering colleges, ITIs & polytechnics and other industrial installations and workshops where manufacturing takes place i.e. conversion of raw material to finished good.

2. Character of Services

AC, 50 hertz, single phase 230 V up to a maximum of 2 KW and three phase 400 volt up to 75 KW/100 H.P.

3. 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 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 + 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	3.25	Demand charge on contract demand
5.3	Demand based Tariff for demand between 15 and 75 KW	Rs.125/KW/Month	3.40	

Notes:(i) Existing consumers having connected load/ sanctioned load above 100 HP and up to 150 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 20% additional charges on tariff 5.2.2 till they switch over to HT connection.

(ii) Demand based tariff – 5.3 is for maximum contracted demand between 15 KW and 75 KW. Total connected load in this tariff shall not be more than 150 HP.

LV-6 PUBLIC UTILITIES

1. Applicability

These tariffs are applicable for public utility water supply schemes, sewage treatment plants and sewage pumping installations, crematorium, traffic signals and lighting of public streets including public parks and 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. Character of services

AC, 50 hertz, single phase 230 V up to a maximum of 2 KW and three phase 400 volt up to 75 KW/100 H.P.

3. Tariff

Category of consumers	Fixed charge	Energy charge (Rs. per unit)
LV-6: Public utilities Street Light and water works	Rs. 30/HP/Month or Rs. 40/KW/Month	1.75

5.12 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 categories.

Notes:

- 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.
- No temporary connection shall be served without meter including agricultural connections. Agricultural connections shall be billed one and half times of metered supply (tariff LV-3.1).
- Meter hire shall be charged as per the schedule of miscellaneous charges.
- Connection and disconnection charge shall be paid as per the schedule of miscellaneous charges.
- Variable cost adjustment charge, if any, shall be levied at one and half times the prevailing rate in addition to above rates.
- No rebates/concessions under any head shall be applicable to temporary connections.
- Month for the purpose of billing of temporary supply shall mean 30 days from the date of connection or for further part thereof.
- The billing demand shall be the demand requisitioned by the consumer or the highest recorded maximum demand during the period of supply commencing from the month of connection ending with billing month, whichever is higher.

- (i) Any expenditure made by the licensee for providing temporary supply upto the point of supply, shall be paid by the consumer as per prescribed procedure.
- (j) 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.

5.13 TERMS AND CONDITIONS OF L.T. TARIFF

5.13.1 The energy will be supplied to the consumer ordinarily at a single point for the entire premises of the consumer.

5.13.2 No new L.T. connection above 75 KW/100HP connected load shall be served.

5.13.3 All existing L.T. connections with connected load above 75 KW/100HP which have not availed H.T. supply by December 2005, shall be levied 20% additional charge on the tariff of LV-2.2 or 5.2.2 (which ever is applicable) on total amount of monthly energy bill comprising of fixed charge/demand charge, energy charge, minimum charge and VCA charge, if any.

5.13.4 The connected load under the foregoing tariffs would mean the connected load entered into the agreement executed with the consumer even in cases where the actual connected load is less than the consumer's load entered in the agreement. Connected load or contract/maximum demand in fraction shall be rounded off to the next whole number.

5.13.5 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.

5.13.6 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.

5.13.7 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 as 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) Any LT power consumer (except agriculture connection having load upto 5 HP) who fails to provide LT capacitor of specified rating and fails 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 consumers, other than consumers covered above 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) All existing agriculture connections having load above 5 HP not having LT capacitors of specified rating shall pay surcharge of 30 (thirty) paise per unit on the entire consumption of the month.
- (f) 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.
- (g) For the purposes of computing the connected load in KW or HP of the welding transformer, a power factor of 0.6 shall be applied to the maximum current of KVA rating of such welding transformers.
- (h) The flat rate agriculture consumer having above 5 HP connection shall pay this surcharge on the assessed units calculated on 15% load factor till they are metered.
- (i) 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.
- (j) 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.
- (k) 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.
- (l) 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 suitable capacitors.

5.13.8 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 connected load of any consumer, except the domestic and demand based tariff consumers, is at any time found in excess of what has been agreed to between the consumer and the Board, 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 of the Low Tension Tariff 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, if any, in any month, shall be charged at the rate of **one and half times** 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.

5.13.9 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 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.

5.13.10 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.

5.13.11 Rounding off

All bills will be rounded off to the nearest rupee.

5.13.12 Applicability of tariff

In case of any dispute about applicability of tariff on a particular LT category, the decision of the Commission shall be final and binding.

5.13.13 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.

5.13.14 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 then in force. Such charges, if any, shall be payable by the consumer in addition to tariff charges.

5.13.15 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, being to the contrary.

5.14 TARIFF SCHEDULE FOR HIGH TENSION CONSUMERS

HV-1: RAILWAY TRACTION

1. Applicability

This tariff is applicable to the Railway for Traction loads only.

2. Character of Service

Alternating current (A.C.), two phase, 50 hertz, 220KV or 132KV.

3. Tariff

	Category of consumer	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KVAh)
HV-1	Railway Traction on 220KV/132KV	300	2.75

4. Minimum Charge

The consumer will guarantee a minimum monthly payment of energy charge of the units (KVAh) equivalent to 15% load factor of the contract demand plus the demand charge on the billing demand for the month irrespective of whether any energy is consumed during the month or not.

5. 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 in to 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.

6. The condition of power factor incentive/penalty shall not be applicable as the energy charges are billed on KVAh.

HV-2 CEMENT FACTORIES

1. Applicability

This tariff is applicable to the cement factories 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 use therein.

2. Character of service

Alternating current, 3 phase, 50 hertz, 220 KV or below.

3. Tariff:

	Category of Consumers	Demand Charges (Rs./KVA/month)	Energy Charges (Rs./KWh)
HV-2	Cement Factories		
2.1	220/132 KV Supply	300	3.45
2.2	33 KV Supply	310	3.55

4. Minimum Charge:

a) For 220/132 KV Supply

The consumer will guarantee a minimum monthly payment of charges of the units (KWh) equivalent to 15% load factor on the contract demand plus demand charges on the billing demand for the month irrespective of whether any energy is consumed during the month or not.

b) For 33 KV Supply

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. Determination of Demand

The maximum demand of the 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.

HV-3: COAL MINES AND HEAVY INDUSTRIES

1. Applicability

This tariff is applicable to the coal mines and all heavy industries (above 20 MVA CD) for power, ventilation, lights, fans, coolers etc. which shall mean and include all energy consumed for coal mines and factories; lighting in the offices, stores, canteens, compound lighting, etc. and consumption for residential and general use therein.

2. Character of Services

Alternating current, 3 phase, 50 hertz, 220KV or below.

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-3	Coal Mines and heavy industries		
3.1	220/132KV Supply	300	3.25
3.2	33KV Supply	310	3.35

4. Minimum Charge

a) For 220/132KV Supply

The consumer will guarantee a monthly minimum payment of charges for the units equivalent to 15% load factor on the contract demand (CD) plus the demand charges on the billing demand for the month, irrespective of whether any energy is consumed or not.

b) For 33KV Supply

Demand charge on the contract demand (CD) will be the monthly minimum charge whether any energy is consumed during the month or not.

5. 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.

HV-4 STEEL INDUSTRIES

1. Applicability

This tariff is applicable to steel industries upto 20 MVA contract demand (CD), such as mini steel plants, rolling mills, sponge iron plants, ferro alloy units, steel casting units and 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. Character of service

Alternating current, 3 phase, 50 hertz, 220 KV or below.

3. Tariff

	Category of Consumers	Demand Charges (Rs./KVA/month)	Energy Charges (Rs./KWh)
HV- 4	Steel Industries		
4.1	220/132 KV Supply	250	2.40
4.2	33 KV Supply	260	2.50

4. Minimum Charge

a) For 220/132 KV Supply

The consumer will guarantee a minimum monthly payment of charges of the unit (KWh) equivalent to 15% load factor on the contract demand plus demand charges on the billing demand for the month irrespective of whether any energy is consumed during the month or not.

b) For 33 KV Supply

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. 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. Load factor Incentive

Load Factor (LF)	Concession
(a) If load factor is over 60% and up to 70% on contract demand (CD)	10 paise/unit on entire consumption
(b) If load factor is over 70% on contract demand (CD)	25 paise/unit on entire consumption

HV-5: OTHER H.T. INDUSTRIES

1. Applicability

This tariff is applicable to electro-chemical and electro-thermal units and all other industries not covered under categories HV-1 to HV-4 and shall also include non-industrial activities such as poultry and hatchery, dairy, milk chilling plant and tissue culture laboratories 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.

2. Character of Services

Alternating current, 3 phase, 50 hertz., 220/132KV or below.

3. Tariff:

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-5	Other H.T. Industries		
5.1	220/132KV Supply	300	2.90
5.2	33KV Supply	310	3.00
5.3	11KV Supply	320	3.10

4. Minimum Charge

a) For 220/132 KV Supply

The consumer will guarantee a minimum monthly payment of charges of the unit (KWh) equivalent to 15% load factor on the contract demand plus demand charges on the billing demand for the month irrespective of whether any energy is consumed during the month or not.

b) For 33/11 KV Supply

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. 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.

HV-6: LOW LOAD FACTOR INDUSTRIES AND START-UP POWER TARIFF

1. Applicability

This tariff is applicable to all HT industries covered under HV-4 and HV-5 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. The tariff shall also be applicable for start-up power required by generators including biomass based NCE sources, captive power plants, etc. **This tariff will be applicable to a consumer who opts for it.**

2. Character of Services

Alternating current, 3 phase, 50 hertz., 220 KV or below .

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-6	Low load factor industries and start-up power tariff		
6.1	220/132KV Supply	150	3.20
6.2	33KV Supply	155	3.30
6.3	11KV Supply	160	3.40

4. Minimum Charge

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. 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 percentage (1.3 times) the normal rate of energy charge applicable to the consumer as per the following table:

Demand Charges PLUS Energy Charge	Normal rate of Demand Charge
Period of use	Rate
(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.)	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 and such consumers shall not be entitled to TOD tariff as provided in clause 5.16 of Tariff Schedule for HT consumers.

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. Conditions for Start-up power consumers

- i) The generators seeking start-up power shall not be entitled to ToD tariff as provide in clause 5.16 of tariff schedule. The condition of single shift working shall not be applicable to such connections.
- 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.
- iv) Such connections shall not be required to pay any monthly minimum charge on energy consumption but will be required to pay demand charges on the contract demand or recorded demand, whichever is higher.

7. 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.

HV-7: BULK SUPPLY AND RESIDENTIAL

1. Applicability

This tariff shall be applicable primarily for supply to township including township of industries having mixed load.

2. Character of Services

Alternating current, 3 phase, 50 hertz., 220KV or below.

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-7	Bulk Supply and Residential		
7.1	220/132KV Supply	225	2.50
7.2	33KV Supply	235	2.60
7.3	11KV Supply	245	2.70

4. Minimum Charge

Demand Charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. 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.

HV-8: GENERAL PURPOSE NON-INDUSTRIAL

1. Applicability

This tariff is applicable for supply to establishment like Railway (other than traction), hospitals, offices, hotels, institutions, etc. having mixed load.

2. Character of Services

Alternating current, 3 phase, 50 hertz., 220/132KV or below.

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-8	General Purpose Non-Industrial		
8.1	220/132KV Supply	300	3.40
8.2	33KV Supply	310	3.50
8.3	11KV Supply	320	3.60

4. Minimum Charge

a) For 220/132 KV Supply

The consumer will guarantee a minimum monthly payment of charges of the unit (KWh) equivalent to 15% load factor on the contract demand plus demand charges on the billing demand for the month irrespective of whether any energy is consumed or not.

b) For 33/11 KV Supply

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not

5. 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.

HV-9: PUBLIC WATER WORKS

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.

2. Character of Services

Alternating current, 3 phase, 50 hertz., 33KV or below.

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-9	Public Water Works		
9.1	33KV Supply	150	2.10
9.2	11KV Supply	160	2.20

4. Minimum Charge

The demand charge on contract demand is a monthly minimum charge whether any energy is consumed during the month or not.

5. 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.

HV-10: IRRIGATION

1. Applicability

This tariff is 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. Character of Services

Alternating current, 3 phase, 50 hertz., 33KV or below.

3. Tariff

	Category of consumers	Demand charge (Rs./KVA/month)	Energy charge (Rs. per KWh)
HV-10	HT Irrigation		
10.1	33KV Supply	90	2.00
10.2	11KV Supply	100	2.10

4. Minimum Charge

The tariff is subject to payment of minimum annual consumption of 900 units per kVA of the highest maximum demand recorded during the year or the contract demand, whichever is higher.

5. 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.

5.15 HT TEMPORARY CONNECTION

5.15.1 Applicability

This tariff is applicable to connections of temporary nature.

5.15.2 Character of Services

Alternating current, 3 phase, 50 hertz., 220KV or below.

5.15.3 Tariff

One and half times of the normal HT Tariff applicable for that category with demand, energy and VCA charge.

5.15.4 Notes:

- (a) The billing demand shall be the demand requisitioned by the consumer or the highest monthly maximum demand during the period of supply commencing from the month of connection ending with the billing month, whichever is higher.
- (b) The prevailing VCA charge, if any, at the time of availing supply shall not be further adjusted.
- (c) The month for the purpose of temporary supply shall mean 30 days from the date of connection or for further part thereof.
- (d) The consumer shall pay the estimated energy charges in advance, before serving of the temporary connection subject to replenishment from time to time and adjustment as per final bill after disconnection.
- (e) Any expenditure made by the CSEB/licensee up to the point of supply shall be paid by the consumer as per prescribed procedure.
- (f) The consumer shall pay rent for the metering system.
- (g) Connection and disconnection charges shall be paid separately.
- (h) Other terms and conditions of the relevant category of tariff shall also be applicable.
- (i) 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.
- (j) Temporary connection shall not be served unless suitable capacitors are installed so as to ensure power factor of not less than 0.90.

5.16 TIME OF DAY TARIFF

Under the Time of Day (TOD) Tariff, electricity consumption and maximum demand in respect of HT consumers 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:

Demand Charges PLUS Energy Charge	Normal rate of Demand Charge
Period of Use	Rate
(i) Normal period (5:00 a.m. to 5:00 p.m.)	Normal rate of Energy Charges
(ii) Evening peak load period (5:00 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.)	85% of normal rate of Energy Charge

Applicability and Terms & Conditions of TOD tariff:

- (i) TOD tariff will be optional for all HT industries viz. Cement factories (HV-2), Coal and Heavy industries (HV-3), Steel industries (HV-4) and Other industries (HV-5).
- (ii) The facility of aforesaid TOD tariff shall not be available to HT consumers having captive power plants and/or availing supply from other sources through wheeling of power and to those availing supply for hospitals, water works, railway traction, irrigation, general purpose residential, general purpose non-industrial and temporary supply.
- (iii) The HT industrial consumers mentioned in (i) above, who have installed stand-by generating plants shall also be eligible for the aforesaid TOD tariff.
- (iv) After electing TOD tariff, if any industrial HT consumer on account of some reasons wants to go back to the earlier tariff according to the agreement, this facility shall be available to him only once in two years.
- (v) If the actual monthly consumption of such HT consumer, whose monthly minimum charges are based on units, is less than minimum consumption, then the difference (deficit) of units between the minimum consumption and actual consumption shall be billed at normal rate of energy charge prescribed for "Normal Period".
- (vi) 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.
- (vii) 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 5:00 p.m. irrespective of the time of use.

5.17 TERMS AND CONDITIONS OF HT TARIFF

All the foregoing HT tariffs are subject to the conditions prescribed hereunder:

5.17.1 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 consent of the Commission.

5.17.2 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 avail 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.

5.17.3 Billing demand

The billing demand for the month shall be the actual maximum KVA demand of the consumer 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.

5.17.4 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%	--	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%	-	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 reserves 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 what has been stated 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.

5.17.5 Average Power Factor

An average power factor 0.9 will be applied on the contract demand for calculation of corresponding units at different load factors.

5.17.6 VCA Charge

Variable cost adjustment (VCA) charge, if any, shall be levied in addition to energy charge.

5.17.7 Rounding off

All bills will be rounded off to the nearest rupee.

5.17.8 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.

5.17.9 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.

5.17.10 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, 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.

5.17.11 Additional Charge

The existing consumers with contract demand exceeding 10000 KVA who have been permitted to continue to avail supply at 33 KV shall be required to pay additional charge at 7% on the total amount of the bill at 33KV. The aforesaid additional charge at 7% shall be levied on the total amount of the bill

comprising of demand charge, energy charge and variable cost adjustment charge. Further, if the existing consumers, as aforesaid, having contract demand of less than 10,000 KVA require additional power, resulting in the total contract demand exceeding 10000 KVA, then they shall be required to take the total supply at 220/132KV at the relevant tariff for supply at 220/132 KV, from the date the enhanced contract demand (including the additional power) becomes effective. Similarly, if any 132 KV consumer exceeds his contract demand beyond 40000 KVA, he shall pay additional charge of 7% on the total amount of bill till he switches over to 220 KV.

5.17.12 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.

5.17.13 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.

5.17.14 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.

5.18 PARALLEL OPERATION CHARGES

Rs. 10 per KVA per month on the installed capacity of CPP, as fixed by the Commission in its order passed on dated 06.02.06 in petition No. 17 of 2005(M).

5.19 OPEN ACCESS CHARGES:

The Commission vide order dt. 15.02.2006 passed in petition no. 03/2006(M) had determined open access charges. By this order the rates of some of these charge are revised and the following charges are approved by the Commission for the FY 06-07:

(a) Transmission Charge

- i) 3.93 % in kind which will be deducted from the energy input.
- ii) Rs. 65639 per MW or part thereof per month for long-term open access; and Rs. 540 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) 17.37 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 – 68 paise/unit
ii) For HT consumers – 55 paise/unit

5.20 SCHEDULE OF MISCELLANEOUS AND GENERAL CHARGES

The existing Schedule of miscellaneous and general charges approved in the tariff order for FY 05-06 as detailed below shall be applicable during FY 06-07 also till these are revised by the Commission:

Sl. No.	Particulars	Existing Charges
1.	Meter Hire Charge	
a)	Single Phase LT.	Rs. 12/- P.M
b)	Poly Phase LT.	
(i)	Upto 100 Amp.	Rs. 25/- P.M
(ii)	LT.CT. Meter	Rs. 50/- P.M
(iii)	Demand or special type Meter.	Rs. 200/- P.M
c)	11 KV Meter with box, cable, CT etc.	Rs. 900/- PM
d)	33 KV metering System	Rs. 1500/- P.M
e)	132 KV metering System.	Rs. 20000/- P.M
f)	220 KV metering system.	Rs. 35000/- P.M
2.	For single phase & three phase connection up to 5 KW	
a)	Changing meter Board in same premises.	Rs.50/-
b)	Changing meter at consumer's request in same premises.	Rs.50/-
c)	Re-sealing Board's cut out in consumer's premises.	Rs.15/-
3.	Re-sealing meters, MD indicators of CSEB in consumer's premises	
a)	Single phase L&F connection.	Rs. 80/-
b)	Single phase Power connection.	Rs. 135/-
c)	Three phase LT Connection:	
(i)	Industrial up to 10 HP.	Rs. 250/-
(ii)	Industrial above 10 HP.	Rs. 500/-
(iii)	Irrigation connection upto 5 HP.	Rs. 65/-
(iv)	Irrigation connection above 5 HP.	Rs.110/-
d)	H.T. connection.	Rs.1000/-

Sl. No.	Particulars	Existing Charges
4.	Meter Testing Charges at consumer's request.	
a)	Single Phase Meter	Rs.100/-
b)	3 phase, 4w meter, without C.T. meter	Rs.150/-
c)	3 phase, 4w meter, with C.T. meter	Rs.1050/-
d)	L.T. C.T	Rs. 300/- each
e)	Special Bi-Vector, Tri-Vector Meter	Rs.1000/-
f)	33 KV or 11 KV Metering equipment	Rs.3000/-
g)	132 KV/220 KV Metering equipment	Rs.5000/-
5.	Contest fee	
a)	L.T. meter	1.5 times of testing charges
b)	H.T. meter	2 times of testing charges
6	Special meter reading	
a)	L.T. connection	Rs.20/-
b)	H.T. connection	Rs.200/-
7.	Replacement of burnt meter.	Cost of meter +15% supervision charges
8.	Fuse call charges – Replacement	
a)	Board's cut out fuse	Rs.15/-
b)	L.T. Consumer's fuse	
(i)	New installation	Rs.15/-
(ii)	Otherwise	Rs.20/-
9.	Replacement of missing meter card	Rs.10/- per card
10.	Replacement of broken glass of meter	Rs.30/- per glass
11.	Reconnection/disconnection charge	
a)	Upto 10 KW (at cut out or overhead mains)	
(i)	Over head mains	
(a)	Single Phase	Rs.50/-
(b)	Three Phase	Rs.125/-
(ii)	Underground mains	Rs.500/-
b)	Over 10 KW upto 75 KW (overhead / underground)	Rs.500/-
c)	Over 75 KW upto 5MVA	Rs.1000/-
d)	Above 5MVA upto 25MVA	Rs.1250/-
e)	Above 25MVA	Rs.2000/-
12.	Re-checking of installation on request of consumer	
a)	Single Phase	Rs.100/- per installation
b)	Three Phase	Rs.300/- per installation
13.	Re-rating of equipment	Rs.100/- per equipment
14.	Supervision Charge for Service connection	
a)	Single Phase	Rs.175/-
b)	Three Phase	
(i)	Upto 10 KW connected load	Rs. 350/-

Sl. No.	Particulars	Existing Charges
(ii) c)	Above 10 KW upto 75 KW CL Loop connections L.T. single phase	Rs. 450/- Rs.80/-
15.	System strengthening charge for affording connections in colonies developed/being developed by colonizers/Builders/Society /Developing agencies etc.	Rs.1250/- per KW
16. a) b) i) ii) (a) (b) (c) [Add'nl cost to be borne by consumer] c)	Supply arranging charge For three phase L.T. connections upto 100 HP (except flour mills and pumps in rural area) Free LT/HT line length Max. - 0.5Km For 11/33 KV HT connections. Free line length: i) 11KV 2 Km ii) 33KV (a) Up to 2500 KVA 5 Km (b) Above 2500-5000 KVA 7.5Km (c) Above 5000 KVA 10Km [Add'nl cost to be borne by consumer] c) 132/220 KV EHT connection	Rs.740/- per KW Rs.650/- per KVA of C.D. Rs.650/- per KVA or actual cost of work+15% Supervision charges, whichever higher
17.	Works got to be executed by consumer's contractor	15% supervision charges on entire cost of work including cost of materials and labour charges.
18.	Laying of dedicated feeder on consumer's request	Cost of Extension +15% Supervision charges.
19.	Shifting of connection	Actual cost of material +15% Supervision charge
20 (i) (ii) (iii)	Hiring of Board's plant and equipment For initial agreement period. For subsequent period of agreement For L.T. consumers (more than 100 HP) requiring to convert to H.T.	2% P.M. on current schedule of rates. Twice the above (i) Same as in (i) & (ii) above
21.	Transfer of name	
a).	L.T.	Rs.100/-
b).	H.T.	Rs.2000/-
22.	Booklet for HT/LT Tariff	Rs.20/-
23	Service charge for dishonored cheque	Rs.200/-

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 6: Variable Cost Adjustment Formula

The Commission in its tariff order for 2005-06 had approved a Variable Cost Adjustment (VCA) formula.

In the tariff petition for 2006-07, CSEB has submitted that only change required in the approved VCA formula is that the actual Gross Calorific Value (GCV) of coal consumed during the adjustment period may be considered for computing the VCA.

Commission's views:

None of the consumers has raised any objection on this issue and also has not given any suggestion.

The Commission agrees with the view that the CSEB has no control over the quality of coal supplied to it. The Base Fuel Charges in this tariff order 2006-07 has been calculated on base value of GCV, base price of fuel and normative operating parameters. The Commission is also of the view that along with the agriculture consumers, the BPL consumers using very meagre load should also be exempted from variation in VCA as both these categories are not fully meterised and flat rate of tariff is also applicable to them. It may be difficult for providing the effect of variation in VCA because of non-availability of actual consumption in many of the cases of these consumers. The tariff of both these categories is highly subsidized. Therefore, modification in the approved formula appears to be necessary. Accordingly the VCA formula is laid down. In the formula-

GCV = Gross Calorific Value of coal received as approved by the Commission and

PSE = Power sold to exempted categories .

These definitions are modified as follows:

GCV = Weighted average gross calorific value of coal fired at boiler front during the adjustment period in KCal/Kg, and

PSE = Power sold to exempted categories (presently agriculture but will now include BPL consumers)

VCA Formula

The approved Variable (fuel & other) Cost Adjustment formula is given below :

$$\text{VCA (per/kWh)} = \frac{\text{Qc (RC2 - RC1)} + \text{Qo (RO2 - RO1)} + \text{Qpp (Rpp2 - Rpp1)} + \text{Vz} + \text{A}}{(\text{QPg} + \text{QPP}) \times (1 - \text{L}) - \text{PSE}} \times 100$$

Where,

- Qc** = Quantity of coal consumed during the adjustment period (in M.T.)
= (SHR x QPg) (1 + TSL) x 1000 / GCV
- RC1** = Weighted average rate of coal supplied ex-power station coal yard as approved by the Commission for the adjustment period (in Rs/M.T.)
- RC2** = Weighted average rate of the coal supplied ex-power station coal yard as per actual for the adjustment period (in Rs./M.T.)
- Qo** = Quantity of oil (in KL) consumed during the adjustment period
= Generation (in MU) x Specific Oil consumption approved by the Commission (ml./KWh)
- RO1** = Weighted average rate of oil ex-power station approved by the Commission for the adjustment period. (in Rs./KL)
- RO2** = Weighted average actual rate of oil ex-power station supplied during the adjustment period. (in Rs./KL)
- QPg** = Board's own power generation at generator terminal – approved auxiliary consumption. (in MUs)
- QPP** = Power purchased from different sources and fed into Board's system. (in MUs)
- Rpp1** = Average rate of power purchase as approved by the Commission. (in Rs./KWh)
- Rpp2** = Average actual rate of power purchased during the adjustment period (in Rs./KWh)
- VZ** = Amount of variable charges on account of change of cost of unknown factors like water charges, taxes or any other unpredictable and unknown factors not envisaged at the time of tariff fixation (subject to prior approval of the Commission).

- A** = Adjustment, if any, to be made in the current period to account for any excess/shortfall in recovery of fuel or power purchase cost in the past adjustment period, subject to the approval of the Commission.
- L** = T&D loss as approved by the Commission or actual, whichever is lower.
- PSE** = Power sold to exempted categories (presently agriculture and BPL consumers)
- SHR** = Station Heat Rate as approved by the Commission.
- TSL** = Transit and Stacking Loss as approved by the Commission.
- GCV** = Weighted average gross calorific value of coal fired at boiler front during the adjustment period (in KCal/Kg)

The approved VCA formula is subject to following conditions:

- (i) The basic nature of VCA is 'adjustment' i.e. passing on the increase or decrease, as the case may be.
- (ii) The operational parameters/norms fixed by the Commission in this tariff order shall be the basis of calculating VCA charges.
- (iii) Incremental cost of power purchase due to deviation in respect of generation mix, power purchase at higher rate, etc. shall be allowed only if it is justified to the satisfaction of the Commission.
- (iv) Any cost increase by the Board by way of penalty, interest due to delayed payments, etc. and due to operational inefficiencies shall not be allowed.
- (v) VCA charges shall be levied on all categories of consumers, except agriculture and BPL consumers.
- (vi) The data in support of VCA claims shall be duly authenticated by an officer of the Board, not below the rank of Director, on affidavit.
- (vii) Variation of VCA charge will be allowed only when it is 5 paise and more per unit.
- (viii) The VCA charges shall be reviewed by the Board for the first time after six months from the date of implementation of this order and every six months thereafter.
- (ix) The approved formula is subject to review, as the Commission may deem fit.

Chapter 7. Directives to CSEB

7.1 GENERAL

In the last tariff order the Commission had observed that while there was ample scope for reducing costs and increasing efficiency in the operations of CSEB, serious efforts were lacking. The Commission had noted that certain initiatives on operational reforms envisaged under the Electricity Act were yet to be taken by the Board. It is in the above context that very specific directions were given for compliance by the CSEB. The Commission had strongly advised the Board “to evolve a system through which action is promptly taken on the directions of the Commission and monitor their implementation, as otherwise the whole purpose of regulation would be defeated and the State will lag behind in carrying out the reforms envisaged under the Electricity Act”. Unfortunately, action is yet to be taken on most of the important directions which would make significant difference to operational efficiency and cut cost. In some cases action has no doubt been initiated, but overall the seriousness with which the directions were issued by the Commission does not appear to have gone home. Efforts have been made in fits and starts but serious efforts to bring about systemic changes are still lacking. The CSEB does not appear to be as purposive in the pursuit of efficiency as is its obligation to its consumers. Implementation of these shall be monitored by the Commission every quarter and their non-compliance shall invite action under the provision of the Act.

In the above background, the Commission is constrained to repeat some of the directions which were given in the last order and on which action taken has been tardy, but also give specific new directions.

7.2 DIRECTIVES ISSUED IN TARIFF ORDER FOR 2005-06 : COMPLIANCE

The Commission in its first tariff order dated 15-06-2005 had given certain specific and important directives to the CSEB on improvement in operational and financial efficiency and consumer services. Commission's views on the status of compliance of the directives by the CSEB are given below:

7.2.1 Directive 1: MIS

The Board was directed to take urgent steps to build database and management information system and was advised to submit the next petition supported by accurate and credible database.

Commission's views:

The Board took a long time in the submission of formats to the Commission for approval. Even now the information for the first quarter of the year has not been furnished. For such a large organization accurate information and data are a primary requirement. In the absence of any system for collection and collation of information it has been observed that different sets of data on the same subject are provided at different times and by different functionaries of the Board. The ERP work is going on since a long time. Billing of all the LT consumers could not be done for almost a year on the basis of the tariff approved by the Commission in its last tariff order dated 15.06.2005. The Board has failed to take effective action in this regard. Delay in billing has in fact entailed financial loss to the Board. The present tariff petition has also not been prepared based on the proper MIS. Collection of even basic data is in a very bad shape in the Board. Implementation of SAP requires training of employees at different levels for timely updation of the data. This has to be ensured. The implementation of ERP is also being done at a very slow pace. The Commission in its letter dated 14.08.2006 has advised the Board regarding implementation of SAP. After full implementation and operationalisation of modules of phase-I, the work of modules of phase-II may be taken up.

The Board has been separately advised to prepare the data for multi-year tariff determination. **In any case, the MIS should be made operative within 3 months from the date of issue of this order in the formats as approved by the Commission by making the BIW server functional.**

Apart from the normal MIS, a regulatory information management system is being designed by the Central Electricity Regulatory Commission for all State Commissions. The consultant engaged by the CERC is reported to have already submitted the formats for collection of information to the Board. The Board should finalise these formats as early as possible and start collection and collation of data in these formats also.

7.2.2 Directive - 2: Energy efficiency cell at generating stations

The Board was directed to set up energy efficiency cells in each power plant within a month of issue of the tariff order (15-06-2005).

Commission's views:

The Board was required to communicate the improvements suggested by the cell and action taken on those. The information has not so far been furnished in the manner the Commission had desired. **The Board shall submit a report each quarter to the Commission** covering improvement in operational parameters of installations, coal and oil consumption, auxiliary consumption, cost savings and pollution levels beginning December, 2006.

7.2.3 Directive-3: Installation of weightometers in generating stations

The Board was directed to install weightometers in power houses within 6 months of the tariff order (by December, 2005) to correctly calculate the receipt of coal and quantity fed to the boilers.

Commission's views:

The Board has informed that the work has only partially been completed. Thus even after one year it could not be installed. Weightometers shall be installed now within the next three months, i.e., by end of December, 2006. **The specific coal consumption and transit and stacking losses calculated after installation of weightometers in Korba (East) may be conveyed to the Commission every month. The belt weighers at Korba (West) may be Commissioned by the end of October 2006, for which Board has been directed separately.** The operation of the weightment system shall be continuously monitored on day to day basis and defects, if any, attended promptly as other-wise , the system shall not serve any purpose.

7.2.4 Directive 4 : Transformer failure

CSEB was directed to take steps to bring down the failure rate of power transformers and distribution transformers to 2% and 10% respectively.

Commission's views:

The Board has informed that the failure rate of power transformers has gone down from 2.47% in 2004-05 to 2.24% in 2005-06 and that of distribution transformers from 18.38% to 16.47%; but these do not match with those given in Form P-7 of the petition. Improvement indicated in any case is too little and is not satisfactory. The major cause of failure of transformers is attributed to ineffective earthing and overloading of the transformers. **The targets for achieving 2% and 10% failure rate for power and distribution transformers respectively as given in the tariff order dated 15.06.2005 should be achieved by 31.03.2007.** The Board in its tariff application has separately asked for a provision of expenditure of Rs. 30 crore for renovation of distribution transformers. This has been permitted by the Commission in view of the need for reduction in the rate of failure of transformers and also for reduction in technical losses. High failure-prone areas should be identified and renovation work taken up in these areas on priority. The Board shall furnish information regarding such areas to the Commission within a month.

The failure of transformers particularly distribution transformers shall be monitored on monthly basis, the reasons for failure be identified and remedial action taken. The failed transformers shall be got repaired promptly.

7.2.5 Directive 5 : Reduction in T&D losses

The Board was directed to engage a competent consultant for study and correct assessment of technical and commercial losses at each voltage level. A long-term action plan for reduction of T&D losses was to be submitted to the Commission before filing of next tariff petition. All possible measures were to be taken to reduce the losses to 35.81% during FY 06.

Commission's views:

The Board in a meeting held in the Commission in May, 2006 had provided details of work done during 2005-06 for reduction in T&D losses. The notable works were laying of 11.82 km aerial bunched cable in theft-prone areas and installation of capacitors of about 58 MVAR. Their impact and improvement in line losses was not quantified. The figures of line losses indicated in the meeting do not match with those given in the petition. When the Board is not able to submit the multi-year line loss reduction programme, it may be a difficult task for a new distribution company to prepare such a programme. No targets for reduction of losses have been set for field divisions/distribution centers along with detailing the works to be done for improvement. Proper guidelines have not so far been given to field officers in connection with filing of cases in special courts. In fact, serious efforts are lacking to bring down line losses.

Reduction of T& D losses should be a thrust area for the Board. With its very favourable consumer profile which has predominance of HT consumers (nearly 64% sales), a high level of T&D loss is unacceptable. The Commission had directed that T&D losses then at 38.96% (FY 2005) should be brought down by 3% to 35.81% during 2006. There has been a shortfall of 0.7% in the achievement of this target. What is more worrisome is that in the absence of any data on voltage-wise losses and with a large number of un-metered LT connections, mostly agriculture and domestic, the authenticity of these figures is also not certain. The fact that the quantum of losses, in terms of energy, is much more than the total LT consumption would indicate that the losses are not only in LT consumption as generally projected. It is in this context that the Commission had directed the Board to engage a competent consultant to study the level of technical and commercial losses at each voltage level. The Board has only recently appointed a consultant to study T&D losses, over a period of six months. The rainy season during which the consultant has been appointed to carry out the task can not be said to be a representative time for consumption at various voltage levels. Even a sample study should not only take into account the loads at various voltage levels but also the reporting period, for any reasonable assessment of seasonal variation in consumption of various consumer categories. Any such study must yield credible information about the agriculture consumption about which there is very little data. The Commission has advised the Board to extend the study preferably to a full year as otherwise its whole purpose will be infructuous. **The Board is directed that this study which has already been**

delayed, should now be taken up in all seriousness, covering a period of time which reflects seasonal variations in consumption and of loads. Energy accounting for segregation of technical and commercial losses is mandatory by March 2007 as per the NEP (para 5.4.6). It may be noted that in Clause 10(2) of Terms and Conditions of Tariff Determination Regulations, 2006 it has been laid down that the Commission may require the licensee to carry out proper loss estimation studies under its supervision. Clause 10 also gives in some detail the manner in which distribution losses may be brought down. The Board shall abide by these Regulations by conducting proper loss study as above. On the basis of this study, the Board shall prepare a roadmap with annual milestones for reduction of T&D loss levels to reasonable levels in the next five years.

7.2.6 Directive 6: Assessment of load factor of agriculture pumps

The Board was advised to carryout sample studies for assessing the load factor of agriculture pumps. The programme of such sample studies was to be got approved from the Commission within a month of the tariff order.

Commission's views:

The response of the Board has been unsatisfactory. A study is reported to have concluded in one month (March, 2006). The details have not been furnished. The load factor for agriculture consumption has been worked out as 0.31 for the month of March, which does not seem to be realistic. The study for one month can not give proper result. It should be for one year covering cropping pattern in different seasons. As directed by the Commission the study should bring out the load factor and average consumption per pumpset/HP in all the regions. The study should also cover the cropping pattern and number of crops in a year. Since the number of agriculture pumps are growing rapidly, delay in such a study will entail financial losses.

The Board is directed to carryout the study properly, in a systematic manner and work out the load factor of agricultural pumps by 31.07.2007. For this a consultant must be engaged most urgently not later than end of November, 2006.

7.2.7 Directive 7: Energy audit and DSM

The Board was directed to take up the work of energy audit and adoption of demand side management practices particularly for industrial pockets, agricultural pockets, and Board's own power houses, administrative office complexes and colonies.

Commission's views:

The Board's response is inadequate. The DSM practices usually adopted elsewhere can be adopted and consumers may also be made aware to adopt these. A consultant has been engaged very late (in October, 2005) which has

submitted an interim report of little consequences and with no state focus. There is also no reference to successful measures adopted in some other States. The Board shall ensure that the consultancy assignment results in specific recommendations for DSM which are State specific.

Board was directed to take up energy audit of Raipur, Bhilai, Rajnandgaon, Dhamtari and Durg in the first phase and submit quarterly reports to the Commission. In their presentation in May, 2006, the Board provided the following information of distribution losses for industrial pockets of Raipur, Bilaspur and Bhilai and agriculture pockets of Balod and Rajnandgaon:-

S.No.	Place	Percentage losses	
		Quarter ending December'05	Quarter ending March'06
	Industrial Pocket		
1.	Raipur	0.15	0.33
2.	Bilaspur	1.47	1.70
3.	Bhilai	1.51	1.57
	Agriculture Pocket		
1.	Balod	56.08	51.18
2.	Rajnandgaon	61.08	60.61

The losses in industrial pockets seem to be under control, but those in agriculture pockets are very high. The analysis of losses has not been done. It is not clear how the assessment of consumption was done in case of unmetered connections. All 33 KV and 11 KV feeders have been provided with meters, but information in respect of 21 33 KV feeders, 31 33 KV industrial feeders and 25 11 KV feeders for December, 2005 submitted to Commission, gives following results:-

- (a) Losses on 33 KV feeders vary between 1.67% to 9.55%.
- (b) Losses on 33 KV industrial feeders vary between (-) 5.39% to 4.78%.
- (c) Losses on 11 KV feeders vary between 0.57% to 13.13%.

The results of energy audit after December 2005 have not been conveyed. As is clear from the discussion above, efforts to comply with the directions of the Commission have not been serious and adequate action is not being taken systematically. **The Board is again directed to undertake the studies systematically and take up at least one significant measure of DSM.**

7.2.8 Directive 8 : Cent percent metering

The Commission has permitted the Board to provide meters to all consumers by the end of March, 2007.

Commission's views:

The progress of metering, which is crucial to the finances of the Board, is being reviewed periodically by the Commission, but no significant improvement has been noticed. The last review was conducted on 08.05.2006. The Board had planned to install meters on 17,542 distribution transformers out of which only 6016 transformers could be provided with meters. It was found that out of 8,05,326 SLP/BPL connections, only 1,28,369 have been metered individually and 3102 consumers covered under cluster metering. Out of 1,16,026 pump connections, meters have been provided to only 18,368 connections up to March 2006 and 2482 have been metered in cluster. Last year's progress is only 36%. During April and May, 2006, only 5813 connections were provided with meters. In the beginning of the FY06, 2,25,228 meters were found either defective or had stopped of which only 43% meters could be replaced. Only 6130 defective meters were replaced during April and May, 2006. About 1,78,000 stopped/defective meters may be required to be replaced during the year 2006-07. Thus about 9.53 lakh LT meters shall be required to be installed during the year 2006-07, to achieve the target. The Member (T&D) of the Board was apprised of the situation in a meeting on the subject held on 23.06.2006. Unless concerted efforts are made at each level, the target will not be achieved.

The Commission has repeatedly drawn the attention of the Board about lack of progress in meterisation and again reiterates that in no case shall the date set for cent percent metering i.e. 31.03.2007, be extended.

7.2.9 Directive 9 : Replacement of stopped/defective meters

The percentage of stopped/defective meters be brought down to 3% and 1.5% in rural area and cities/towns respectively by March, 2006.

Commission's views:

It is an age old practice that the level of stopped and defective meters should not exceed 3% in rural and 1.5% in urban areas. The Board has reported 1,18,794 stopped/defective meters as on 31.03.2006. The Board expects that 67,000 more meters shall be added to these during the year 2006-07, making the total of defective meters 1,85,794. For replacement of these many meters about 15,500 meters are required to be replaced each month, while only 6130 meters could be replaced during April and May, 2006. **Replacement of meters should be monitored each month and in any case all the 1,18,794 old meters should be replaced by end of November, 2006. The three phase meters shall be replaced on priority.**

7.2.10 Directive 10 : Efficient meter reading, billing and collection

The present system of meter reading, billing and collection should be reviewed with a view to streamline the process and minimize the time between actual delivery of power and receipt of revenue.

Wherever economical, LT-less system should be developed and aerial bunched cable and PVC cable should be used in theft-prone areas.

Billing through MRI be commenced for HT industrial and non-domestic consumers and spot billing system introduced in cities. The bill format be redesigned.

Commission's views:

The Board has furnished data in regard to counter checking of reading of consumers and analysis of MRI readings and steps taken for spot billing, collection of energy bills through the Banks etc. But the steps taken are not considered to be adequate. The Board is directed to undertake more works of laying the ABC/PVC cable initially in theft-prone areas so that the instances of hooking LT lines for unauthorized use of electricity could be eliminated. This work needs to be given priority and should be completed within a definite time frame. Meters to remaining HT connections shall be provided with MRI facility within 3 months and analysis be done every month.

Bills to HT and LT consumers have not yet been started in new formats. This has to be introduced within 3 months.

The functioning of call centres need to be monitored closely so as to improve consumer services. Adequate publicity about call centres is still lacking.

The work of spot billing has not so far been taken up. This also needs to be done on the lines some States have done, using handheld computers.

7.2.11 Directive 11 : Collection efficiency

With a view to improve collection efficiency, the CSEB was advised to enter into arrangement with various banks for revenue collection. Where it was not possible, additional staff was to be deployed for receiving payment of energy bills. Innovations such as 'anywhere payment', payment through internet, payment at bank counters, payment through credit cards, were to be implemented within one year. During 2005-06, the Board was given a target to collect 92% from current demand and 15% from the arrears as on 31.03.2005.

Commission's views:

The response of the Board is unsatisfactory. No comments have been given on the various directives given for improving collection efficiency. The Board

has reported collection efficiency up to June - July, 2005 as 93.5%. No arrangement to segregate the collection of current dues and arrears has been made so far.

In response to a query raised by the Commission during technical validation, the Board has indicated 93.32% collection efficiency in respect of HT demand for the whole year and 89.15% in respect of LT demand up to July, 2005. As the Board was not able to implement the tariff applicable w.e.f. 01.07.2005 in all its distribution centres due to delay in implementation of SAP; the revenue demand statements for LT could not be made and therefore the Board is unable to state the total LT demand billed during the year 2005-06. Collection from LT consumers for the year 2004-05 has been shown as Rs. 568.90 crore and that for the year 2005-06 Rs. 563.48 crore., which is less than last year's figure by about Rs. 5 crore. The figures indicate that LT billing has not been properly done after revision of tariff, otherwise there was no reason for reduction in collection.

The Board shall ensure submission of annual R-15 statement for the year 2005-06 of LT consumers by end October, 2006 to the Commission and try to recover the demand on this account from consumers by December, 2006.

The Commission's directions with regard to improvement in collection efficiency may be implemented earnestly during the year 2006-07. The Board is directed to recover 92% of current demand and 25% of arrears as on 31.3.2006, during the year 2006-07.

7.2.12 Directive 12 : Arrears list

The Board was advised to prepare and submit to the Commission the age-wise arrears list of consumers and was directed to take prompt and effective action for recovery of arrears outstanding against both LT and HT consumers.

Commission's views:

The Board has submitted circle-wise consolidated information of age-wise arrears of LT (upto July 2005) and HT (as on 31-03-2006) against the query raised during technical validation. The position is given, in brief, in the following table:

(Rs. crore)				
S.No	Particulars	HT	LT	Total
1	Arrears above 3 years	581.36	34.89	616.25
2.	Arrears between 1 to 3 years	393.28	48.65	441.93
3.	Arrears between 1 year to 6 months	195.32	24.27	219.59
4.	Arrears less than 6 months	104.15	45.61	149.79
5	Total arrears	1274.11	153.42	1427.53

HT arrears account for 89% of the total arrears; 46% of the arrears are older than 3 years and 31% older than one year; 31% of the LT arrears are between 1 to 3 years and 30% are up to 6 months old while 74% of the total arrears are older than one year.

L.T. arrears are 3 times of monthly demand. Current arrears are about Rs. 70 crore, which are nearly 1.5 times the monthly demand.

In the information furnished separately on LT arrears, the maximum arrears are of domestic L&F consumers and then of non-domestic, agriculture and industrial consumers respectively. Maximum LT arrears are in Janjgir circle followed by Bilaspur, Raigarh and Ambikapur circles. Recovery efforts should focus on these circles. The situation is alarming and needs prompt and specific attention of the Board.

It is seen from the details furnished by the CSEB the surcharge is about 46%, in total and in some cases the surcharge is as much as 100% of the energy charges. It is difficult to realize such huge amount as surcharge. It is probably desirable to consider waiving of the surcharge in full or part depending on the merits of each case to recover the dues. It is understood that this practice is being followed in some Electricity Boards / Utilities. CSEB may explore the feasibility of recovering the arrears by waiving the surcharge either partly or fully as a one time settlement. This may result in recovery of arrears. The action taken may be reported to the Commission by January 2007.

The Board is directed to monitor the arrears position in detail and take strict action for recovery of old as well as current arrears. The Board has to also take steps to arrest the growth of current arrears which presently exceeds 10%. The Board should focus on the circles where collections are poor and give specific targets to officers in these circles and institute a system of incentives and disincentives for them.

7.2.13 Directive 13 : Recovery of arrears

The low collection efficiency of the Board is mainly due to huge outstanding on the Government departments. There is no justification for treating the Government connections differently and the provisions of the Act must apply uniformly to all. The Commission, therefore, directed the Board to issue final notice of 90 days to all the Government departments with arrears of more than 3 months to pay off or face disconnections. Similar action was to be taken in respect of defaulter local bodies and efforts to get the recoveries made directly from the grants of the Government. The Board was also required to furnish the list of amounts written off during the years 2004-05 and 2005-06 at the time of filing the next tariff petition.

Commission's views:

The non-domestic LT arrears, which include arrears against Government departments, are 21% of the total arrears as in July, 2005. The arrears of water works stood at Rs. 7.01 crore and those of street lights at Rs. 7.49 crore. The position of HT arrears against State Government is Rs.121.66 crore. Progress in recovery from local bodies through State Government grants has not been furnished.

Details of amount written off during 2004-05 have not been furnished. The details of billing for the amount of Rs. 209.48 crore written off during 2005-06 have not been furnished. This figure does not tally with the figure of Rs.149 crore given in the ARR.

The Board is directed to review the arrears against Government connections and local bodies within a month and submit a status report and the action plan for recovery during the year 2006-07. Large arrears of Government Departments and local bodies may be brought to the notice of Chief Secretary and suitable directives got issued.

7.2.14 Directive 14: Cost of supply and cross subsidy

Board to carry out a study to find out voltage-wise and consumer category-wise cost of supply by availing services of a consultant, if necessary.

Commission's views:

The Board took about 10 months to appoint a consultant. It is learnt that the consultant shall commence work in July'06 and complete it by end January, 2007. During this period, the peak load of agriculture pumps shall not be catered to by the system and hence the study may not serve much purpose. The Board has been directed vide letter dated 18.7.2006 that such study should be for a period of one year. The Commission has separately given detailed directions in respect of this in para 7.2.5. It is directed that team of young engineers of CSEB should interact continuously with the consultant and fully familiarize themselves with the subject so that they are in a position to take up such studies themselves in future. **The progress may be informed to the Commission every month.**

7.2.15 Directive 15: Consumer care

There is lack of basic amenities at collection centers and distribution centres. The Board was advised to provide minimum basic facilities like shed, sitting area with chairs, drinking water, fans, toilet, etc. at collection centres. At least 50 such waiting areas were to be developed during the year 2005-06.

Commission's views:

The submission of the proposal was very much delayed. The target given by the Commission for developing 50 waiting areas could not be achieved. **The Board is directed to expedite upgradation of collection centers at Raipur, Bilaspur and Bhilai and to complete the development of 50 waiting areas according to the approved design during 2006-07.** Progress of introduction of token system has not been conveyed.

7.2.16 Directive 16: Consumer grievance redressal

The CSEB was directed to institute an Internal Grievance Redressal Mechanism and establish Consumers' Forums at Raipur, Bilaspur and Jagdalpur. Call centres to register and monitor consumers' complaints to be set up.

Commission's views:

Internal Grievance Redressal Mechanism has been instituted on 26.05.2005. Consumers' Grievance Redressal Forums have been set up at following places- Raipur 01.09.2005, Bilaspur 14.09.2005 and Jagdalpur 14.09.2005. The Board is yet to study various practices and initiatives in other States in respect of consumer care. This may be done now.

7.2.17 Directive 17: Power purchase and procurement

The Board was directed to seek the approval of the Commission for all power purchases as required under the Act. It was also directed that no purchase of power be made at an overall purchase rate higher than Rs. 3.30 per unit. The Board was asked to strictly follow the merit order, prepared by the Commission, in power purchase.

Commission's views:

Looking at high cost of power in the market which is some-time more than Rs. 5.00 per unit and also non-availability particularly during peak hours, the Board has to consider resorting to load shedding in urban areas including district head quarters atleast during day time, till additional power from the Central sector and power from the ongoing Korba East project and Jindal IPP is available. Strict implementation of approved load shedding plan is very much necessary. Unscheduled load shedding, which has been resorted to many times, causes a lot of inconvenience to the consumers. The Commission has issued clear directions in order dated 28.03.2005 passed in suo motu petition No.01/2005 regarding scheduled and unscheduled load shedding and also the manner of their implementation as directed by Commission from time to time. These may be strictly adhered to.

7.2.18 Directive 18: Asset register

The Board was directed to maintain asset registers properly and complete the registers within six months.

Commission's views:

The Board has not indicated the time limit for completion of this work. After finalization of the asset register, the correct value of assets and depreciation for generation, transmission and distribution wings may be conveyed to the Commission.

7.2.19 Directive 19: Financial Management

The financial management of the Board needs revamping. The Board was advised to relax, if need be, its present recruitment procedures to provide lateral entry of the Chartered Accountants and Cost Accountants at middle levels recruited from the open market. A finance cell for Korba(E) and Korba(W) under a Cost Accountant was suggested to be created as early as possible.

Commission's views:

The financial management in the Board continues to be grossly inadequate. Presently some form of financial control and management is ensured at the Board level only while there are only accountants in the field level. Even in the Board level, the difference between accounts and finance is practically non-existent. As a result, there is no system of financial control in the field and no system of internal audit; there is no analysis and control of costs and no monitoring of billing and collection efficiency. All these aspects of financial management are vital to an organization of CSEB's size. Even after SAP is implemented and all information about revenue and expenditure are on line, there has to be people to analyze the data and monitor critical aspects of financial management. Apparently there is no plan in the Board for any reform in this critical area. The Commission is, therefore, constrained to direct the Board in the interest of efficiency that it sets up Finance Cells headed by Financial Controllers at the regional level in the first phase and at the circle level in the second. The Cell shall be responsible for internal audit, keeping a watch on costs and also on expenditure, and on revenue to include billing and collection efficiency, position of arrears etc. The Financial Controllers should be at least of the level of SE at regional level and EE at circle level but qualified in Financial Management, preferably Chartered Accountants/Cost Accountants, with necessary supporting staff. These posts should be created and filled up by lateral induction. The Financial Controllers shall report to the Director (Finance) in the head office and not to the local CEs/SEs. The structure should be fleshed out and should be in place not later than in six months.

7.2.20 Directive 20: Cadre Management

The Board was advised for timely recruitment and promotion as it would go a long way in better management of officers' and employees' cadres. The number of employees per MW of installed capacity is 4.18, which is very high. The Board was advised to make efforts to reduce the staff to at least 3 per MW and redeploy the surplus staff elsewhere.

Commission's views:

There appears to be shortage of engineers at the senior as well as lower level and line staff in the field units of distribution wing. At present there is no regular Chief Engineer in T & D wing and all posts of CE are vacant. These posts need to be filled up without further delay. The restructuring has now been postponed up to 9th December, 2006, but action is required to be taken for smooth operation of distribution system and rendering of services to the consumers. Restructuring should not be taken as an excuse to postpone reforms in all areas. Board should explore possibility of deploying employees working in shifts on 1x3½ system instead of existing 1x4 system. This may reduce the requirement of man power to an extent.

7.2.21 Directive 21: Training of Personnel

The Board was asked to prepare short term and long-term plans for human resource development, for better in-house training and for availing facilities for technical, financial and management trainings available outside.

Commission's views:

The need for improving in-house training facilities is reiterated. It must be ensured that the newly recruited II and III cadres are given proper induction training. Refresher courses, seminars and workshops should be arranged time to time for employees.

7.2.22 Directive 22: Improving operational efficiency by competition

The Board was asked to introduce competition among the various circles in the generation, transmission and distribution departments, which will be the first step in improving the operational efficiency.

Commission's views:

It is necessary to create a competitive environment in the organisation to improve performance. Each of the operation circles should be organized as strategic business units / profit centres /cost centres and targets shall be fixed to each one of them for achieving targets for certain operational parameters such as metered sales, billing, revenue collection, distribution loss reduction, distribution transformer failures etc. and the performance monitored

periodically and the circles could be given incentive based on their performance.

While making the circles accountable for their performance it is also necessary to delegate powers both financial and administrative to take decisions quickly. Making them accountable for better performance without proper delegation of power may not give fruitful results.

Organizing the circles as profit centres with appropriate delegation of powers may be examined by the Board and action taken reported to the Commission.

7.2.23 Directive 23: In-house management consultancy cell

The CSEB was advised to have an in-house management consultancy cell (IHMCC) headed by a full time Chief Engineer or a retired Chief Engineer.

Commission's views:

In view of the paucity of officers in the Board, no comments.

7.2.24 Directive 24: Procurement and inventory management

The Board was advised to focus on its purchase procedure and overhaul it, effect improvement in the tendering process through the help of IT (e.g. e-tendering) and decentralization of procurement process. With the help of IT, the Board should institute a proper and adequate inventory management system which should be completed during the year.

Commission's views:

It was directed that the adequate inventory management system should be put in place within the year 2005-06 but the Board is yet to take a decision on the report of the committee framed for this purpose. Delay in such works will entail higher cost to the Board and consumers as well. **This work may be completed before 31.12.2006 along with preparation of purchase manual.** The report of the committee as approved by the Board may be submitted to the Commission.

7.2.25 Directive 25: APDRP

The Board was advised to take advantage of APDRP to upgrade its systems and network.

Commission's views:

Since APDRP cover improvements in sub-transmission and distribution including metering, top priority should be given to these works.

The Board has proposed to take up capital works under APDRP amounting to Rs. 100 crore during the year FY'07 as against the expenditure of Rs. 58.35 crore in the year FY06. For achieving this ambitious target, efforts will have to be made in right earnest and constant monitoring from the beginning of the year is required.

7.2.26 Directive 26: Improved governance

There is need for attending to the morale of the employee through improved governance.

Commission's views:

Board has stated that M/s K.S. Madhavan and Associates have been engaged for suggesting steps towards improved governance. The terms and reference of this study be submitted to the Commission and the Commission be kept informed of the progress on various tasks proposed to be undertaken by the consultant.

7.2.27 Directive 27: Investment programme

The Board was directed to submit investment programme for the next five years within next three months. A quarterly progress report on major capital works was required to be regularly furnished to the Commission.

Commission's views:

The investment plan for FY06 to FY12 submitted to the Commission vide Board's letter No. 02/02/ACE-II/RAC/2906, dated 10.10.2005 does not have full details. The Board was repeatedly asked to submit the detailed plan. The investment proposed to be carried out in 2006-07 in no way matches with this investment plan. The Commission is of the view that the Board shall not be able to complete the works as planned in the year 2006-07. **A three year investment plan with cost benefit analysis be prepared and discussed with the Commission within three months.**

7.2.28 Directive 28: Audit of accounts

The audited accounts of the Board since inception have not been made available to the Commission. The CSEB was directed that it must take steps to get its accounts audited for all the years since inception by the CAG before March, 2006.

Commission's views:

No comments in view of the fact that the Board has submitted the annual accounts for the years 2001-02, 2002-03 and 2003-04 to the A.G. Chhattisgarh.

7.2.29 Directive 29: New generation projects

The CSEB was directed to expedite the process for setting up other new generation projects in 2005-06 and submit quarterly report on the generation expansion projects to the Commission.

Commission's views:

On going through the progress report of generation projects, it is apprehended that CSEB would not be able to commission the new Korba(E) 2x250 MW generating units within the contractual time. The weak links were pointed out to the Board during a discussion on 24.04.2006. **Concerted efforts and constant monitoring are required to overcome the day to day hurdles in the implementation of this project. Ordering process of Korba West Extension Project and 1 MW Mini Hydel Project at Korba West is also required to be expedited.**

7.3 NEW DIRECTIVES

7.3.1 Checking of Power Theft

The CSEB's AT&C loss levels are very high. While the Commission has emphasized the urgent need for segregation of technical and commercial losses through a proper loss study, there has to be concerted effort at reducing the commercial losses in the meantime. Concerted effort will have to be made to bring down the current level of 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 functionaries to check theft of electricity. It has been observed that although several so-called campaigns for checking theft have been launched with lot of publicity, it has not made any significant dent on loss levels. The CSEB should urgently take following steps:

- (i) 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. The target for checking should be specified. Checking should invariably cover cent percent HT industrial and commercial consumers and a large part of the LT consumers covering all LT consumer categories with particular attention to major commercial and industrial connections. However, for commensurate results, the focus has to be on comparatively bigger consumers.
- (ii) The Board should take a large programme of use of aerial bunched conductors in theft-prone areas. This should be taken up urgently.
- (iii) The Board should prepare detailed instructions regarding checking of theft to include the relevant provisions in the Electricity Act and the Electricity Rules and the methodology to be followed in carrying out checks, preparing the theft reports and complaints and submission of complaints in the Special Courts already established in the State. The

Commission has observed serious lack of knowledge about laws and procedure at the operational level.

- (iv) The Commission has noted that 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.

Action on (ii), (iii) and (iv) should be completed within three months.

7.3.2 Consumer Interface

The Board has to considerably improve the present state of its interface with consumers and provide better service. The Commission has observed lack of communication and confidence between the Board and common consumers. The Board should explore ways and means for better rapport with its consumers. The Commission would like to underline certain areas in which consumer services can be improved and expects the Board to take necessary action:

- (i) During public hearings, almost all consumers expressed dissatisfaction over non-payment of interest on the security deposits inspite of the Commission's clear orders in this subject. The Board shall ensure that there is no default in this. The Commission proposes to monitor payment of interests and consider payment of higher interest or even penal charges in case of default.
- (ii) The domestic consumers have complained about the complexity of the tariff and the details given in the bill. In order that the tariff design is explained in simple terms, the Board should ensure that a tariff-card in Hindi which explains the various components and charges included in the bill, is sent to each consumer when the revised tariff is implemented.
- (iii) It would be useful to enclose with the bill a pamphlet regarding the system of internal grievance redressal machinery in the Board and about the Forum and its jurisdiction to all consumers in alternate months.
- (iv) Board should evolve a procedure to give intimation regarding load shedding and pre-arranged shut down to its HT and its major consumers by sending SMS on mobile phone.

7.3.3 HT Consumer Cells

HT industrial consumers account for about 64% of the total energy sales and their contribution to the revenues to the Board is also substantial. Lastly, it is the industries which are cross subsidizing the tariff for domestic and agriculture consumers which are below cost of supply. It is, therefore,

expected of the Board that it provides quality power and service to industries. Their complaints regarding electricity supply should be attended promptly. Collection of bills should be facilitated and as far as practicable, they should be consulted in load management particularly in respect of industrial areas. Keeping this in view, it would be very desirable that the Board establishes a HT Cell in head office and also HT Cells in important industrial areas of the State such as Urla, Siltara in Raipur and Tifra in Bilaspur. The Cell at the head office should be headed by an officer of the level of SE and the Cells in industrial areas should have EEs or AEs as head. The Cells should be the single window contact for industrialists for all their problems. **The Board shall prepare a scheme for establishment of such Cells and ensure that these are functional within a period of three months.**

7.3.4 Rural Feeder Management

With the objective of separating electricity supply to agriculture pumps from general supply to the villages, the State Government has introduced a large scheme by the name of *Atal Jyoti Yojana*. The scheme envisages laying of separate lines for agriculture pumps. In the State of Karnataka a new system of separating electricity supply to agriculture pumps and single-phase users has been adopted which does not require separating the supply lines. The system is simple and has been made possible with the application of IT. The Commission had asked the Board to depute concerned officers to see and study the system and explore the possibility of its adoption in this State. The Board has reported that some of the concerned officers had visited Karnataka and seen the system in operation. They are reportedly satisfied about its results. But no follow up action has been taken thereafter. Such a system is much more cost-effective than *Atal Jyoti Yojana* which involves not only the cost of laying new lines but also the recurring cost of its maintenance. **The Board shall take up at least three rural feeders on experimental basis for implementation of the Karnataka model. If it is successful it can be considered for replication in more areas.**

7.3.5 Connections to BPL consumers

The Commission had introduced a low tariff specially for BPL consumers in the last tariff order which is being continued this year. It would appear that the Board has treated the hitherto so-called SLP connections as BPL consumers. The Commission has been informed that a BPL connection is provided on the basis of certificate of the Sarpanch of the local Panchayat. This is not a proper method and is liable to misuse and must be stopped immediately. **The Board officials should treat a BPL consumer as such only on the basis of the BPL card issued to him by the State Government. Strict instructions should be issued to all officers in this regard most urgently.** Efforts should be made to verify all BPL connections on the basis of BPL card at least in areas where there is predominance of BPL consumers. Stamping on BPL card should be done for having served the connection.

7.3.6 Gratuity and Pension Fund

Serious questions have been raised in the public hearings about the actuarial report, on the size of the fund and the basis of its computation. The size of the fund has gone up in a year's time from about Rs.1200 crore to Rs.1900 crore. The present actuarial assessment (25.02.2006) does not refer to the earlier assessment (10.03.2005) and does not state why the corpus of the fund need to be enhanced. While actuarial assessment is a complicated exercise and the Commission has no reason to doubt it, it would be necessary to have a clear picture about the size of the fund and the contribution required every year to the fund. **The Board shall submit more details about the size of the fund at the time of next tariff filing. In the meantime, the Board shall not enhance the corpus of the fund without taking the approval of the Commission.**

The Board has also to consider introduction of the new contributory pension scheme. The State Government has already adopted the new pension scheme as notified by the Central Government. The Commission does not know why this has not been adopted by the Board so far. **The Board shall consider introducing the new pension scheme within a period of six months making it effective from the date the State Government has made it effective. Introduction of such a scheme will also have an impact on the size of the gratuity and the pension fund.**

7.3.7 Subsidy from the State Government

The State Government provides subsidy to the BPL consumers to the extent of consumption of 15 units of electricity per month. The State Government also to an extent compensates the loss in supply of electricity to agriculture consumers belonging to Scheduled Caste and Scheduled Tribe up to 5 HP. This subsidy is reported to be Rs.65 per HP per month. Both these are revenue resources and should be shown separately as income. The Board shall furnish information regarding the quantum of subsidy received in 2004-05 and 2005-06. It shall also show this subsidy amount separately in its Books of Accounts and show it reflected as revenue resource in future tariff filings.

An amount of Rs. 667.36 crore has been appearing in the tariff petition since FY-2004-05 to 2006-07, towards the subsidy receivable. During technical validation, Board stated that this amount is payable by the State Government to the Board. The Board should take up this with the Government so that it could be resolved as early as possible.

7.3.8 Energy Audit of Power Stations

The CSEB should prepare a time bound programme for energy audit of all of its power stations. Such energy audit may be undertaken in-house or by

outsourcing to energy auditors. **This task shall be taken up within three months and completed in a year's time.**

7.3.9 Transmission Plan

CSEB is setting up additional generating capacity of about 1000 MW at Korba and also taking up some new stations either on its own or under joint ventures. The Board will also have share from Central Generating Stations being setup by NTPC in the State. The Board has to plan the transmission system to evacuate the power from the generating stations and plan supply to various load centres in the state and for sale of surplus power, if any, outside the state. The system should be complete with required transmission network, substations with adequate transformer capacity and reactive compensation. **Action taken in planning such a transmission system along with the time frame with phased development shall be reported to the Commission in three months.**

7.3.10 Data Management

With provision for open access on transmission system, the users of transmission system will require data, preferably on line, on the capacity margin available on transmission system etc. The data shall be made available on line to the users of transmission system and any other data related to availing of open access on the system. CSEB has to buildup the data and make it available to users.

7.4 ADVICE TO THE STATE GOVERNMENT

In exercise of its advisory jurisdiction under Section 86 (2) of the Electricity Act 2003, the Commission would like to bring the following issues to the notice of the State Government and request for necessary action:

7.4.1 Rationalization of Electricity Duty

In the last tariff order the Commission had drawn the attention of the State Government to the need for rationalization of the present structure of electricity duty in the State. It was pointed out that even on domestic tariff of a particular slab the ED is as high as 23% which is very high and prima facie not proper. The duty is similarly very high on coal mines to the tune of 40%. The incidence of ED on public street light connections is 15%. However, there has been no change made by the State Government in the ED structures. The Commission would like to reiterate its advice to the State Government to rationalize the ED structure so that the incidence of duty is not unusually high on particular category of consumers. Such rationalization will also help in the overall rationalization of electricity charges.

7.4.2 Collection of ED by the Board on behalf of the State Government

State Government has entrusted the work of collection of electricity duty and cess charges from consumers to the CSEB. The Board is required to collect the same and remit it to the State Government before 27th of the month. No collection charges are paid to the Board by the Government. The Board includes the electricity duty and cess charges in the energy bills and sends the same to the consumers. Whatever amount is expected to be collected towards the electricity duty and cess charges has to be remitted by the Board to the Government in advance pending collection of the same from the consumers. The Board allows 15-21 days time to its consumers to make payment of the electricity bills. If the payment is not received by the due date the consumer gets another 7 days' time to make payment with surcharge. There are also defaults in payment. In all such circumstances the Board has to remit the electricity duty to the State Government irrespective of whether it is collected or not. The Commission considers this practice not in order and suggests that the system be changed to allow the Board to remit electricity duty and cess charges whenever it is actually collected from the consumers.

7.4.3 ED on auxiliary consumption in CSEB's generating stations

Approximately 9.5% of power generated by the generating units in a thermal power station is required for the auxiliary equipments used for the purpose of generation of electricity. CSEB is required to pay electricity duty on this consumption at the rate of 22.48 paise per unit. In addition there is a cess of 5 paise per unit. Since auxiliary consumption is required for generation of power, the Commission feels that levy of electricity duty on this consumption may not be appropriate. This is also to be noted that the expenditure incurred by the Board on this account is loaded on the expenses of the Board towards generation of electricity which is subsequently passed on to the consumers. When this energy is sold to any consumer, the consumer is again required to pay electricity duty to the State Government at the prevailing rate. Thus, electricity duty is charged to the consumer twice which is not justified. The Commission therefore, recommends that ED on auxiliary consumption in CSEB's generating stations should be waived.

7.4.4 Subsidy receivable from the State Government

As per the final order of division of assets and liabilities between MP Electricity Board and Chhattisgarh State Electricity Board passed by the Ministry of Power vide Ministry's notification dated 04.11.2004 the total subsidy payable by the State Government to the Electricity Board as on 14.04.2001 as per the accounts of the erstwhile MPEB, is Rs. 562.21 crore. This amount has been arrived at by division of the total amount of Rs. 2447.60 crore in the proportion of 77.63 : 27.97 between MPEB and CSEB. As per our information the Government of M.P. has already settled this subsidy account with MPEB while the matter is yet to be addressed by the Government of Chhattisgarh. The Commission would like to request the State Government to settle this subsidy account as early as possible so as to facilitate the scheme of transfer of assets and liabilities and restructuring of the CSEB.

LIST OF OBJECTORS

Sl. No.	Name and Address of the party	Consumers represented
1	Shri Mahesh Kakkad, President, Chhattisgarh Udyog Mahasangh, Punjabi Colony, Katora Talab, Raipur	Industry Association
2	Shri Surya Rice Mill Pvt. Ltd., Sahadevpali, Raigarh	Industry
3	Shri Bhanvarlal Sethiya, Itwari Bazar, In front of Jain Mandir, Dhamtari	Agriculture
4	Shri J.P. Saboo, Urla Industries Association, Urla Industrial Complex, Raipur	Industry Association
5	Shri Bahadur Ali, Managing Director, Indian Abees Dairy Farm, Baldeobag, Near S.P.Office, Rajnandgaon	Poultry, Non-domestic
6	President, Raipur Atta and Masala Chakki Association, Arjun Atta Chakki, Indira Chowk, Shyam Nagar, Raipur	Flour Mill Association
7	Shri Jetha Bhai Patel, Timber Vyapri Sangh, Timber Bhavan, Devendra Nagar, Raipur	Saw Mill Association
8	Shri K.S.R. Murty, G.M.(Elect.), Bhiali Steel Plant, Bhilai, Durg	Heavy Industry
9	Shri S. Ramesh, Sr. Vice President, Hy-Grade Pellets Limited, Palanar Road, Kirandul	HT Industry
10	Central Herbal Agro Marketing Federation, 39-A Rohit Villa, Pachpedi Chowk, Ring Road No.1, Raipur	Herbal Plantation
11	Shri Vijay Pandey, Village Chikhallputti, Tah. Kondagaon, Distt. Bastar	Herbal Plantation
12	Shri R.L.Sekwar, Kulhad gaon, Post-Lanjoda, Bastar	Herbal Plantation
13	Smt. Rajpati, Village-Parpa, Post-Pandripani, Jagdalpur	Herbal Plantation
14	Shri Mahendra Nath Viashwakarma, Sivnandanpur, Bishrampur, Distt. Sarguja	Political worker
15	Shri Nitin Singhvi, MIG-59, Sector 1, Shankar Nagar, Raipur	Domestic Consumer
16	Aditya Biotech Lab & Research Pvt. Ltd., Near Nalghar Chowk, Chhotapara, Raipur	Tissue Culture Lab
17	Shri Vijay Kediya, CG Rice Millers Association, Akaltara, Distt. Janjgir-Champa	Industry Association
18	Shri. K.K.Agrawal, CG Steel Re-rollers Association, 1st Floor, Sona Tower, Opp. Deshbadhu Press, Raipur	Industry Association
19	Shri B.N.Mishra CE(Distribution), East Coast Railway, B-2, Rail Vihar, Chandrasekherpur, Bhubaneswar (Orissa)	Railway
20	Chhattisgarh Mini Steel Plant Association, 23/130, R.S. Shukla Road, Raipur	Industry Association
21	Bharat Aluminium Company Limited, Balco Nagar, Korba	Heavy Industry

Sl. No.	Name and Address of the party	Consumers represented
22	Shri Yogesh Agrawal, CG Rice Millers Association, Adishwar Complex, Punjab Oil Mill Gali, Ramsagar Para, Raipur	Industry Association
23	Chhattisgarh Agro Processeor Association, Shyam Talkies Road, Budhapara, Raipur	Industry Association
24	Shri B.L.Agrawal, Chairman, Confederation of Indian Industry, 193, Jabbal Building, Civil Lines, Raipur	CII
25	Uniworth Limited,923-945, Urla Growth Center, Urla Industrial Estate, P.O. Sarora, Sect-D,Urla, Raipur	HT Industry
26	Vandana Global Ltd., "Vandana Bhavan", MG Road,Raipur	HT Industry
27	Vandana Vidyut Ltd."Vandana Bhavan", MG Road,Raipur Raipur	CPP
28	Sri Ramswaroopdas Niranjana Lal Charitable Trust, "Vandana Bhavan", MG Road, Raipur	Non-domestic
29	Shri S.P. Naik, GM (E&P), Jayaswals Neco Ltd., Raipur	HT Industry
30	Shri Bajrang Power & Ispat Ltd. Post-Borjhara, Urla, Raipur	HT Industry
31	Shri Bajrang Metalics & Power Ltd. Village-Gondwara, Raipur	HT Industry & CPP
32	Chhattisgarh State Renewable Energy Development Agency (CREDA), Shankar Nagar, Raipur	Non-domestic
33	Rajkishore Nagar Samanvay Samiti, Rajkishore Nagar, Bilaspur	Domestic
34	Shri Goshala Pinjrapol, Rajnandgaon	Dairy
35	Shri Ashok Choudhary, BJP Kissan Morcha, Rajnandgaon	Dairy
36	Managing Director, C.G.State Co-operative Fisheries Association, Raipur	Fisheries
37	Addl. Chief Forest Conservator, Medical College Road, Raipur	Herbal Plantation
38	Chhattisgarh Ferro Alloys Association, 220 Jairam Complex, JE Raod, Raipur	Industry Association
39	Shri T.C.Jain,Chairman, Raipur Carbonics Pvt. Limited, Raipur	HT Industry
40	Shri Sanjeev Jain, Chief Executive, Nahata Metal & Air Products Pvt. Ltd., Urla, Raipur	HT Industry
41	Shri Manoj Saraswat, Sr. Manager(E & I), S.K.S. Ispat Ltd., Raipur	HT Industry
42	Shri Surendra Belchandana, President, C.G. State Fisheries Association, Kelabadi, Durg	Fisheries
43	Atul Oxygen Company Pvt. Ltd., 28-A, Industrial Estate, Bhilai	HT Industry
44	Chhattisgarh Krishi Vaniki Samaj, HIG-157, Padmanabhpur, Durg	Tree Plantation
45	Shri Shyam Kabra, Ex.Chairman, L.T. Sub-Committee, Urla Industies Association, Raipur	LT Industry Association

Sl. No.	Name and Address of the party	Consumers represented
46	Pankaj Oxygen Ltd., Urla Industrial Complex, Raipur	HT Industry
47	Shri M.P. Pandey, Jaya Prakash Memorial Centre, Kirandul, Bastar	NGO
48	Tarun Talkies (Ice Division), Station Road, Durg	Ice Factory
49	Shri Jasbir Singh Bagga, Gunj Line, Rajnandgaon	Ice Factory
50	General Seceratry, Durg Nagar Dheemar Samaj, Durg	Fisheries
51	Shri Harish Kedia, Chhattisgarh Laghu & Sahayak Udyog Sangh, Bilaspur	Industry Association
52	Shri V.K. Agrawal, Agrawal Minerals, Bilaspur	Stone crusher
53	Monnet Ispat & Energy Limited, Raipur	HT Industry
54	Commissioner, Raipur Municipal Corporation, Raipur	Public Utility
55	Shri Birendra Kumar Agrawal, Bilaspur	Individual
56	Chhattisgarh Colonisers' Welfare Association, Raipur	Consumer Association
57	Shri R.K. Pandey, P.S. Gases, Plot No. 3, Industrial Estate Durandi, Jagdalpur	HT Industry
58	Shri Yogendra Pandey, President, Nagar Palika Nigam, Jagdalpur	Public Utility
59	Shri Rajaram Tripathi, President, Central Herbal Agro Marketing Federation of India, Raipur	Herbal Plantation
60	President Baster Jila Congress Committee, Congress Bhavan, Chitrakot Road, Jagdalpur	Political Workers

On behalf of CSEB

1. Shri Manoj Dey, Member (T&D), Raipur
2. Shri V.K. Jain, Chief Engineer (O&M) , Raipur
3. Shri G.S. Deshpande, Chief Engineer (Comm.) , Raipur
4. Shri A.K. Jain, Chief Engineer (RR) , Raipur
5. Shri N.L. Gupta, Chief Engineer, Bilaspur
6. Shri V.K. Shrivastava, Addl. C.E. (Comm.), Raipur
7. Shri K.K. Sinha, Addl. C. E., Ambikapur
8. Shri R.K. Jain, Addl. C.E., Jagdalpur
9. Shri G.L. Patel, S.E. (O&M), Bilaspur
10. Shri A.P. Singh, S.E. (O&M), Ambikapur
11. Shri A.K. Sahu, S.E. (O&M), Jagdalpur
12. Shir A.K. Bhatnagar, S.E. (Comm.), Raipur