

**BEFORE THE KERALA STATE ELECTRICITY REGULATORY
COMMISSION**

Filing No. /2010

Case No. _____

IN THE MATTER OF: Application for approval of the Aggregate Revenue Requirement and Expected Revenue from Charges for the year 2011-12

And

IN THE MATTER OF: Kerala State Electricity Board
Vydyuthi Bhavanam, Pattom,
Thiruvananthapuram - 695 004

The petitioner named above respectfully submits as under:

1. This application for approval of the Aggregate Revenue Requirement (ARR) and the Expected Revenue from Charges (ERC) for the year 2011-12 is filed before the Kerala State Electricity Regulatory Commission, (hereinafter referred as Commission), in accordance with the provisions of the Electricity Act, 2003.
2. This application has been prepared as per the terms and conditions for determination of tariff under Section 61 of the Electricity Act, 2003 and the terms and conditions of the Kerala State Electricity Commission (Tariff) Regulations, 2003 issued by the Commission. The relevant provisions of Indian Electricity Act 1910, Electricity (Supply) Act, 1948 and Electricity Regulatory Commission Act, 1998 which are not contradictory to the Electricity Act 2003, were taken into consideration while preparing this petition.

Background

3. The Kerala State Electricity Board (KSEB) is a statutory body constituted on 01-04-1957 under Section 5 of the Electricity Supply (Act), 1948 for the coordinated development of Generation, Transmission and Distribution of electricity in the State of Kerala. As per the provisions of the Electricity Act-2003, KSEB continued as a State Transmission Utility (STU) and Distribution Licensee till **24-09-2008**, performing same functions of generation, transmission and distribution of electricity within the State of Kerala. In exercise of powers conferred under sub-sections (1), (2), (5), (6) and (7) of section 131 of the Electricity Act, 2003, State Government vide the notification G.O (Ms).37/2008/PD dated 25th September, 2008 has vested all functions, properties, interests, rights, obligations and liabilities

of KSEB with the State Government till it is re-vested the same in a corporate entity. State Government vide the order G.O (Ms) No. 25/2010/PD dated 14-10-2010 has extended the time limit for re-vesting the assets and liabilities of KSEB up to 31-03-2011. The present petition is prepared on the presumption that, the Board may be allowed to continue as a single entity as it is for the ensuing financial year also.

4. Over the last fifty three years, the Board has grown from a total installed capacity of 109 MW to an installed capacity of 2508.30 MW and created Transmission and Distribution networks of over 11060 and 293787 circuit kilometers respectively. At present, the Board caters to the needs of about 100 lakh consumers spread over the urban and rural areas of the State.
5. This substantial growth in the power system brought several changes in the characteristics of the system. The input cost structure and revenue composition have undergone significant changes. Until the recent past, the hydroelectric plants owned by the Board supplied a major portion of the energy requirement of the state. However, after the promulgation of the Forest Conservation Act in 1980, the implementation of new hydroelectric projects had been seriously affected and more costly thermal energy had to be generated / purchased to meet the increasing demand. At present, 60% of the total Revenue Requirement is for procuring thermal power.
6. A major factor affecting the power supply is the drastic variation in monsoon. The failure of monsoons in the State during 2002-03, 2003-04 and 2008-09 has caused increase in generation and purchase of costly thermal energy to meet the demand.
7. Over the years, the consumption of heavily subsidized domestic sector has been increasing and now, it accounts for approximately 48% of the total energy consumed. As a consequence, the peak demand in the state is about 50% higher than that during off-peak hours. This forced more investment in the power system to meet the peak demand and purchase of thermal energy from outside the State. But the capacity so created for meeting the peak demand remains under-utilized during the off-peak periods.
8. The Board had been supplying electricity at lowest price in the country for several decades mainly because of the substantial contribution from hydel resources. The major changes in the power supply mix brought about from the 1990's had resulted into a peculiar situation whereby the cost of power procurement and generation increased phenomenally which could not be adequately compensated through tariff revisions. The budgetary support and subsidies for supplying electricity below the cost of supply in the past was not received in cash from the Government. The Board had to resort to heavy borrowings to meet the expenses. The additional financial liability incurred by the Board to purchase the high cost energy has severely

affected financial position and resorting to heavy borrowings from financial institutions was the only available short-term solution.

9. The tariff revisions during this period could only partly offset the additional costs out of power procurement and debt servicing. The last such major revision in tariff was in October 2002. Even though the State Commission was notified on 18-11-2002, presumably to avoid tariff shocks, no revision in tariffs were attempted and the Commission was accepting revenue gaps to be met through government subsidy etc. Due to the combined effect of very good monsoon, utilisation of thermal generation assets for substantial sale of power into the volatile short-term market, substantial enhancement in allocation of power from central generating stations (which was again badly curtailed during 2006-07) as well as various efficiency gains the financial position of the Board could be improved thereafter for a short period.
10. With reduction in availability of power from central generating stations and non-materialisation of major central sector projects in time, Board is now depending on the volatile short-term market to fully meet the power demand in Kerala with the approval of the Commission. The increase in cost of generation in all thermal projects due to dependence on imported coal as well as phenomenal rise in price of crude oil is also adversely affecting the finances of the Board. The upward revision of tariff norms for all central generating stations by CERC as well as the new regulations for sharing of inter-state transmission charges are also to create huge adverse impact on KSEB finances immediately. Moreover, the reigning inflationary trend in the economy is substantially impacting on the expenses of the Board in all fronts.
11. As a combined effect of all the above factors, there was a significant increase in the Board's expenditure. However, the tariffs not keeping pace with the rising costs, the Board's financial situation had been declining.
12. Though the Board was statutorily enjoined to function as a commercial institution, it continued to function mainly with service orientation providing infrastructure facility, reliefs and concessions to other sectors like industry, agriculture and so on. Now, the State Commission insists upon to perform strictly on commercial considerations.
13. The Board has identified the critical issues affecting the Power Sector in the State and has been taking several steps to further reduce the costs and improve the financial health. A brief account of the steps taken to improve the financial health of the Board and to offer better quality supply to the consumers are given in Chapter-2.

Aggregate Revenue Requirement for the year 2010-11 and 2011-12.

14. The ARR for the year 2010-11 was submitted to the Commission on 24.12.2009, showing a revenue gap of Rs 2219.60 Crore. The Commission has issued orders on ARR&ERC for the year 2010-11 on 17.05.2010 and approved the revenue gap as Rs 457.47 crore.
15. The revised estimates for the year 2010-11 leave a revenue deficit of Rs 1599.09 Crore and the estimate for the year 2011-12 accounts for a revenue deficit of Rs 2208.31 Crore. Proposals to bridge the revenue gap involve policy decisions at Government level. Hence, after approving the revenue gap by Hon'ble Commission, the Board in consultation with the Government shall file proposal to bridge the revenue gap for the year 2011-12.
16. Accordingly, the revised estimate of ARR & ERC for the year 2010-11 and estimate of ARR & ERC for the year 2011-12 are submitted as follows:

Revised Estimate for the year 2010-11

		Rs. in Crore
	Description	FY 2010-11
a	Aggregate Revenue Requirement	7046.20
b	Non-tariff Income	400.16
c	Revenue from sale of power	5046.95
d = b + c	Total income	5447.11
e = a - d	Revenue Gap	1599.09

Estimate for 2011-12.

		Rs. Crore
	Description	FY 2010-11
A	Aggregate Revenue Requirement	7815.77
B	Non-tariff Income	390.36
C	Revenue from sale of power	5217.10
d = b + c	Total income	5607.46
e = a - d	Revenue Gap	2208.31

Treatment of the Revenue Gap

17. As against the revenue gap of Rs. 2219.60 Crore estimated in the ARR for the year 2010-11, the revised estimated revenue gap is Rs. 1599.09 Crore. It is requested that the Commission may approve the revised estimates.
18. The projected revenue gap for the financial year 2011-12 is Rs 2208.31 Crore. This is based on expected revenue of Rs. 5607.46 Crore from the sale of power and the aggregate revenue requirement (i.e. all expenses plus ROE) of Rs 7815.77 Crore. As mentioned above, after approving the revenue gap by the Hon'ble Commission, the Board in consultation with the

Government shall file the proposal to bridge the revenue gap for the year 2011-12. Hence the Board may be permitted to submit the proposal for adjustment of the revenue gap after getting the concurrence of the Government of Kerala.

Other issues

19. The Board is in the transitory phase of implementing provisions of the Electricity Act 2003. Some of the future events/contingencies having major financial implications will necessitate revision of the estimates for 2011-12. In view of this, the Board hereby submit before the Commission to allow the following four proposals that affect the Board's financial health and its ability to serve its consumers over a longer period.

- a. Regulatory assets to cover the uncovered revenue gap, if any.
- b. To pass on the additional cost on generation and power purchase over the approved level due to failure of monsoon, reduction in allocation from CGS, hydro-thermal mix change, price variation due to escalation in prices of liquid fuels, coal etc on quarterly basis to the consumers.
- c. To file interim petition in the event of contingency.
- d. Year end truing up of costs and revenues of the Board and allowing any unrecovered costs in the subsequent years, thereby, protecting the commercial viability of the Board

20. The Board has made every effort to provide detailed information for computation of the revenue requirement and expected revenue. The Board is continuously updating its management information system, which would enable it to provide improved data / information in the subsequent filings as may be required by the Commission.

21. This application for approval of ARR and ERC for 2011-12 contains the following parts:

- Affidavit verifying the application
- Aggregate Revenue Requirement and Expected Revenue from Charges for the year 2011-12.
- Annexures and Data forms.

Prayer

22. The Board requests the Commission that: -

- The accompanying ARR & ERC for 2011-12 containing the revised estimate for 2010-11 and estimate for 2011-12 be approved;
- The Board may be granted permission to submit proposal to bridge the revenue gap in consultation with the Government, once Hon'ble Commission approves the revenue gap.

- To allow the revenue gap for 2010-11 as per the revised estimates for 2010-11 projected in this petition and decide the manner of bridging the deficit in excess of the deficit already assessed by the Commission for that year. It is prayed that the Commission may treat the revenue gap either as Regulatory Asset to be absorbed in future tariff or recommend to the Government to pay as subsidy so as to avoid tariff revision.
- The Board has taken all possible care and caution in projecting the ARR for 2011-12. However, in view of the constraints mentioned above, the Board may be allowed to revise the projections in the event of poor monsoon, abnormal increase in fuel prices and other contingencies that may crop up during the course of implementation of the Electricity Act 2003 and also re-vesting the assets and liabilities in a company to be formed incorporated under the Indian Companies Act-1957.
- To pass on the additional cost on generation and power purchase over the approved level due to failure of monsoon, reduction in allocation from CGS, hydro-thermal mix change, price variation due to escalation in prices of liquid fuels, coal, lignite etc to the consumers during the financial year 2011-12 itself based on the actuals furnished by the Board on quarterly basis.
- The concept of truing up of Board's costs and revenues at the end of the financial year concerned is accepted and any revenue gap arising out of this truing up exercise be allowed to be recovered through tariffs etc. in the subsequent year.

**BEFORE THE KERALA STATE ELECTRICITY REGULATORY
COMMISSION**

at its office at C.V. Raman Pillai Road, Vellayambalam. Thiruvananthapuram.

FILING NO. /2010

CASE No.

IN THE MATTER OF:

Application for approval of the Aggregate Revenue Requirement (ARR) and approval of the Expected Revenue from Charges (ERC) for the year 2011-12 under section 64 of the Electricity Act 2003

AND

IN THE MATTER OF:

Kerala State Electricity Board, Vidyuthi Bhavanam, Pattom,
Thiruvananthapuram

Applicant

Chairman
Kerala State Electricity Board

**AFFIDAVIT VERIFYING THE APPLICATION ACCOMPANYING FILING OF
PROPOSED ARR & ERC:**

I, Rajeev Sadanandan , S/o Sadanandan Pillai, aged **51 years**, residing at Flat No. 2-B, Skyline Apartments, Golflinks, Kowdiar Thiruvananthapuram do solemnly affirm and state as follows:

I am the Chairman of the Kerala State Electricity Board, Vidyuthi Bhavanam, Pattom, Thiruvananthapuram, and the petitioner in the above matter and I am duly authorized by the Board to make this affidavit on its behalf. I solemnly affirm at Thiruvananthapuram on this the thirty first day of January-2011 that

- (i) the contents of the above petition are true to my information, knowledge and belief. I believe that no part of it is false and no material has been concealed there from.
- (ii) the statements made in paragraphs of the accompanying application now shown to me are true to my knowledge and are derived from the official records made available to me and are based on information and advice received which I believe to be true and correct.

Deponent

Chairman,
Kerala State Electricity Board,
Vidyuthi Bhavanam, Pattom
Thiruvananthapuram - 695 004

VERIFICATION

I, the above named deponent, solemnly affirm at Thiruvananthapuram on this, the thirty first day of January-2011 that the contents of the affidavit are true to my information, knowledge and belief, that no part of it is false and that no material has been concealed there from.

Deponent

Chairman
Kerala State Electricity Board
Vidyuthi Bhavanam, Pattom
Thiruvananthapuram - 695 004.

Solemnly affirmed and signed before me.

Advocate and Notary

TABLE OF CONTENTS

	Page
1 INTRODUCTION	12
2 PERFORMANCE OF THE BOARD	
2.1 Introduction	18
2.2 Efforts taken for reducing the past capital liabilities	18
2.3 Transmission & Distribution loss	22
2.4 Efficiency in Generation and Power Purchase	23
2.5 Comparison of Expenses and Revenue	24
2.6 Measures taken to improve Consumer Satisfaction	25
2.7 Physical performance	27
3 CAPITAL INVESTMENTS	
3.1 Introduction	29
3.2 Review of Capital Outlay of Projects proposed in 2010-11 and Capital Outlay for the year 2011-12	30
4 ENERGY SALE FORECAST	
4.1 Introduction	33
4.2 Review of Energy Consumption for 2009-10	33
4.3 Revised estimate of energy sale for the year 2010-11	34
4.4 Energy sale forecast for the year 2011-12	36
5 REDUCTION OF AGGREGATE TECHNICAL & COMMERCIAL (AT & C) LOSSES	
5.1 Introduction	38
5.2 Directives of the Commission to reduce the T&D loss	39
5.3 Efforts for T&D loss reduction for the year 2010-11 and 2011-12	41
6 REVIEW OF GENERATION AND POWER PURCHASE MADE DURING THE YEAR 2008-09	
6.1 Introduction	46
6.2 Strategies adopted for Optimising Generation & Power Purchase for the year 2010-11	48

6.3	Review of Hydel Generation for the year 2010-11	49
6.4	Review of energy availability from CGS	51
6.5	Power procurement from short-term markets	52
6.6	Review of variable cost for the year 2010-11	54
6.7	Likely additional liability from CGS	56
6.8	Generation and Power Purchase plan from Dec-2010 to May-2011	57
6.9	Revised cost of Generation and Power Purchase for the year 2010-11	58
7	AGGREGATE REVENUE REQUIREMENT (ARR)	
7.1	Methodology adopted for the estimation of ARR&ERC for the year 2011-12	59
7.2	Estimate of Cost of Generation and Power Purchase for the year 2011-12	63
7.2.1	Expected Energy Demand and Peak Demand for 2011 - 12	63
7.2.2	Estimation of Hydel Generation for the year 2011-12	63
7.2.3	KSEB's Thermal stations	66
7.2.4	Power Purchase from CGS	68
7.2.5	Power Purchase from IPPs	73
7.2.6	Energy shortages to be met through short-term market	76
7.2.7	Summary of sources and Utilisation of energy for the year 2011-12	77
7.2.8	General Strategy followed by KSEB in scheduling of Generation and Power Purchase	78
7.2.9	Merit Order Stack	79
7.2.10	Transmission charges payable to PGCIL	79
7.2.11	Other Charges payable to CGS	80
7.2.12	Summary of cost of Generation and Power Purchase	81

7.3	Interest and Finance Charges	83
7.4	Depreciation	97
7.5	Employee Cost	99
7.6	Repairs and Maintenance Cost (R&M)	104
7.7	Administration and General Expenses	107
7.8	Other Expenses	111
	7.8.1 Prior Period Expenses	111
	7.8.2 Other Debits	112
7.9	Return on Equity	113
7.10	Summary of Aggregate Revenue Requirement (ARR)	115
7.11	Function wise break up of ARR for the year 2011-12	116
7.12	Cost of energy at Generation end, transmission end and distribution end	116
8	EXPECTED REVENUE FROM CHARGES	
8.1	Introduction	118
8.2	Revenue from tariff for the year 2009-10	118
8.3	Estimate of revenue from sale of power for the year 2010-11 and 2011-12	119
8.4	Non- Tariff Income	121
8.5	Total Expected Revenue from Charges	123
9	SUMMARY OF AGGREGATE REVENUE REQUIREMENT FOR THE FINANCIAL YEAR 2011-12	124
10	ACTION TAKE REPORT ON DIRECTIVES ISSUED	133

CHAPTER-1 INTRODUCTION

- 1.1. The Kerala State Electricity Board (KSEB) is a statutory body constituted on 01-04-1957 under Section 5 of the Electricity Supply (Act), 1948 for the coordinated development of Generation, Transmission and Distribution of electricity in the State of Kerala. As per the provisions of the Electricity Act-2003, KSEB continued as a State Transmission Utility (STU) and Distribution Licensee till 24-09-2008, performing same functions of generation, transmission and distribution of electricity within the State of Kerala. In exercise of powers conferred under sub-sections (1), (2), (5), (6) and (7) of section 131 of the Electricity Act, 2003, State Government vide the notification G.O (Ms).37/2008/PD dated 25th September, 2008 has vested all functions, properties, interests, rights, obligations and liabilities of KSEB with the State Government till it is re-vested in a corporate entity. State Government vide the order G.O (Ms) No. 25/2010/PD dated 14-10-2010 has extended the time limit for re-vesting the assets and liabilities of KSEB up to 31-03-2011.
- 1.2. Till now, KSEB is the Generator and Power procurer of all consumers of the State including the Small and Bulk consumers. KSEB has been directly providing power supply to 99.8% of the total consumers of the State and the remaining 0.2% is being served by other small licensees. As on date, KSEB has been providing power supply to more than 100 lakh consumers of the State. KSEB has been performing the planning and development of the power system over the years by utilizing the resources in the State.
- 1.3. As a Government owned public entity, KSEB has been implementing all the policy directions of the State Government such as providing free electricity to consumers below poverty line, giving priorities for service connections to weaker sections in the society, subsidy to Agricultural consumers, orphanages and [similar](#) other eligible consumers as decided by the Government from time to time, tariff concessions to Industrial sectors etc. KSEB has been implementing various schemes formulated by Central Government such as APDRP, RGGVY schemes in the State towards accomplishing the national goals such as cent percent household electrification, electrification of all dwellings, settlements etc. Further, KSEB has been taking steps for 100% electrification, implementing Demand Side Management (DSM) activities etc.
- 1.4. The growth of the Kerala power system during the last 50 years is given in the Table below.

Table-1.1
Growth of Kerala Power System

Year	Installed Capacity in MW				Annual Sales in MU	No of Consumers (in Lakhs)	Per Capita Conspn. (kWh)	EHT lines (ckt.kms)	EHT S/s (Nos)	HT lines (ckt .km)	LT lines (ckt. Km)	Dist Trfrs (Nos)
	Hydel	Thermal (Incl. IPPs)	Wind	Total								
57-58	109.0	0.0	0.0	109.0	363.0	1.1	19.0	1600.0	15.0	3851.0	4980.0	1862.0
60-61	133.0	0.0	0.0	133.0	518.0	1.8	30.0	1900.0	22.0	5449.0	8899.0	2898.0
73-74	622.0	0.0	0.0	622.0	2121.0	7.8	79.0	3378.0	59.0	9645.0	25968.0	8285.0
80-81	1012.0	0.0	0.0	1012.0	4499.0	15.7	109.0	4638.0	92.0	14189.0	55963.0	11656.0
90-91	1477.0	0.0	0.0	1477.0	5331.0	34.5	185.0	5885.0	140.0	20221.0	101834.0	17838.0
99-00	1742.5	594.2	2.0	2338.7	9812.0	60.3	300.0	7599.0	179.0	28672.0	180499.0	29551.0
00-01	1792.5	614.6	2.0	2409.1	10319.0	64.5	311.0	9085.0	194.0	30035.0	187169.0	31329.0
05-06	1849.6	591.6	2.0	2443.2	10906.0	83.0	427.0	10178.0	269.0	35060.0	215152.0	38193.0
06-07	1849.6	591.6	2.0	2443.2	11331.0	87.1	465.0	10593.0	276.0	37891.0	223370.0	39872.0
08-09	1886.5	591.6	23.9	2502.0	12414.0	93.6	470.0	10855.0	299.0	41245.0	241888.0	46510.0
09-10	1888.6	608.6	28.1	2525.3	13971.1	97.4	474.0	11059.9	317.0	44263.4	249524.0	50619.0

1.5 Kerala Power System differs from other States in many respects. The main features of the Kerala power system is detailed below.

- (i) **Vagaries of monsoon:** About 45% of the energy requirement is being met from hydel plants owned and operated by KSEB. The energy availability from hydel plants is being projected expecting normal monsoon. However, any failure of monsoon and the resulting power purchase will severely affect the financials of KSEB. Even a 10% shortfall in monsoon will create an additional financial impact of more than Rs 400 crore on KSEB..
- (ii) **High dependence on thermal power:** Though the State has abundant untapped hydel potential still to explore, due to resistance from various quarters, new major hydel projects could not develop in the State. To meet the increase in energy demand, KSEB has been depending heavily on the thermal power. So the cost of power purchase is alarmingly increasing over the years as detailed below.

Table 1.2
Increasing trend in cost of power purchase

Year	Cost of thermal power	Total ARR	Cost of thermal power as (%) of ARR	Remarks
	(Rs. Cr)	(Rs. Cr)	(%)	
2005-06	1585.21	3837	41.31	Actuals
2006-07	1741.73	4558	38.21	
2007-08	2297.04	5227	43.95	
2008-09	3832.17	6098	62.84	
2009-10	3748.35	6411	58.47	
2010-11	4044.58	7046	57.40	
2011-12	4428.38	7816	56.65	Estimate

However, the tariff of the State is being not revising in tune with the increase in cost of power purchase. This has been severely affecting the functioning of KSEB.

- (iii) **Adverse consumer mix:** About 49% of the total energy consumption is by the subsidized categories like domestic, agricultural categories etc. But considering the socio-economic reasons, providing electricity to them in subsidized rates may have to continue for few more years.
- (iv) **Skewed 'peak' 'off-peak demand' in the state.** Due to high consumption of the domestic and other LT categories, the peak demand in the State is about 50% higher than that of off-peak period. KSEB has been investing heavily to meet the peak demand in the state.
- (v) **HT-LT ratio.** Considering the Geographic and demographic features, KSEB has to develop more LT lines to provide the power supply to the consumers. The HT-LT ratio in the State is about 1:4.5 against the ideal level of 1:1. This contributes more technical losses in the LT distribution system.
- (vi) **Lack of energy resources.** The only major energy resource available in the state suitable for commercial production of electricity is hydel sources, the development of which is greatly hampered after the enactment of Forest conservation Act, 1980. The resource rich states in the country are distantly located from Kerala and the cost of importing either electricity or the primary resources is on the increase. With the change in philosophy of sharing inter-state transmission costs as well as losses in tune with the National Tariff policy, cost of transporting electricity is to increase substantially. The only way around is to enhance generation within the state, for which again primary resources like coal or gas need to be transported over large distances. Thus it appears that due to inadequate primary energy resources within the state, the tariff for electricity in the state could become comparatively higher, to compensate these costs, in the absence of any National policy on equitable distribution of such costs.
- (vii) **Exposure to global oil prices.** The efforts of the state to overcome the primary energy resource deficit has already resulted in heavy dependence on crude oil products such as Naphtha and LSHS. In fact Kerala is presently having the highest proportion of liquid fuel based installed capacity in the country with its 771 MW liquid fuel based generators. This is exposing the state and KSEB to the speculative fluctuations of global oil prices.

Even though the consumers in Kerala were largely shielded from these fluctuations in the past, the deteriorating financial position of KSEB warrants a regular compensation through adjustments in tariff as envisaged in the fuel surcharge formula regulations, 2009.

- 1.6 The primary mission of KSEB is to provide quality power at affordable cost on demand to the consumers of the State and to act as a catalyst for total development of the State. The Electricity Act-2003 and other policies notified by the Central and State Governments are the governing laws and KSEB has to function on commercial principles.
- 1.7 The State Government has constituted the Kerala State Electricity Regulatory Commission (KSERC) vide the G.O dated 14-11-2002, under the provisions of the Electricity Regulatory Commission Act 1998 (ERC act 1998) and continues as per the provisions of the Electricity Act-2003. The Commission, as per the powers vested in the Electricity Act 2003, has formulated the Kerala State Electricity Regulatory Commission (Tariff) Regulations 2003. KSEB has been submitting the “the Aggregate Revenue Requirement and Expected Revenue from Charges (ARR & ERC)” since the year 2003-04. The present petition is the ARR & ERC for the year 2011-12 and is the ninth one in the series.
- 1.8 As stated under paragraph-1.1 above, the Board is now passing through a transitional phase of reforms taking place in the electricity sector. Though the Electricity (supply) Act 1948, stands repealed with the enactment of Electricity Act 2003, as per the section 185(2) (d) of Electricity Act, all rules made under sub-section (1) of section 69 of the Electricity (Supply) Act 1948, shall continue to have effect until such rules are rescinded or modified as the case may be. KSEB has been following the Electricity (Supply) Annual Accounts Rules 1985 for preparation of the Annual Accounts of the Board as it is not yet rescinded or modified. The accounts of the KSEB are being audited every year by the Comptroller and Auditor General of India. The statutory authority of the C & AG also has not been altered by the new Act (Electricity Act, 2003).
- 1.9 Further, Hon’ble Commission is yet to notify the Tariff Regulations under section-61 of Electricity Act-2003, applicable to KSEB as a Generator, State Transmission Utility and a Distribution Licensee. In the absence of the regulations, present petition is also prepared in consistence with the provisions of ESAAR-1985. Further, as per the section-61(a) of the Electricity Act-2003, the tariff determination of the SERC shall be guided by the ‘the principles and methodologies specified by the Central Commission for determination of tariff’. In consistence with prudent utility practices, the principles specified by the Central Commission for

tariff determinations-‘CERC (Terms and Conditions of Tariff) Regulations, 2009’ have also been adopted while preparing the present petition wherever applicable.

- 1.10 Therefore, this petition has been formulated under the assumption that the procedures and practices being followed will be continue until the new rules, regulations and procedures are fully implemented. If the regulations etc as envisaged in the Electricity Act 2003 are firmed up and come into operation in 2011-12, this petition might require revision as may be required. The present petition has been prepared considering the Board as a single entity as of today.
- 1.11 This petition contains 10 Chapters. Chapter-2 of this petition describes the performance of the Board during the recent years. Chapter-4 of the petition deals with the estimate of demand projections of different categories of consumers. A review of the generation and power purchase made during the year 2010-11 is given as Chapter-6. The estimate of Aggregate Revenue Requirement and the estimate of the Expected Revenue from Charges are given in Chapter-7 and Chapter-8 respectively. The summary of the ARR & ERC including the prayer of the Board is given in Chapter-9. The status report on the compliance of the directives issued by Hon’ble Commission vide the previous orders on ARR is given under Chapter-10.
- 1.12 The revised estimate of the revenue expenditure of the Board for the year 2010-11 is Rs. 7046.20 Crore and the revenue receipts is Rs. 5447.11 crore leaving a revenue gap of Rs. 1599.09 Crore.
- 1.13 The ARR for the year 2011-12 is Rs 7815.77 Crore as against the estimated revenue receipts of Rs 5607.46 Crore leaving the estimated revenue deficit of Rs 2208.31 Crore.
- 1.14 The Board with the concurrence of the Government shall file separate proposal to bridge the revenue gap for the year 2011-12 once the revenue gap is finalised by the Hon’ble Commission. Pending submission of proposal to bridge the revenue gap, the Board requests before the Hon’ble Commission:
 - (1) To approve the revised estimated expenses of Rs 7046.20 Crore, income of Rs 5447.11 Crore and the revenue gap of Rs 1599.09 Crore for the year 2010-11.
 - (2) To approve the estimated expenses of Rs 7815.77 Crore, income of Rs 5607.46 Crore and the revenue gap of Rs 2208.31 Crore for the year 2011-12.

- (3) To permit the Board to submit separate proposal for bridging the revenue gap of 2011-12 once the revenue gap is finalised by the Hon'ble Commission
- (4) To allow the revenue gap as per the revised estimates for 2010-11 projected in this petition.
- (5) To allow the Board to revise the present estimates in the event of abnormal increase energy price or failure of monsoon during 2011-12 or if there are major changes in the assumptions taken in this petition due to any contingency that may occur due to reasons beyond the control of the Board.
- (6) To allow the Board to submit a proposal for truing up of the cost at the end of financial year 2011-12 and any revenue gap arising out of such truing up be allowed separately.
- (7) To issue necessary orders to bridge the revenue gap for the year 2010-11 and 2011-12.
- (8) To recognize the concept of Regulatory Asset and treat the revenue gaps as Regulatory Asset, if the gaps are not otherwise covered by tariff revision or subsidy from the Government.
- (9) To permit the Board to present the case in person and submit other details / information as may be necessary before the Commission takes its final decision on the matter.

CHAPTER-2 PERFORMANCE OF THE BOARD

2.1 Introduction

KSEB is being continued as a single power utility performing the functions of Generator, State Transmission Utility and Distribution Licensee in the State of Kerala. KSEB has been taking several initiatives to improve the physical and financial performances of the Board. Some of the various efforts taken by the Board are detailed in this chapter.

2.2 Efforts taken for reducing the past capital liabilities.

2.2.1 The details of the reduction in capital liabilities since the year 2004-05 are detailed below.

Table 2.1
Details of Capital investment and loan repayment made during the period from 2004-05 to 2009-10

Year	Loan Outstanding at the beginning of the Year	Loan repayment during the previous year	Cumulative repayment over 2004-05
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
2004-05	5355.65		
2005-06	4541.32	814.33	814.33
2006-07	3713.62	827.70	1642.03
2007-08	2498.52	1215.10	2857.13
2008-09	1856.71	641.81	3498.94
2009-10	1100.35	756.36	4255.30
Total		4255.30	

2.2.2 It may be noted that, KSEB had repaid the past capital liabilities by Rs 4255.30 crore during the last six years. This was made despite the fact that, KSEB has made substantial capital investment during these years. The details of the capital investment made from 2003-04 to 2009-10 are detailed below.

Table 2.2
Details of Capital investment made from 2003-04 to 2009-10

Year	Capital investment made during the year	Cumulative capital investment
	Rs. Cr)	Rs. Cr)
2003-04	809.09	809.09
2004-05	461.92	1271.01
2005-06	499.93	1770.94
2006-07	537.45	2308.39
2007-08	373.71	2682.10
2008-09	645.20	3327.30
2009-10	869.71	4197.01
Total	4197.01	

2.2.3 As detailed above, KSEB has made total capital investment of Rs 4197.01 crore during the period from 2003-04 to 2009-10. Despite the capital investment, KSEB was able to repay the capital liabilities by Rs 4255.30 crore during the same period. KSEB was able to do so by utilizing all the internal resources including the non-cash flow expenditure such as depreciation, statutory surplus, provision made for bad and doubtful debts, provision made for write off the unrecoverable amounts, amount collected from consumers etc, as well as effectively utilising short term power market and improving productivity of thermal generation assets. In other words, KSEB has made use of all the internal resources available to repay the past capital liabilities as well for making the new capital investments. By doing so, there was considerable savings in interest and finance charges claimed by KSEB and ultimately it is reflected in the total ARR and consumer tariff.

2.2.4 The reduction in interest and finance charges, consequent to the repayment of past capital liabilities despite the huge capital investment made during the same period, is detailed below.

Table 2.3
Reduction on interest and finance charges

Year	Interest claimed for outstanding capital liabilities	Reduction over the year 2003-04	Cumulative reduction over 2003-04
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
2003-04	622.16		
2004-05	535.54	86.62	86.62
2005-06	451.44	170.72	170.72
2006-07	318.49	303.67	474.39
2007-08	232.83	389.33	863.72
2008-09	151.31	470.85	1334.57
2009-10	123.08	499.08	1833.65

There was a total reduction of Rs 1833.65 crore on account of reduction in interest and finance charges over the years. KSEB has passed on the entire savings on interest and finance charges to the consumers.

2.2.5 In this matter, it may be noted that, normally power utilities can limit the loan repayment to the extent of depreciation. A comparison of the depreciation claimed by KSEB and excess capital repayment made is detailed below.

Table- 2.4
Details of Excess loan repayment over depreciation

Year	Capital investment made during the year	Depreciation as per MoP rates	Capital liabilities			Repayment over depreciation and capital investment
			Opening balance	Closing balance	Net loan repayment	
	Rs. Cr)	Rs. Cr)	Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2004-05	461.92	374.77	5355.65	4541.32	814.33	901.48
2005-06	499.93	392.65	4541.32	3713.62	827.70	934.98
2006-07	537.45	405.98	3713.62	2498.52	1215.10	1346.57
2007-08	373.71	419.09	2498.52	1856.71	641.81	596.43
2008-09	645.20	434.74	1856.71	1100.35	756.36	966.82
2009-10	869.71	451.22	1100.35	1409.49	-309.14	109.35
Total	3387.92	2478.45			3946.16	4855.63

2.2.6 KSEB has made an excess loan repayment of Rs 1467.71 crore over the depreciation claimed as well as executed capital works to the tune of Rs. 3387.92 crore in five years. As discussed earlier, this has achieved by way of making use of all the internal resources including the non-cash flow expenditure such as depreciation, statutory surplus, provision made for bad and doubtful debts, provision made for write off the unrecoverable amounts, amount collected from consumers, electricity duty retained etc. Other words, KSEB has made use of all the internal resources available to repay the past capital liabilities as well for making the new capital investments. Hon'ble Commission may please note that, KSEB has not claimed any return for the capital investment made from Board's own resources.

2.2.7 Further, as per the normative cost plus regulatory regime prevailing in the Country, various power utilities are claiming interest on debt on normative basis. Had the loans were availed on normative basis, the outstanding capital liabilities as on date would have been as given below.

Table 2.5
Claim of debt on normative basis

Year	Loan Details - as per normative basis as per the prudent utility practices					Actual	Excess repayment made by KSEB
	Opening balance	Capital investment	Loan on normative basis (70% of the capital investment)	Depreciation claimed (<u>Loan repayment restricted to depreciation</u>)	Closing balance		
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
2003-04	5094.16	829.00	580.30	326.19	5348.27	5355.65	-7.38
2004-05	5348.27	461.92	323.34	374.77	5296.84	4541.32	755.52
2005-06	5296.84	499.93	349.95	392.65	5254.14	3713.62	1540.52
2006-07	5254.14	537.45	376.21	405.98	5224.38	2498.52	2725.86
2007-08	5224.38	373.71	261.59	419.09	5066.88	1856.71	3210.18
2008-09	5066.88	645.20	451.64	434.74	5083.78	1100.35	3983.43
2009-10	5083.78	869.71	608.79	451.22	5241.36	1409.49	3831.87

2.2.8 The interest charges for the capital liabilities on normative basis, as shown above, are given below.

Table 2.6
Interest and finance charges on normative basis

Year	Actuals		Normative basis		Net savings in interest charges (Rs. Cr)
	Outstanding loan at the beginning	Interest	Outstanding loan at the beginning	Interest	
	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	
2003-04	5094.16	622.16	5094.16	637.68	15.52
2004-05	5355.65	535.54	5348.27	532.23	-3.31
2005-06	4541.32	451.44	5296.84	524.42	72.98
2006-07	3713.62	318.49	5254.15	449.33	130.84
2007-08	2498.52	232.83	5224.38	479.51	246.68
2008-09	1856.71	151.31	5066.89	413.61	262.30
2009-10	1100.35	123.08	5083.79	577.46	454.38
Total		2434.85		3614.25	1179.40

As detailed above, KSEB has not claimed Rs 1179.40 crore on interest and finance charges which could have been claimed as per s normative cost plus regulatory regime and the concept of maintaining independent regulatory accounts as followed by the Hon'ble CERC.

2.2.9 It is respectfully submitted that, Hon'ble Commission is yet to appreciate the entire facts of the matter, especially while matters relating to utilisation of internal resources including the provision made for bad and doubtful debts, provision for write-offs etc are decided upon. It may please be noted that the entire fund so available to KSEB has been made use for repaying the past liabilities as well as to meet capital investment.

2.2.10 But, in the truing up process of previous years, Hon'ble Commission has arrived at certain surplus by way of disallowing the provision made for write-off, bad and doubtful debts, depreciation etc. Though there is a surplus as per the regulatory accounts, KSEB has already made use of them for repaying the past capital liabilities as well as future liabilities and benefit derived out of such utilization has been passed on to the consumers. However, without appreciating this fact, Hon'ble Commission had adjusted the surplus so arrived against the revenue requirement of the current years, which tantamount to passing on benefits twice. As stated earlier, as per the books of accounts of KSEB, captioned surplus is not available and this has created an embarrassing situation which may affect the very existence of this utility. Further, the benefit of such internal surplus, if any, determined by the Hon'ble Commission have already been passed on to the consumers and there

fore, adjusting such amount against the present revenue requirement can only lead to passing the benefit twice to the consumers of KSEB by jeopardising the financial viability of the utility. KSEB fervently appeal that Hon'ble Commission may address the issue in its true perspective.

2.3 Transmission and Distribution Loss

2.3.1 Board has been taking consistent efforts on reducing the transmission and distribution losses in the KSEB system. The total losses in the KSEB system during the year 2001-02 was 30.76%. KSEB was able to reduce the same to 17.71% during the year 2009-10, i.e, a reduction of 13.05% over the last eight years. By way of reducing the T&D losses, KSEB could achieve considerable savings on power purchase cost. The summary of the T&D loss reduction and savings in cost of power purchase over the years since 2001-02 is given below.

Table 2.7
T&D loss reduction and saving on cost of power purchase there on

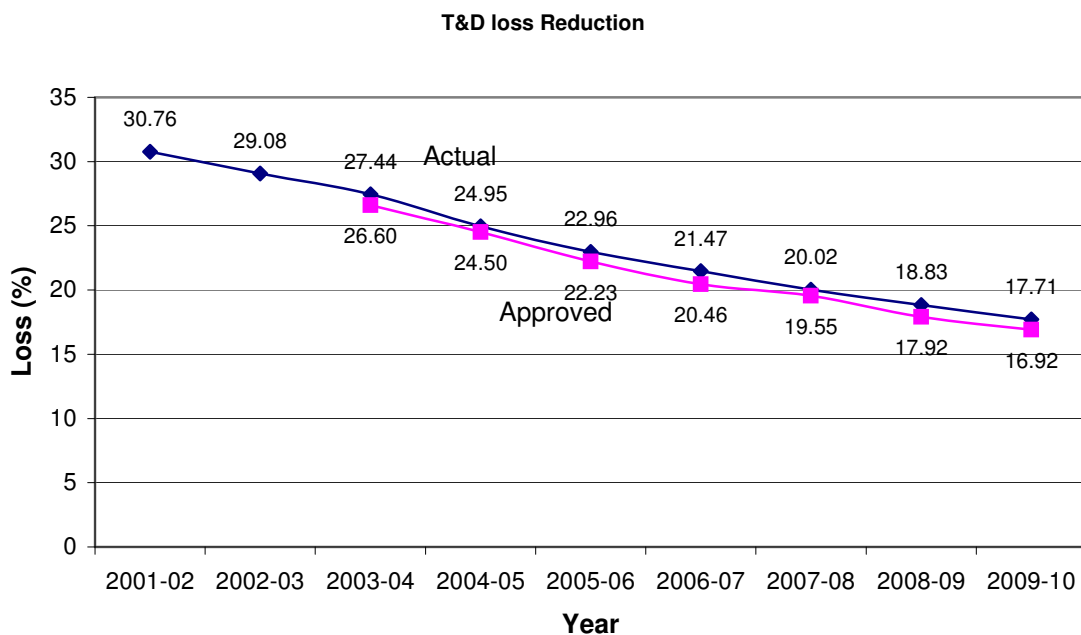
Year	T&D Loss within KSEB system	Extent of reduction		Total Energy sales within the State	Savings in Generation & Power Purchase	Savings in Power purchase cost*
		Yearly	Cumulative			
	(%)	(%)	(%)	(MU)	(MU)	(Rs.Cr)
2001-02	30.76			8667.32		
2002-03	29.08	1.68	1.68	8873.30	303.58	106.25
2003-04	27.44	1.64	3.32	8910.84	588.85	206.10
2004-05	24.95	2.49	5.81	9384.40	1049.24	367.23
2005-06	22.96	1.99	7.80	10269.80	1501.70	525.60
2006-07	21.47	1.49	9.29	11331.00	1935.94	677.58
2007-08	20.02	1.45	10.74	12049.85	2336.94	817.93
2008-09	18.83	1.19	11.93	12414.32	2635.18	922.31
2009-10	17.71	1.12	13.05	13971.09	3199.90	1119.97

@ avg power purchase price of Rs 3.50/unit

2.3.2 KSEB was able to reduce the power purchase by 3199.90 MU by way of reduction in T&D loss and the savings in cost of power purchase on this account alone is works out to Rs 1119.97 crore for the year 2009-10. The consumers in Kerala has immensely benefited out of the substantial reduction in losses achieved by KSEB, which is one of the best results in the country, by way of tremendous reduction in costs.

2.3.3 However, there is a wide mismatch between the T&D loss reduction approved by the Commission and the actuals achieved by the Board. While approving the ARR, Hon'ble Commission proposes a higher loss reduction target without appreciating the difficulties and other constraints on achieving the same. At the end of the financial year, the

actual achievement in loss reduction may be less than the same approved. The T&D loss approved and the actuals is given below.



2.3.4 Since the year 2003-04 onwards, Hon'ble Commission fixes loss reduction target higher than the actuals. In the process of truing up, Hon'ble Commission has been imposing heavy penalty for not achieving the ambitious loss reduction targets approved. While doing so, Hon'ble Commission has not appreciated the fact that, there are number of parameters which have a direct bearing on the loss reduction such as energy consumption and load growth of different categories of consumers, capital investment proposed, climatic factors, Transmission congestion in the southern region and associated difficulty in procuring power through short-term markets, peak and off-peak demand variations etc.

2.4 Efficiency in Power Purchase and Generation

2.4.1 KSEB is one of the very few power utilities in the country which had not introduced any power cut during the last few years. Various efforts taken by KSEB for optimizing the Generation and Power Purchase for the year 2010-11 are detailed below.

- (i) KSEB has been scheduling the Generation and Power Purchase strictly on merit order basis.
- (ii) KSEB has already established an internal mechanism at Board level for optimizing the Generation and power purchase on monthly/ fortnightly basis.
- (iii) A core committee has constituted for arranging the power through short-term markets.

2.4.2 The details of short term power purchase made during the period from April to Oct-2010 are given below.

- (i) Aailed 472.80 MU through UI at an average rate of Rs 1.54 per unit.
- (ii) Procured 277.38 MU through energy exchange at an average rate of Rs 5.86 per unit.
- (iii) Procured 341.54 MU through traders at an average rate of Rs 4.18 per unit.

2.4.3 Due to the high variable cost, KSEB has not scheduled energy from BSES since the month of June-2010. Further KSEB has also taken steps to reduce the energy schedule from all liquid fuel stations.

2.4.4 In order to tide over the emerging summer demand, KSEB has taken following strategies.

- (i) Conserved as much water as possible in the KSEB reservoirs
- (ii) Swap arrangement. During the period from 1st October-2010 to 15th October-2010, KSEB had supplied 150MW through SWAP arrangement with a condition to return the power during the period from 1st March-2011 to 31st March-2011.
- (iii) Making advance tie-up with traders to procure power for the summer months.

2.5 Comparison of Expenses and Revenue

Comparison of the various components of expenditure per unit over the last seven years is given below.

Table - 2.8
Expenses per unit Sale of energy

(Rs/kWh)

Sl No.	Particulars	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
1	Generation Of Power	0.19	0.16	0.09	0.05	0.09	0.15	0.32	0.26
2	Purchase of power	2.11	2.12	1.56	1.41	1.32	1.57	2.65	2.41
3	Interest & Finance Charges	0.76	0.82	0.65	0.52	0.35	0.26	0.26	0.19
4	Depreciation	0.31	0.37	0.4	0.36	0.33	0.31	0.34	0.32
5	Employee Cost	0.76	0.88	0.84	0.79	0.73	0.68	0.97	1.03
6	Repair & Maintenance	0.07	0.07	0.08	0.09	0.09	0.09	0.11	0.12
7	Administration & General Expenses	0.06	0.1	0.1	0.1	0.11	0.09	0.11	0.12
8	Other Expenses	0.1	0.16	0.13	0.2	0.56	0.65	-0.12	0.02
9	Gross Expenditure(1 to 8)	4.35	4.67	3.84	3.51	3.57	3.8	4.64	4.47
10	Less : Expenses Capitalised	0.13	0.12	0.05	0.04	0.03	0.04	0.05	0.06
11	Less : Interest Capitalised	0.11	0.09	0.07	0.04	0.03	0.02	0.02	0.02
12	Total Expenditure(9-10-11)	4.1	4.46	3.73	3.43	3.51	3.74	4.57	4.39
13	Statutory Surplus	0.09	0.1	0.11	0.09	0.18	0.16	0.17	0.17
14	ARR (12 + 13)	4.2	4.57	3.84	3.52	3.68	3.9	4.74	4.56
15	Non-Tariff Income	0.25	0.34	0.36	0.3	0.33	0.33	0.35	0.31
16	Revenue from sale of power (including surplus power)	2.8	3.09	3.11	3.09	3.24	3.51	3.8	3.38
17	Total Income (15+16)	3.05	3.43	3.47	3.39	3.57	3.83	4.15	3.69
18	Revenue Gap (14-17)	1.14	1.13	0.37	0.13	0.11	0.07	0.58	0.87

2.6 Measures taken to improve Consumer Satisfaction

(a) Computerization of Billing and Revenue Collection

LT Billing

All the section offices have been fully computerized

HT & EHT Billing

Billing computerization of the HT&EHT billing software is in progress. Already bill generation with the new software has been accomplished. Additional facilities like various web enabled services to HT&EHT consumers would be provided soon.

ARU accounting

The ARU accounting software 'SARAS' is under operation.

SCMS software is under final stage of implementation.

HRM software. The software developed for payroll of all employees is under development and trial run.

(b) Model Sections

As part of its efforts to make the Board more customer oriented, Board had ordered to implement Model Sections in the State on pilot basis. Initially 75 Section offices were converted as Model Sections with effect from 1st June 2009. After reviewing the functioning of these Model Sections by collecting the feedback of various stakeholders by conducting a questionnaire survey and after discussions with the recognized trade unions, the Board decided to extend Model Sections to another 155 Section and further decided to convert all the electrical sections to Model Sections with effect from 1/1/2011. The added features of the model section are:

- 100% static meters
- Zero faulty meters
- Border/DTR meters installed at the section boundaries and all DTRs respectively
- Common colour scheme for all offices
- Sufficient facilities to consumers and employees
- Display of Citizen Charter with SoP, Indicators to be measured, Contact Nos. of superior officers, CGRF and Ombudsman
- Corruption free offices(social audit)
- Enquiry counter with facilities for registering applications and complaints

- Sufficient yard area for stacking materials and a store room for storing valuable materials under lock and key
- Eliminate low voltage areas (Ensure at least 200 V at the fag end)
- Sufficient area for parking vehicles
- Payment facility - Extended cash collection hours (08:00 to 14:00, 13:00 to 19:00)
- Sufficient good quality registers for various data entry, and sufficient forms shall be in ready stock
- The structures shall be standardized in 12 months, 11 kV lines in 18 months and LT lines in 30 months
- Uniform and ID card for all employees
- Safety equipments shall be provided at the Sections and their usage ensured
- Communication facilities including broadband connection
- Vehicle availability for 24 hrs
- 100% disconnection of all defaulted consumers
- Ensure necessary tools and plant
- Make structures and installations safe, convenient and presentable - type design by professional benchmarks
- Distribution loss to be brought within 10%
- Indexing 100% consumers, electric poles - pole directory
- Messages & posters - information vision, mission, core values & safety
- Toilets (separate for ladies / gents)
- Drinking water facility
- Notice board for different Unions, Associations. Consensus of Unions/ Associations for avoiding posters in other areas

(c) Steps taken in the Distribution Sector for giving better service to the consumers

Different procedural simplifications has been adopted to benefit the consumers such as :

- (i) Size of application has been reduced from 56 pages to 2 pages.
- (ii) Provision has been made to remit security deposit and other charges along with application for weather proof service connection.
- (iii) Stamp paper agreement for new LT service has been dispensed and agreement affixed with equivalent court fee stamp was accepted.
- (iv) Action has been taken to effect the service connections within 48 hours on receipt of application.
- (v) Uniform procedures adopted for change of ownership
- (vi) BPL consumers with connected load less than 500W need to remit only Rs 125/- as security deposit.

- (vii) Tariff concession has been allowed for drinking water supply schemes like jalanidhi, Jaladhara etc.
- (viii) HT consumers are exempted from the payment of advance CD.
- (ix) Priority has been given for effecting service connection line extension up to and including 235 metres (200 metres OH + 35 metres WP), to the households of students studying in Govt /aided schools who are attending SSLC examination in the school year 2010-11 .
- (x) As part of realization of long pending arrears on electricity charge under litigation, Board has conducted Adalaths. One time settlement scheme is extended upto 31.03.2011. Board has allowed an interest rate of 9% for one time payment and 15% for 6 installments. Also Board had allowed a special package of reduced Surcharge @ 3% for Government/Local Self Government and Public Sector Undertakings and @ 6% for all others towards clearing the entire arrears on one time payment.
- (xi) The Deputy Chief Engineers are authorized to address the issues related to voltage drops.
- (xii) The pending service connections as on 31-08-2010 are 51115 only.
- (xiii) The Asst: Engineers are authorized to issue service connections to all single phase consumers and three phase consumers with connected load upto 20KW.
- (xiv) As part of procedural simplifications authority for change of tariff from higher tariff category to lower tariff was delegated to the Asst: Executive Engineers.
- (xv) Working hours of the cash counters are extended from 8am to 6 pm on experimental basis. As part of mitigating complaints on metering, consumers themselves have been permitted to purchase energy meters of their own for installation after certifying by the Electrical Inspectorate.
- (xvi) 100% electrification: 100% electrification has been completed in 46 LA constituencies and the work is in progress in 26 constituencies. Board has initiated the process for 100% electrification in 56 more constituencies.
- (xvii) Intensified theft detection activities by Section wise/Division wise Anti power theft squad. Division wise Safety Committees are also formed in view of reducing electrical accidents.

2.7 Physical performance

A gist of various developmental activities carried out by the Board in generation, transmission and distribution sectors during the recent years are given below.

Table 2.9

Physical Performance during last five years

Particulars	Unit	Addition during the Years							
		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
(a) Generation									
Capacity Additions	MW	0	12.6	3	14	13	5	49.4	12.1*
Allocation from CGS	MW	285	72	90	225	0	-141		
(b) Transmission									
EHT Substation	Nos	8	13	26	21	15	16	18	29
EHT Lines	Circuit km	184	296	261	259	106	108	204.85	265.79
HT Lines	Circuit km	1083	1226	1062	1062	1819	1807	3018.4	3398
(c) Distribution									
No of consumers	Lakh	3.55	3.52	5.48	5.48	4.79	4.82	3.3	3.81
LT lines added	Circuit km	5043	4429	6074	7441	8229	8128	7636	7837
No of distribution Transformers	Nos	870	1063	1882	1751	2124	2553	4109	5790

* Kudiadi Addl Ext (100MW) has commissioned during 2010-11

CHAPTER - 3 CAPITAL INVESTMENTS

3.1 Introduction

3.1.1 Hon'ble Commission vide the order dated 17-05-2010 on ARR&ERC of KSEB for the year 2010-11 has issued following directives on matters related to capital investments:

“ Directive No. 3

The Board shall prepare scheme/project wise details with date of commencement, funding pattern, physical and financial progress, target date of completion etc., are and submit along with ARR&ERC. For all new projects, an analytical report showing cost and benefit shall also be furnished. Further, Board shall within one month furnish the status report on the R-APDRP and RGGVY schemes for evaluation and monitoring.

Directive No. 13

The Board shall prepare an implementation plan including procurement plan for all the important capital projects under generation, transmission and distribution with information to the Commission.

3.1.2 Board is in the process of preparing the Capital investment proposal including cost benefit analysis for the year 2011-12 and the revised proposals for the year 2010-11. Since the year 2008-09, Board has been following the de-centralized planning process for finalizing the capital investments in Generation, Transmission and Distribution. The process involves a two way interactive approach as detailed below.

- (i) During the month of September/October of the preceding year, Board identifies the works to be carried out at section level for the ensuing year for providing supply to the end consumers.
- (ii) Subsequently, at district level, a high level meeting/ work shop is being conducted with various stake holders including industrialists, PSUs, Government Departments, Consumer Organizations etc. The emerging power demand of the stake holders is discussed in the meeting and necessary modifications on the works identified by the Board including the additional works to be carried out to cater the electricity demand of the stakeholders gets finalized during the meeting. Further comments and suggestions from various stake holders including employees of KSEB for the implementation of the plan proposal is also considered. The capital requirements as well as cost benefit

analysis is carried out and the distribution plan is finalized at the Corporate Office/ Board level.

- (iii) In tune with Distribution works identified as above necessary transmission support including substations and lines are also identified across the state.

3.1.3 Though the plan process for the year 2011-12 has started during the month of October-2010, it is now under final stage and Board can submit the detailed invest plan by the middle of February-2011. Hence Board may be permitted time extension up to the end of February -2011 to submit the detailed investment plan of capital investment for the year 2011-12 and the revised estimate for the year 2010-11.

3.1.4 In this chapter, a brief summary of the Capital investments proposed for the year 2011-12 and revised estimate for the year 2010-11 is only discussed.

3.2 Review of Capital Outlay for the year 2010-11 and proposal for the year 2011-12

3.2.1 The financial target- achievement and revised target of capital outlay for 2010-11 as well as proposed capital outlay for 2011-12 are given below.

Table 3.1
Revised Capital Outlay for the year 2010-11 and proposal for 2011-12

Particulars	2010-11			Proposed outlay for 2011-12
	Target	Achievement till Sep '10	Revised outlay	
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	
Generation	284.34	84.60	315.03	308.28
Transmission	275.98	79.66	279.12	254.85
Distribution	425.00	137.80	450.00	444.00
Others	9.84	0.76	10.17	28.87
Total	995.16	302.82	1054.32	1036.00

(a) Generation Projects

3.2.2 The summary of the Capital outlay for Generation projects for the year 2010-11 and 2011-12 is detailed below.

Table 3.2
Details of the Capital outlay for Generation projects - for the year 2010-11 and 2011-12

Sl No	Particulars	Revised for	Proposed for
		2010-11 (Rs. Cr)	2011-12 (Rs. Cr)
1	Ongoing projects	136.94	132.70
2	New schemes proposed	24.87	27.09
3	Completed Schemes	8.88	4.84
4	Capital nature of maintenance work at BDPP & KDPP	12.55	2.00
5	Renovation and Modernisation of existing hydro projects	4.25	3.31
6	Survey and Investigation,	2.37	2.50
7	Revamping of seismic network	0.02	0.10
8	R&D Civil works	11.72	37.00
9	Construction of Administrative Complexes	3.88	1.00
10	Mechanical Fabrication works	58.85	54.22
11	Coal based power projects	1.00	1.00
12	Miscellaneous works	51.32	44.12
	Total	316.65	309.88

3.2.3 Details of the ongoing projects under Generation are as below.

Table 3.3
Details of ongoing projects under Generation

Sl No	Ongoing Schemes	Target date of completion	Revised for	Proposed for	Remarks
			2010-11 (Rs. Cr)	2011-12 (Rs. Cr)	
1	Pallivasal Extension (60 MW)	Jun-12	60	70	Overall progress- 37.66%
3	Thottiar (40 MW)	May-12	7.5	10	Civil work- 2.13%
4	Ranni- Perinadu (4 MW)	Mar-11	16	10	Civil work- 66% completed
5	Poozhithodu (4.8 MW)	Sep-10	14.15	5	Civil work- 75%
6	Sengulam Augmentation (85MU)	Jan-13	6	8	Overall progress 5.55%
7	Chathankottunada -II (6 MW)	Mar-12	4	4	Work commenced
8	Vilangad (7.5 MW)	Mar-12	7	18.3	Work commenced
9	Kuttiadi Addl ext (addl works)		22.29	7.4	Commissioned
	Total		136.94	132.7	

3.2.4 The details of the new projects and other capital works under Generation will be furnished along with Annual Plan to be submitted during the month of January-2011.

(b) Transmission

3.2.5 The revised target for the transmission works for the year 2010-11 and the target for the year 2011-12 is detailed below.

Table-3.4
Summary of the transmission substations and Lines

Particulars	2010-11		Target for the year 2011-12
	Revised target	Achievement upto Oct-2010	
Substations	(Numbers)		
220 kV			2
110 kV	13	3	16
66 kV	4		3
33 kV	25	6	14
Sub total	42	9	35
Lines	(Kilometers)		
220 kV	3.6		To be finalized
110 kV	100.0	32.72	
66 kV	15.0		
33 kV	212.0	63.66	
Sub total	330.6	96.4	

3.2.6 The item wise details including cost-benefit analysis of the transmission project will be submitted along with the Annual Plan.

(c) Distribution

3.2.7 Revised targets for distribution works for the year 2010-11 and the target for the year 2011-12 are as detailed below.

Table 3.5
Summary of the Distribution works

Distribution Work	2010-11		Target for the year 2011-12
	Achievement till Sep '10	Revised target	
11 kV Line extension (km)	1274	4063	4694
Transformer installation (Nos.)	2298	5812	5383
LT Line extension (km)	3256	4500	2822
1-ph to 3-ph Conversion (km)	2089	4576	7598
Conductor changing (km)	2938	3545	7415
Faulty meter replacement (Nos in lakhs.)	2.73	6.86	9.44

As stated before, a detailed report on the Capital Investment program, revised estimate for the current year and the estimate for the ensuing year will be submitted by the end of January-2011.

Chapter - 4 ENERGY SALE FORECAST

4.1 Introduction

4.1.1 The category wise energy sale forecast for the year 2011-12 and the revised estimate for the year 2010-11 are explained in this chapter. The energy sale forecast has been made based on the past data, existing consumer strength and the expected yearly growth considering regional factors, seasonal variance, change in consumer habits etc.

The category wise energy consumption during the period from 2004-05 to 2009-10 is given below.

Table 4.1
Details of category wise energy consumption in Million Units

Category	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
LT Category						
Domestic	4262	4668	5213	5603	5931	6559
Commercial	948	1093	1246	1378	1502	1793
Industrial	783	874	934	984	1015	1064
Agricultural	191	190	220	231	225	257
Street Lights	183	208	229	249	294	303
Sub total LT	6366	7032	7842	8444	8968	9976
HT category						
HT I	1238	1362	1436	1461	1326	1450
HT II	141	130	135	138	107	117
HT-III	9	10	9	9	9	8
H- IV	339	378	431	507	579	693
EHT 66/110	1036	1004	1070	1024	966	1149
Railway Traction	44	58	72	109	142	165
Bulk Supply	212	296	335	357	317	413
Sub total HT	3018	3238	3489	3605	3446	3995
Total	9384	10270	11331	12050	12414	13971

4.2 Review of Energy Consumption for 2009-10

4.2.1 The category wise consumer strength and the quantum of energy consumed during the year 2009-10 are shown in the table below.

Table-4.2
Consumer profile as on 31-03-2010

Category	Number of consumers as on 31.3.2010	% of total consumers	Consumption (MU)	% of total consumption	Revenue Rs in crores	% of total revenue
Domestic	7790132	79.95	6559.00	46.95	1254.98	26.82
LT Commercial	1387345	14.24	1793.00	12.83	1259.39	26.91
LT Industrial	122325	1.26	1064.00	7.62	453.70	9.70
LT Others	440804	4.52	560.00	4.01	86.31	1.84
HT&EHT	2870	0.03	3995.09	28.60	1625.28	34.73
Total	9743476	100.00	13971.09	100.00	4679.66	100.00

4.2.2 An abnormal increase in energy consumption is observed during last year over the year 2008-09 and the same is detailed as below.

Table 4.3
Growth of consumption during 2009-10

Category	2008-09	2009-10	% increase
	(MU)	(MU)	%
Domestic	5931.27	6559.00	10.58
Commercial	1501.60	1793.00	19.41
Industrial	1015.40	1064.00	4.79
Irrigation & Dewatering	225.22	257.00	14.11
Public Lighting	294.32	303.00	2.95
LT Total	8967.81	9976.00	11.24
HT I Industrial	1326.26	1450.00	9.33
HT II Non Industrial	107.51	117.09	8.91
HTIII -Agriculture	8.76	8.00	-8.68
HT IV- Commercial	578.77	693.00	19.74
EHT 66/110 KV	965.67	1149.00	18.98
Railway Traction	142.07	165.00	16.14
Bulk supply	317.47	413.00	30.09
HT &EHT total	3446.51	3995.09	15.92
Grand Total	12414.32	13971.09	12.54

The increase was mainly due to following factors.

- (i) There was no power restriction, power cut or load shedding during the year 2009-10.
- (ii) Intense summer and consequent increase in energy demand during summer months.
- (iii) Efforts of the Board on clearing backlog in providing new connections.

4.3 Revised estimate of energy sale for the year 2010-11.

4.3.1 The abnormal increase in energy consumption due to intense summer continued up to 3rd week of May-2010. To have partial relief from the abnormal increase in energy demand KSEB has sought for approval for 20% power restriction on all categories of consumers during the month of April and May-2010 and Hon'ble Commission has allowed a restriction of 10% on all categories against the proposal of the Board.

4.3.2 However, the **rate of increase in energy consumption has come down** since June-2010. Factors that contributed to the reduction are..

- (i) Extension of monsoon period during this year.
- (ii) Efforts taken by the Board to restrict the energy demand through following measures.

- (a) With the support of the Government of Kerala about 1.27 crore of CFL was distributed in the State.
- (b) Consumer awareness campaign through visual and print media.

4.3.3 A cross comparison of the energy consumption of LT categories from April to September for the years 2008-09 to 2010-11 is given below.

Table 4.4
Energy consumption of LT categories

Month	2008-09	2009-10		2010-11	
	(MU)	(MU)	% of increase	(MU)	% of increase
April	773.52	848.50	9.69	901.95	6.30
May	807.23	840.00	4.06	865.07	2.98
June	720.76	783.68	8.73	835.12	6.56
July	705.62	766.91	8.69	795.18	3.69
August	705.61	796.41	12.87	821.76	3.18

4.3.4 In the ARR for the year 2010-11, the estimated energy sale for the year 2010-11 was 14831 MU. However, considering the decreasing trend in the consumption growth of LT consumers during the current year from April to September-2010, the revised estimate for the year 2010-11 is given below.

Table 4.5
Revised estimate of energy consumption for the year 2010-11(MU)

Category	2009-10 (MU)	2010-11		% of increase over 2009-10
		As per ARR (MU)	Revised estimate (MU)	
Domestic	6559.00	7078.00	6925.00	5.58
Commercial	1793.00	1886.00	1933.00	7.81
Industrial	1064.00	1211.00	1081.00	1.60
Irrigation & Dewatering	257.00	250.00	259.57	1.00
Public Lighting	303.00	325.00	305.00	0.66
LT Total	9976.00	10750.00	10503.57	5.29
HT I Industrial	1450.00	1485.00	1500.00	3.45
HT II Non Industrial Non Commercial	117.00	119.00	118.00	0.85
HT IIB	0.09	0.10	0.10	11.11
HTIII -Agriculture	8.00	10.00	8.20	2.50
HT IV- Commercial	693.00	723.00	765.00	10.39
EHT 66 KV	363.00	354.00	367.00	1.10
EHT 110 KV	786.00	804.00	805.00	2.42
Railway Traction	165.00	168.00	166.65	1.00
Bulk supply	413.00	417.00	437.00	5.81
Grand Total	13971.09	14830.10	14670.52	5.01

4.4 Energy sale forecast for the year 2011-12

4.4.1 The energy sale of each category was estimated based on the past consumption data and also considering the actual growth rates on number of consumers and consumption up to first half of the current year. Also taken into account the regional trends, seasonal variations, change in consumer habits etc for forecasting.

4.4.2 The growth of energy consumption of different categories of consumers during the period from 2004-05 to 2009-10 is detailed below.

Table 4.6
Average growth rate of different categories

Category	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Compound Annual Growth rate (2003-04 to 2009-10)
LT Category							
Domestic	6.50%	9.50%	11.70%	7.50%	5.90%	10.58%	8.57%
Commercial	7.80%	15.30%	14.00%	10.60%	8.90%	19.41%	12.62%
Industrial	4.30%	11.60%	6.90%	5.40%	3.20%	4.79%	5.99%
Agricultural	-5.50%	-0.60%	16.20%	4.70%	-2.30%	14.11%	4.10%
Street Lights	10.30%	13.70%	10.10%	8.70%	18.40%	2.95%	10.58%
Sub total LT	6.10%	10.50%	11.50%	7.70%	6.20%	11.24%	8.84%
HT & EHT category							
HT I	10.00%	10.00%	5.40%	1.70%	-9.20%	9.33%	4.32%
HT II	8.70%	-7.70%	3.50%	2.60%	-22.30%	8.92%	-1.70%
HT-III	3.90%	1.50%	-1.90%	-1.40%	-5.10%	-8.68%	-2.03%
H- IV	11.30%	11.60%	14.10%	17.60%	14.20%	19.74%	14.70%
EHT 66/110	-6.50%	-3.10%	6.60%	-4.30%	-5.70%	18.98%	0.62%
Railway Traction	-5.50%	32.90%	24.50%	51.40%	30.00%	16.14%	23.67%
Bulk Supply	12.30%	40.00%	13.30%	6.30%	-11.00%	30.09%	13.98%
Sub total HT	3.70%	7.30%	7.80%	3.30%	-4.40%	15.92%	5.42%
Total	5.30%	9.40%	10.30%	6.30%	3.00%	12.54%	7.78%

4.4.3 However, as detailed under Table-4.5 above, the average growth of energy consumption expected for the year 2010-11 is 5.01 % only against the compounded annual growth rate of 7.78 %.

4.4.4 During the ensuing year, KSEB proposed to give 4.00 lakhs new connections. Considering new service connections and also the declining trend during the current year, the average growth of consumption expected for the year 2011-12 is 6.34% against the compounded annual growth of 7.78%.

4.4.5 The summary of the revised estimate of energy consumption for the year 2010-11 and projection for the year 2011-12 is given in the following table.

Table 4.7
Average growth rate of different categories

Consumer category	2009-10	2010-11(Revised)		2011-12	
		(MU)	(%) increase	(MU)	(%) increase
Domestic	6559.00	6925.00	5.58	7460.00	7.73
Commercial	1793.00	1933.00	7.81	2104.00	8.85
Industrial	1064.00	1081.00	1.60	1118.84	3.50
Agricultural	257.00	259.57	1.00	260.00	0.17
Street Lights	303.00	305.00	0.66	307.00	0.66
Total	9976.00	10503.57	5.29	11249.84	7.10
HT I	1450.00	1500.00	3.45	1572.00	4.80
HT II	117.00	118.00	0.85	119.18	1.00
HT II B	0.09	0.10	11.11	0.12	20.00
HTIII	8.00	8.20	2.50	8.36	1.95
HT IV	693.00	765.00	10.39	822.00	7.45
EHT I	363.00	367.00	1.10	370.67	1.00
EHT II	786.00	805.00	2.42	825.00	2.48
Railway Traction	165.00	166.65	1.00	169.98	2.00
Bulk	413.00	437.00	5.81	463.00	5.95
Total	13971.09	14670.52	5.01	15600.15	6.34

CHAPTER-5 REDUCTION OF AGGREGATE TECHNICAL AND COMMERCIAL LOSSES

5.1 Introduction

5.1.1 KSEB has been continuously reducing the Transmission and Distribution losses in the Kerala power system. T&D loss reduction achieved during the year from 2001-02 to 2009-10 is detailed below.

**Table 5.1
Extent of reduction of T&D Losses**

Year	T&D Loss within KSEB system (%)	Extent of reduction (%)	
		Yearly	Cumulative
2001-02	30.76		
2002-03	29.08	1.68	1.68
2003-04	27.44	1.64	3.32
2004-05	24.95	2.49	5.81
2005-06	22.96	1.99	7.80
2006-07	21.47	1.49	9.29
2007-08	20.02	1.45	10.74
2008-09	18.83	1.19	11.93
2009-10	17.71	1.12	13.05

5.1.2 Over the years, KSEB has been passing on the entire benefit of T&D loss reduction to the consumers through corresponding reduction in cost of power purchase. The reduction in cost of power purchase by way of T&D loss reduction is detailed below.

**Table 5.2
Reduction in cost of Generation and Power Purchase due to T&D loss reduction**

Year	T&D Loss within KSEB system (%)	Extent of reduction		Total Energy sales within the State (MU)	Savings in Generation & Power Purchase (MU)	Savings in Power purchase cost)* (Rs.Cr)
		Yearly (%)	Cumulative (%)			
		2001-02	30.76			
2002-03	29.08	1.68	1.68	8873.30	303.58	106.25
2003-04	27.44	1.64	3.32	8910.84	588.85	206.10
2004-05	24.95	2.49	5.81	9384.40	1049.24	367.23
2005-06	22.96	1.99	7.80	10269.80	1501.70	525.60
2006-07	21.47	1.49	9.29	11331.00	1935.94	677.58
2007-08	20.02	1.45	10.74	12049.85	2336.94	817.93
2008-09	18.83	1.19	11.93	12414.32	2635.18	922.31
2009-10	17.71	1.12	13.05	13971.09	3199.90	1119.97

@ avg power purchase price of Rs 3.50/unit

5.1.3 The total savings in cost of generation and power purchase by way of T&D loss reduction was to the tune of Rs 1119.97 crore for the year 2009-10. The consumers in Kerala has immensely benefited out of the substantial reduction in losses achieved by KSEB, which is one of the best results in the country, by way of tremendous reduction in costs.

5.2 Directives of the Commission vide the order dated 17-05-2010 on T&D loss reduction and the compliance thereon.

5.2.1 Hon’ble Commission vide the order dated 17-05-2010 on ARR &ERC of KSEB for the year 2010-11 has directed the following on T&D loss reduction to KSEB.

- “
- a. Separation of Transmission and distribution loss: The Board shall estimate transmission losses and distribution losses at different voltage levels with supporting details along with all ARR & ERC filing.
 - b. Board shall initiate a study for assessing loss levels in 33kV/11kV system and LT system separately. The estimates with supporting details shall be filed along with ARR & ERC filing.
 - c. Separation of technical and commercial loss: The Board shall study and submit along with ARR & ERC separate estimates for technical and commercial losses with supporting details.”

5.2.2 Board vide the letter dated 30-11-2010 has forwarded the study report on ‘Transmission losses’ in the System. The study has been done using the ‘MiPOWER’ software. The entire KSEB transmission system upto 33kV level was modeled in the software and load flow analysis was conducted for two typical days - on 1st April-2010 and on 1st June 2010. ie; one on summer month and the other on monsoon period. The summary of the study report is detailed below.

Table-5.3

Summary of the transmission loss study

Case – 1: April 2010 – Simulated Demand - 2901MW

Voltage Level	Flow in MW	Loss in MW	%Loss	LF	LLF	Loss (MU)
400kV	428.32	2.92	0.68%	0.70	0.55	14.13
220kV	2294.62	72.66	3.17%	0.70	0.55	351.97
110kV	2672.23	53.95	2.02%	0.70	0.55	261.37
66kV	1006.73	24.84	2.47%	0.70	0.55	120.32
33kV	362.49	5.99	1.65%	0.70	0.55	29.01
Total Loss		160.36	5.53%			776.80

Case – 2: June 2010 – Simulated Demand – 2746MW

Voltage Level	Flow in MW	Loss in MW	%Loss	LF	LLF	Loss (MU)
400kV	394.82	2.06	0.52%	0.70	0.55	9.98
220kV	2155.76	64.29	2.98%	0.70	0.55	311.46
110kV	2534.19	46.74	1.84%	0.70	0.55	226.41
66kV	924.45	19.09	2.06%	0.70	0.55	92.47
33kV	356.21	5.01	1.41%	0.70	0.55	24.28
Total Loss		137.19	5.00%			664.6

As per the study details, the transmission loss in the KSEB transmission system varies between 5 to 5.53%. However, the transmission losses in the KSEB system are taken as 5.00% only in this petition for estimate purposes.

Sample Study on segregation of Technical and Commercial losses in the KSEB distribution system

5.2.3 As directed by the Hon'ble Commission, KSEB has initiated a sample study at Vizhinjam Electrical section to segregate the technical and commercial losses in the LT system. The study is based on the methodology detailed in the study report on 'segregation of technical and commercial losses' published by FOIR on 'Loss Reduction Strategies'. A brief description of the study and the details are given below.

- (i) Three sample feeders in the Vizhinjam section are identified based on the load, such as,
 - lightly loaded
 - Medium loaded and
 - Over loaded
- (ii) The meters of all the consumers under the sample has tested using 0.50 class reference meter and the results of testing recorded.
- (iii) Burned/ defective meters replaced with good tested meters.
- (iv) Un-metered consumers are to be provided with correct tested meters.
- (v) Meter reading of all consumers fed from the feeder to be done quickly on the same day itself.
- (vi) Meter reading of feeder was done at the start of taking first consumer reading and at the end of last consumer reading. Average of two readings is taken as the reading for the feeder.

5.2.4 Estimation of commercial losses

- (i) Losses due to defective metering.
The energy consumption of the consumers with defective meters with meter accuracy beyond limit was corrected, based on the results of the meters tested with reference meter. The difference between the recorded consumption and the corrected consumption is taken as loss due to defective metering.
- (ii) Street lights: - Street lights are billed on point basis. There may be small variation in actual and estimated usage.
- (iii) Loss due to provisional Billing. The consumers with burnt/ stopped meters are replaced with correct meters. The difference between the energy billed and actual with correct meters is recorded as loss due to provisional billing.

5.2.5 Estimation of Technical losses

The difference between the sum of the recorded consumption of all the consumers and the energy fed into the feeder is the total losses including the technical and commercial losses. As detailed under para-4 above, the commercial losses were segregated. The difference between the total losses and commercial losses are recorded as technical losses.

5.2.6 The abstract of the sample studies is given below.

Table 5.4

Abstract of the sample study on segregation of technical and commercial losses

Sl No.	Particulars		Lightly loaded feeder	Medium loaded feeder	Over loaded feeder
1	Energy Input	in Unit	5422.00	6750.00	14664.80
2	Energy Recorded/ billed	in Unit	4344.84	5581.04	11439.04
3	Total losses (Technical and Commercial)	in Unit	1077.16	1168.96	3225.76
4	Total losses in the LV system (%)	(%)	19.87	17.32	22.00
5	Commercial Losses (excl. collection efficiency)	in Unit	288.37	255.87	330.55
6	Commercial losses (%)	%	5.32	3.79	2.25
7	Technical Loss	in Unit	788.79	913.09	2895.21
8	Technical Loss (%)	(%)	14.55	13.53	19.74

As per the sample study, the commercial losses in the KSEB system varies between 2.25% to 5.32% and the technical loss varies from 13.53% to 19.74%. Above study is only a sample one conducted towards testing for finalizing the methodology for segregating the Technical and Commercial losses, and hence the results cannot be generalized. Once Hon'ble Commission approves the methodology, KSEB propose to extent the studies to few more section offices across the state.

5.2.7 The T&D losses in the distribution system are inclusive of losses in the LV system as well as the losses in the HT system. The technical loss studies in the HT distribution system are yet to be completed. Further, about 35% of the energy transaction in the distribution sector is through HT system and commercial losses in it need to be correctly ascertained for assessing the total losses in the distribution sector. The over all losses in the distribution system is about 12.5% to 13.5%.

5.3 Efforts for T&D loss reduction for the year 2010-11 and 2011-12

5.3.1 As part of curtailing technical losses and system improvement, KSEB propose to add more substation and lines in the transmission system. The details are given below.

(a) Transmission

5.3.2 The summary of the transmission substation and lines commissioned since the year 2003-04 for system improvement and loss reduction is given below.

Table 5.5

Details of substations and lines commissioned during the period from 2003-04 to 2009-10

Particulars	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Substations	Numbers						
220 kV	1	1	1	-	1		2
110 kV	6	8	4	2	4	2	9
66 kV	3	2	4	3	1		
33 kV	7	15	10	10	13	16	18
Sub total	17	26	19	15	19	18	29
Lines	Kilometers						
220 kV	4.3	15.0	56.0		1.01		18.3
110 kV	154.6	30.0	55.0	30.0	56.38	17.5	48.3
66 kV	8.4	5.0	13.0	15.0	11.13		
33 kV	95.4	157.0	131.0	95.0	105.44	169.3	199.2
Sub total	262.7	207.0	255.0	140.0	173.96	186.8	265.8

5.3.3 Substations and lines proposed for the year 2011-12 and the revised target for the current year are given below.

Table 5.6

Details of substations and lines proposed for the year 2010-11 and 2011-12

Particulars	2010-11		Target for the year 2011-12
	Revised target	Achievement upto Oct-2010	
Substations	(Numbers)		
220 kV			2
110 kV	13	3	16
66 kV	4		3
33 kV	25	6	14
Sub total	42	9	35
Lines	(Kilometers)		
220 kV	3.6		To be finalized
110 kV	100.0	32.72	
66 kV	15.0		
33 kV	212.0	63.66	
Sub total	330.6	96.4	

(b) Distribution

5.3.4 Details of the distribution works done for system improvement and loss reduction carried out since the year 2003-04 are as detailed below.

Table 5.7
Achievement of Distribution works

Particulars	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
11 kV lines (km)	1269	955	1062	1820	1807	3018	3398.27
LT Line (km)	4429	6074	7441	8229	8128	7636	7837
Distribution Transformers (nos)	1063	1882	1751	2124	2553	4109	5790

5.3.5 The summary of the distribution works proposed for system improvement works and loss reduction are detailed below.

Table 5.8
Details of Distribution works proposed for the year 2010-11 and 2011-12

Work	2010-11			Target for 2011-12
	Target	Achievement till Sep '10	Revised Target	
11 kV Line extension (km)	4063	1274	4063	4694
Transformer installation (Nos.)	5812	2298	5812	5383
LT Line extension (km)	3141	3256	4500	2822
1-ph to 3-ph Conversion (km)	4576	2089	4576	7598
Conductor changing (km)	3545	2938	3545	7415

(c) Efforts taken for commercial loss reduction

5.3.6 Over the years, KSEB has been taking due thrust for commercial loss reduction, through following efforts.

- (i) Replacement of faulty and sluggish electromechanical meters with good electronic meters.
- (ii) Intensive power theft detection by the anti power-theft squad.
- (iii) Computerisation of billing and revenue collection.
- (iv) Enlarging energy audit.

5.3.7 The number of faulty meters replaced during the last few years is given below:

Table 5.8
Faulty meter replaced (Lakhs)

Year	Numbers (in Lakhs)
2002-03	4.21
2003-04	8.67
2004-05	4.35
2005-06	6.38
2006-07	2.69
2007-08	5.8
2008-09	6.44
2009-10	10.21

5.3.8 Revised target for faulty meter replacement for the current year is 6.86 lakhs and the target for the year 2011-12 is 9.44 lakhs.

5.3.9 The performance of the Anti Power Theft Squad (APTS) for theft detection is detailed below.

Table 5.9
Performance of APTS

Year	No of Inspections	No of theft cases Registered	Amount Assessed	Amount Realised
			(Rs.Cr)	(Rs. Cr)
2001-02	6215	52	5.69	3.45
2002-03	7888	93	17.48	3.82
2003-04	14354	275	12.27	5.24
2004-05	10287	365	40.46	8.11
2005-06	15611	981	21.69	9.82
2006-07	16221	1895	12.73	11.04
2007-08	18606	1144	16.93	10.50
2008-09	15792	504	29.58	18.97
2009-10	17936	369	30.63	20.47
2010-11 (up to Nov-10)	15319	267	10.50	8.76

(d) Loss reduction targets for the year 2010-11 and 2011-12

5.3.10 With the ongoing and continuous efforts on loss reduction, KSEB has fixed an ambitious target for reducing the T&D loss to 16.52% for the year 2010-11, a reduction target of 1.19% over the previous years. The target for loss reduction proposed for the year 2011-12 is 15.83%, a target of 0.69% over the current year.

5.3.11 Hon'ble Commission may kindly appreciate the fact that, there are number of parameters such as energy consumption and load growth of different categories of consumers, capital investment proposed, climatic factors, Transmission congestion in the southern region and associated difficulty in procuring power through short-term markets, peak and off-peak demand variations etc that directly affect on technical loss reduction. Out of the above, most of the factors are totally uncontrollable by KSEB. Moreover, KSEB usually set a highly ambitious target for loss reduction in the ARR as a driving force to the field offices to achieve as close as possible.

(e) Collection efficiency

5.3.12 For the year 2009-10, the annual collection efficiency of HT & EHT consumers is 96% and that of LT consumers is 97.5% and the over all collection efficiency is 97%. The majority of the arrears are from Government departments. However, KSEB is accounting all the revenue on accrual basis.

5.3.13 The overall AT&C loss target for the year 2011-12 is 18.35%

5.3.14 The T&D loss achieved since the year 2001-02 to 2009-10 and the target proposed for the year 2010-11 and 2011-12 is detailed below.

Table 5.10
Technical & Commercial Loss reduction

Sl No.	Items	2002-03 (Actual)	2003-04 (Actual)	2004-05 (Actual)	2005-06 (Actual)	2006-07 (Act)	2007-08 (prov)	2008-09	2009-10	2010-11 (Est)	2011-12 (proj)
1	KSEB own Generation										
1.(a)	Energy generated (MU)(gross incl. Hydro, Wind, KSEB thermal))	5475.74	4488.06	6377.06	7600.78	7745.78	8703.55	6494.50	7240.38	7345.56	7607.83
1.(b)	Aux . Consumption	44.97	48.10	48.08	46.42	50.66	55.86	54.06	50.87	45.18	52.86
1.(c)	Net energy generation	5430.77	4439.96	6328.98	7554.36	7695.12	8647.69	6440.44	7189.51	7300.38	7554.97
2	Power Purchase										
2.(a)	Total Power purchase (MU) at Generator Bus (inclu. Ext. loss)	7320.37	8015.41	6390.74	6700.27	8149.84	8074.62	9628.98	10199.96	10628.74	11378.05
2(b)	Addl power purchase to meet the shortage/ shortage							0.00		0.00	
2.(c)	External PGCIL Line Loss	238.81	174.50	214.93	287.64	370.10	310.40	312.57	357.53	354.59	398.51
2.(d)	Net Power purchase at KSEB bus 2(a) + 2 (b)-2(c)	7081.56	7840.91	6175.81	6412.63	7779.74	7764.22	9316.41	9842.43	10274.15	10979.54
3	Total energy generated and power purchased by KSEB 1(c) + 2(a)	12751.14	12455.37	12719.72	14254.63	15844.96	16722.31	16069.42	17389.47	17929.12	18933.02
4	Energy sales through NVVN & PTC (displacement mode)				635.90	1046.89	1346.76	463.33	53.90	0.00	0.00
5	Total Energy to be generated & purchased for KSEB for sale within the state (3)- (4)	12751.14	12455.37	12719.72	13618.73	14798.07	15375.57	15606.09	17335.57	17929.12	18933.02
6	Energy sales with in the state (est for 08-09 & 09-10)	8873.30	8910.84	9384.40	10269.80	11331.00	12049.85	12414.32	13971.09	14670.52	15600.15
7	Total energy loss including PGCIL line loss(MU) = (5)- (6)	3877.84	3544.53	3335.32	3348.93	3467.07	3325.72	3191.77	3364.48	3258.60	3332.87
8	Total energy Loss (incl. PGCIL Line losses) in percentage - (7)/(5)	30.41%	28.46%	26.22%	24.59%	23.43%	21.63%	20.45%	19.41%	18.17%	17.60%
9	Extent of Reduction (%)	1.73%	1.95%	2.24%	1.63%	1.16%	1.80%	1.18%	1.04%	1.23%	0.57%
10	Energy generated and Power purchase to the KSEB system (excl. external loss) 1(c)+ 2(c) - 4	12512.33	12280.87	12504.79	13331.09	14427.97	15065.15	15293.51	16978.03	17574.53	18534.51
11	Energy loss in the KSEB system (internal) (MU) = (10)-(6)	3639.03	3370.03	3120.39	3061.29	3096.97	3015.30	2879.19	3006.94	2904.01	2934.36
12	Internal energy loss (with in KSEB system) (%) = (11)/(10)	29.08%	27.44%	24.95%	22.96%	21.47%	20.02%	18.83%	17.71%	16.52%	15.83%
13	Extent of Reduction of T&D loss with in KSEB system (%)	1.68%	1.64%	2.49%	1.99%	1.50%	1.45%	1.19%	1.12%	1.19%	0.69%

CHAPTER-6

REVIEW OF GENERATION AND POWER PURCHASE FOR THE YEAR 2010-11

6.1 Introduction

6.1.1 Hon'ble Commission vide the order dated 17th May-2010 on ARR & ERC has approved the cost of generation and power purchase for the year 2010-11 as Rs 3703.00 crore against Rs. 4361.33 crore projected by the Board. The summary of the generation and power purchase proposed by the Board and approved in the ARR is given below.

Table-6.1
Generation and Power Purchase proposed and approved for the year 2010-11

Sl No.	Particulars	Quantum of energy			Amount (Rs in Crore)		
		KSEB ARR	KSERC Approval	Difference	KSEB ARR	KSERC Approval	Difference
		(MU)	(MU)	(MU)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Hydro						
	(a) Gross Gen	6953.16	7187.00	233.84			
	(b) Less Aux consumption	34.77	35.94	1.17			
	(c) Net Hydro Gen	6918.39	7151.07	232.67			
2	KSEB thermal						
	(a) BDPP	286.47	145.00	-141.47	206.54	103.09	-103.45
	(b) KDPP	447.00	227.00	-220.00	329.44	160.08	-169.36
	(c) Subtotal	733.47	372.00	-361.47	535.98	263.17	-272.81
	(d) Less Aux consumption	18.34	9.30	-9.04			
	(e) Net BDPP+KDPP	715.13	362.70	-352.43	535.98	263.17	-272.81
3	CGS (Import)	8196.78	8491.00	294.22	1996.47	1985.32	-11.15
4	IPPs						
	(a) RGCCPP-Kylm	1010.69	1011.00	0.31	852.29	852.29	0.00
	(b) BSES	922.03	468.00	-454.03	749.93	424.58	-325.35
	(c) KPCL	135.96	69.00	-66.96	107.88	59.24	-48.64
	(d) Wind	61.05	61.00	-0.05	19.17	19.17	0.00
	(e) Ullumkal, MP Steel and Others	74.80	75.00	0.20	16.30	16.30	0.00
	(f) Sub total	2204.53	1684.00	-520.53	1745.57	1371.58	-373.99
5	Purchase through traders	165.31	165.00	-0.31	82.66	82.66	0.00
6	Net Energy Gen&PP	18200.15	17853.77	-346.38	4360.68	3702.73	-657.95

6.1.2 A comparison of the actuals with the approval for the period from April to September-2010 is given below.

Tab-6.2.
Comparison of the Generation and Power Purchase for the period from April-2010 to September-2010

Sl No	Particulars	Quantum of energy			Cost		
		Actual	KSERC order	Difference	Actual	KSERC order	Difference
		(MU)	(MU)	(MU)	(Rs.Cr)	(Rs.Cr)	(MU)
1	Hydro						
	(a) Gross Gen	3448.08	3724.37	-276.29			
	(b) Less Aux consumption	17.24	18.62	-1.38			
	(c) Net Hydro Gen	3430.84	3705.75	-274.91			
2	KSEB thermal						
	(a) BDPP	60.94	60.94	0.00	43.10	43.27	-0.17
	(b) KDPP	122.70	109.11	13.59	85.60	77.14	8.46
	(c) Subtotal	183.64	170.05	13.59			0.00
	(d) Less Aux consumption	4.59	4.25	0.34			0.00
	(e) Net BDPP+KDPP	179.05	165.80	13.25	128.70	120.41	8.29
3	CGS (Import)	3538.73	4017.42	-478.69	838.05	903.92	-65.87
4	UI	393.04	0.00	393.04	58.51	0.00	58.51
5	IPPs						
	(a) KYCCP	468.27	466.79	1.48	387.92	392.20	-4.28
	(b) BSES	121.01	121.01	0.00	139.36	124.04	15.32
	(c) KPCL	18.12	18.12	0.00	17.95	15.56	2.39
	(d) Wind	47.39	48.36	-0.97	14.88	15.19	-0.31
	(e) Ullumkal	13.86	18.07	-4.21	2.77	3.61	-0.84
	(f)MP Steel	18.40	20.40	-2.00	4.25	4.71	-0.46
	(g) Subtotal	687.06	692.75	-5.70	567.13	555.32	11.81
6	Purchase through traders/ exchahnge (net)	429.08		429.08	232.36		232.36
7	Total	8657.80	8581.72	76.08	1824.75	1579.64	245.11

6.1.3 The actual energy consumption during the period from April-2010 to September-2010 was increased by 76.08MU over the approved level. During the same period, the cost of generation and power purchase has increased by Rs 245.11 crore.

6.1.4 While approving the ARR&ERC for the year 2010-11, Hon'ble Commission has directed KSEB to schedule the generation and power purchase in accordance with the principles envisages under section-61 of the Electricity Act-2003 and also to endeavor to reduce the dependence on high cost sources such as liquid fuel stations.

6.1.5 As directed by the Hon'ble Commission, Board has been taking all efforts for optimizing the generation and power purchase for the year 2010-11. A high level meeting under Member (Transmission) and Member (Generation) with the Chief Engineer (Transmission) System Operation, Chief Engineer (Generation), Chief Engineer (Corporate Planning), Chief Engineer (Commercial & Tariff) and other officials being held at the beginning of every month to finalize the overall

generation and power purchase strategy to be followed in that month. Further, Board has constituted a core committee under Chief Engineer (Commercial & Tariff) for the optimization of generation and power procurement process. The committee reviews the generation and power purchase on weekly /fortnightly basis, and recommends the optimum level of energy sourcing including additional power procurement from short-term markets.

A review of the various measures taken by the Board for the optimization of generation and power purchase for the year 2010-11 is given below.

6.2 Strategies adopted for optimizing Generation and Power Purchase for the year 2010-11.

6.2.1 KSEB anticipate excessive energy demand during the coming summer months due to various factors such as:

- (a) Hot climate. The energy demand during summer months is usually increased by 5MU per day compared to monsoon months.
- (b) Public Examinations: Due to public examinations scheduled during March and April in every year, KSEB has been taking all efforts to provide supply without any load shedding or power restrictions to domestic consumers.
- (c) Assembly elections is scheduled during April /May-2011.

6.2.2 Further, the energy demand in all the Southern States during summer months are usually high and this may lead to the situation that:

- (a) Energy may not be available in the short markets.
- (b) The energy price in the short term markets including energy exchanges are exorbitantly high. Price levels during these periods in the last two years rise above Rs 14.00 per unit.
- (c) The southern S2 region experience severe transmission constraints during summer months. This is mainly due to the reason that, TNEB also resorted to large volume purchase from short term market during these months.

6.2.3 To tide over these situations, KSEB has explored following strategies.

- (a) To conserve as much as water in the KSEB's storage reservoirs during monsoon months for the use of summer months by availing energy at competitive rates from other sources.
- (b) SWAP arrangement. KSEB has explored the option of banking the relatively cheaper power available during monsoon months for the use of summer months by way of SWAP sale. Accordingly, KSEB has succeeded in supplying 150 MW on firm basis for the period from 1st October-2010 to 15th October-2010 with a condition to return 105%

of the quantum supplied by KSEB, from 1st March-2011 to 31st March-2011 at uniform quantity on firm basis.

- (c) Make advance tie-up with traders for the use of summer months so that the open access can be booked in advance so that the transmission constraints can be circumvented to a greater extent.
- (d) Avail energy at competitive rates from short term market.

6.3 Review of Hydel Generation for the year 2010-11

6.3.1 A comparison of the month wise details of hydel generation and inflow received with approved figures is given in the table below.

Table 6.3
Comparison of Hydel Generation and inflow received

Month	Hydel Generation			Inflow received		
	Approved	Actual	Difference	Approved	Actual	Difference
	(MU)	(MU)	(MU)	(MU)	(MU)	(MU)
Apr-10	711.40	574.85	136.55	108.55	102.16	6.39
May-10	731.13	571.08	160.05	187.01	128.30	58.71
Jun-10	511.37	557.00	-45.64	715.54	800.02	-84.48
Jul-10	570.48	594.37	-23.89	1502.18	1407.08	95.11
Aug-10	587.45	600.61	-13.16	1289.61	1175.58	114.04
Sep-10	612.54	550.17	62.38	874.97	818.34	56.63
Oct-10	595.03	568.57	26.46	800.18	921.18	-121.00
Nov-10	561.46	498.97	62.49	514.73	705.00	-190.27
Total	4880.85	4515.64	365.22	5992.78	6057.64	-64.86

6.3.2 It may be please note that, the inflow received during the year upto November-2010 was 64.86 MU higher than anticipated. However, the actual hydel generation was less by 365.22 MU over the approval, which has resulted into conserve more water in the KSEB reservoirs as on 1st December-2010 when compared to the previous years. A comparison of the present reservoir storage with that of previous years is given below.

Table 6.4
Review of reservoir storage

Year	Total inflow received (June to October) (MU)	Reservoir storage as on 1st January-2011 (MU)
2006-07	5375	3236
2007-08	8091	3899
2008-09	4535	2877
2009-10	5176	3254
2010-11	5122	3361

6.3.3 With the present storage and also expecting average inflow for the remaining months of the water year, the hydel generation possible for the remaining months of this water year is given below.

Table 6.5
Review of hydro generation for the year 2010-11

1	Storage as on 20-01-2011 (MU)	3297.08				
		Inflow scenario				
2	Inflow expected for the remaining Months (MU)	<u>Average (10 year avg)</u>	<u>Less by 10% over the avg.</u>	<u>Less by 20% over the avg</u>	<u>Less by 30% over the avg</u>	<u>Less by 40% over the avg</u>
	Jan-11 (11 days)	46.09	41.48	36.87	32.26	27.66
	Feb-11	87.61	78.85	70.08	61.32	52.56
	Mar-11	85.48	76.93	68.38	59.84	51.29
	Apr-11	95.75	86.18	76.60	67.03	57.45
	May-11	169.22	152.29	135.37	118.45	101.53
	Sub total	484.15	435.73	387.32	338.90	290.49
3	Total water available for generation till 31-5-2011 = (1)+(2) (MU)	3781.23	3732.81	3684.40	3635.98	3587.57
4	Balance storage to be kept as on 1-6-2010 (to meet the contingency) (MU)	700.00	700.00	700.00	700.00	700.00
5	Net water available for generation from Nov-09 to May-10 (212 days) = (3)- (4) (MU)	3081.23	3032.81	2984.40	2935.98	2887.57
6	Average daily hydro generation possible for the remaining days till 31-05-09(MU)= (5)/ 212 days	23.52	23.15	22.78	22.41	22.04
7	Hydro generation expected for the remaining months of the financial year (MU)	1646.46	1620.59	1594.72	1568.85	1542.98

6.3.4 As computed above, the average hydel generation possible is 23.52 MU per day for the remaining days of the water year. However, considering the wide variation in the anticipated energy demand, availability and cost of power in the short term market etc, the daily hydel generation across various months to be suitably re-scheduled. Daily generation for the remaining months is as detailed below.

Table 6.6.
Hydel generation for the remaining months of the year 2010-11

Month	MU for the month	MU/day
Jan-11	629.76	20.31
Feb-11	603.82	21.57
Mar-11	780.01	25.16
Apr-11	682.50	22.75
May-11	672.40	21.69

It may be noted that, the above computation is made with a view to keep a minimum storage of 700MU at the end of May-2011. This has made considering the wide variation in the rain fall received during the months of June and July and also the phenomena of climate change. So, KSEB propose to keep a higher storage at the major storage plants

Idukki, Sabarigiri and Idamlayar for the use of remaining months from June. Moreover there will not be any spill threat in them even when the monsoon advances a little earlier.

6.4 Review of energy availability from CGS

6.4.1 While approving the ARR for the year 2010-11, Hon'ble Commission has considered the commissioning of the following new CGS.

- a. Kudamkulam Nuclear power plant
 - (i) 1st unit (1000MW) by June 2010 and
 - (ii) 2nd unit (1000 MW) by December-2010
- b. NLC- Expansion- Stage-II (2x 250= 500MW). Both the units by April-2010

Hon'ble Commission has included 916MU at an average cost of Rs 3.10 per unit from Kudamkulam plant and 468 MU @ 2.15 per unit from NLC-Exp stage-II for the year 2010-11 as CGS share to KSEB. However, commissioning of these plants is delayed and not likely to be commencing commercial operation during the current financial year 2010-11. The shortfall in energy availability due to the delay in commissioning of these plants is given below.

Table 6.7 Shortfall in energy availability due to the delay in commissioning of Kudamkulam Nuclear Power Plant and NLC-Expansion Stage-II

Month	Kudamkulam NPC	NLC- Expansion -Stage-II	Total
	(MU)	(MU)	(MU)
Apr-10	0.00	36.29	36.29
May-10	0.00	37.50	37.50
Jun-10	64.64	36.29	100.93
Jul-10	66.79	37.50	104.29
Aug-10	66.79	37.50	104.29
Sep-10	64.64	36.29	100.93
Oct-10	66.79	37.50	104.29
Nov-10	64.64	36.29	100.93
Dec-10	133.59	37.50	171.08
Jan-11	133.59	37.50	171.08
Feb-11	120.66	33.87	154.53
Mar-11	133.59	37.50	171.08
Total	915.71	441.50	1357.21

6.4.2 KSEB had taken up this matter before the Hon'ble Commission vide letter dated 19-06-2010 and vide letter dated 27th July-2010 has directed to meet the above reduction to be treated in line with shortage in availability from CGS.

6.4.3 A comparison of the month wise details of energy availability approved from CGS and the actuals are given below.

Table 6.8
Comparison of energy availability from CGS

Month	Energy from CGS (at Generator Bus)				
	Approved		Actual	Difference	
	(MU)	(MU/day)	(MU)	(MU/day)	(MU)
Apr-10	615.50	20.52	631.51	21.05	-16.01
May-10	636.02	20.52	629.43	20.30	6.58
Jun-10	680.14	22.67	577.41	19.25	102.73
Jul-10	702.81	22.67	564.18	18.20	138.63
Aug-10	702.81	22.67	522.92	16.87	179.88
Sep-10	680.14	22.67	610.33	20.34	69.81
Oct-10	702.81	22.67	601.58	19.41	101.23
Nov-10	680.14	22.67	615.07	20.50	65.07
Total	5400.35	22.13	4752.42	19.48	647.93

6.4.4 The present average allocation from CGS as per the latest allocation, and the daily energy availability as per the normative parameters as per the CERC (Terms and Conditions of Tariff) Regulations, 2009 applicable for the tariff period 2009-13 is given below.

Table 6.9
Allocation from Central Generating Stations

No.	Source	Installed Capacity	Allocation	Allocated Capacity to KSEB (MW)	Aux Consumption (%)	Target PLF (%)	Energy availability (MU/ day)
1	TALCHER - Stage II	2000	21.00%	420.0	6.50%	85.00%	8.01
2	NLC- Exp- Stage-1	420	14.00%	58.8	9.50%	80.00%	1.02
3	NLC-II- Stage-1	630	10.00%	63.0	10.00%	75.00%	1.02
4	NLC-II- Stage-2	840	10.71%	90.0	10.00%	75.00%	1.46
5	RSPTS Stage I & II	2100	11.66%	244.9	6.50%	85.00%	4.67
6	RSPTS Stage-III	500	12.20%	61.0	6.50%	85.00%	1.16
6	MAPS	440	5.23%	23.0	10.00%	68.50%	0.34
7	KAIGA Stg I	440	8.64%	38.0	10.00%	75.00%	0.62
8	KAIGA Stg II	220	7.95%	17.5	10.00%	75.00%	0.28
	Total			1016.1			

6.5 Power procurement from short-term markets

6.5.1 KSEB has been taking earnest efforts to procure energy from short-term markets such as UI, Energy Exchanges and through traders with the following objectives:

- (i) to meet the shortfall in energy availability on account of the delay in commissioning of Kudamkulam and NLC-Exp-Stage-II plants.
- (ii) to reduce the dependence on costly liquid fuel stations.
- (iii) to conserve more water in the KSEB reservoirs for the use of the summer months by way of limiting generation from hydel.
- (iv) to meet the high demand of other licensees in the State.

6.5.2 The details of energy procured from short-term markets such as UI, traders and energy exchange during the period from April-2010 to October-2010 is given in the tables below.

Table 6.10
Energy procured through UI

Month	Quantity	Amount	Average rate
	(MU)	(Rs.Cr)	(Rs/kWh)
May-10	76.45	7.33	0.96
Jun-10	70.49	12.84	1.82
Jul-10	86.80	13.83	1.59
Aug-10	55.04	9.91	1.80
Sep-10	106.09	18.68	1.76
Oct-10	79.76	14.09	1.77
Nov-10	62.88	10.70	1.70
Dec-10 (up to 27th)	90.22	14.85	1.65
Total	627.73	102.23	1.63

Table 6.11
Power purchase through traders

Month	Quantity	Amount	Average rate
	(MU)	(Rs.Cr)	(Rs/kWh)
Apr-10	59.41	44.38	7.47
May-10	67.88	50.70	7.47
Jun-10			
Jul-10	2.70	1.20	4.44
Aug-10	50.75	23.51	4.63
Sep-10			
Oct-10	96.64	42.73	4.42
Nov-10	109.65	47.15	4.30
Dec-10 (up to 27th)	106.60	45.84	4.30
Total	493.63	255.51	5.18

Table-6.12
Energy procurement through energy exchanges

Month	IEX		PXIL		Total		Average rate (Rs/kWh)
	Quantity	Amount	Quantity	Amount	Quantity	Amount	
	(MU)	(Rs.Cr)	(MU)	(Rs.Cr)	(MU)	(Rs.Cr)	
Apr-10	5.08	2.86	6.66	4.36	11.74	7.22	6.15
May-10	7.24	3.40	5.92	2.82	13.16	6.22	4.73
Jun-10	15.88	6.82	14.42	5.93	30.30	12.75	4.21
Jul-10	21.15	9.64	18.04	7.67	39.19	17.31	4.42
Aug-10	50.51	22.51	40.33	17.38	90.84	39.89	4.39
Sep-10	41.06	14.36	42.43	14.83	83.49	29.19	3.50
Oct-10	37.56	15.49	35.26	14.53	72.82	30.02	4.12
Total	178.48	75.08	163.06	67.52	341.54	142.60	4.18

6.5.3 The energy availability through UI and Energy Exchanges depends on day to day as well as time to time system status including that of regional grid. The energy from these sources may not be available during summer months due to following.

- (i) **UI drawal.** The frequency of the grid during summer months is usually below 49.50 Hz and hence severe penalty will be liable for over drawing from the grid during low frequency domain. It may be noted that, the UI rate for the over drawal when the frequency is between 49.50 Hz to 49.20 Hz is Rs 12.22 per unit and the same when frequency below 49.0 Hz is Rs 17.46 per unit. Also, CERC has restricted UI drawal as 12% of the scheduled drawal or 150MW during any time block when the frequency is less than 49.70 Hz.
- (ii) **Energy Exchange:** The rate at energy exchange is highly volatile. Trends in the last two years shows that, the energy rates of the exchanges goes even up to Rs 15.00 per unit during summer months. Further, there were severe transmission constraints in the southern grid, especially in the zone 'S2' of the region comprising Tamilnadu, Kerala and Pondichery.
- (iii) Considering the reasons as above and there are signals of much more severe situations in the forth coming summer months, KSEB has been taking steps to make firm tie-up for power procurement through traders in advance so that, the traders can book their open access facility in advance. The energy rate in the short-term trader market is also highly erratic. Further, the energy rate quoted for advance booking by two months is usually higher than the same quoted by one month or less and the attempts to firm up for longer period beyond one month ends upon very poor response from the energy market.
- (iv) KSEB has already made advance tie up for procuring about 200 MW for the month of December-2010 and 200MW for January-2011. Further, KSEB is in the process of procuring about 200 to 250 MW during the remaining months of the water year 2010-11and also to explore SWAP options for Feb. to March /April 2011.

6.6 Review of variable cost for the year 2010-11

6.6.1 The Energy cost of CGS and the liquid fuel stations has increased substantially over the approved level during the period from April-2010 to September-2010. A comparison between the approved variable cost and the actual variable cost is given below.

Table 6.13
Comparison of variable cost

Source	Approved (Rs/ kWh)	Apr-10 (Rs/ kWh)	May-10 (Rs/ kWh)	Jun-10 (Rs/ kWh)	Jul-10 (Rs/ kWh)	Aug-10 (Rs/ kWh)	Sep-10 (Rs/ kWh)	Average (Rs /kWh)
NTPC-RSTPS	1.40	1.50	1.37	1.56	1.57	1.93	1.68	1.59
Talcher Stage-II	1.08	1.48	1.52	1.90	1.81	1.76	1.68	1.68
NLC-Stage-1	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
NLC-Stage-II	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
NLC Expansion	1.14	1.66	1.60	1.62	1.72	1.70	1.70	1.70
KYCCP	7.34	7.41	7.51	7.02	6.89	6.87	6.92	7.17
BSES	7.16	7.81	8.04	8.04	8.04	8.04	8.04	7.89
KPCL	7.26	7.80	7.98	7.63	7.57	7.64	7.61	7.80
BDPP	7.10	7.19	7.40	7.26	7.56	7.99	7.70	7.18
KDPP	7.07	7.09	7.29	6.92	7.47	7.11	7.22	7.37

6.6.2 There was considerable increase in the variable cost of Talcher-II, Ramagundam and NLC expansion-stage-II. The variable cost of NLC-stage-1&2 is likely to enhance by CERC with back effect from the year 2009-10 onwards and the final order is yet to be issued. But the price of Naphtha and LSHS prices were varied within reasonable limits only during the initial period of the year 2010-11. A comparison of the price variation of Naphtha and LSHS is given below.

Table 6.14
Price variation of Naphtha and LSHS (Actual Landed Cost based on fuel supply bills)

Month	Naphtha	LSHS
	(Rs/MT)	(Rs/MT)
1-Mar-10	43955	35219
16-Mar-10	45924	36086
1-Apr-10	43927	33661
16-Apr-10	43748	33804
1-May-10	44546	34720
16-May-10	44784	34875
1-Jun-10	40927	32352
16-Jun-10	40772	32352
1-Jul-10	41320	32352
16-Jul-10	39082	32079
1-Aug-10	39725	33317
16-Aug-10	41177	33925
1-Sep-10	40641	32853
16-Sep-10	40641	32853
1-Oct-10	40641	32853
16-Oct-10	43665	33105
1-Nov-10	44867	33105
16-Nov-10	46189	34319

6.6.3 Due to the excessive variable cost, KSEB has not scheduled power from BSES since June-2010. But, considering the growth in demand and acute corridor constraints, KSEB has to schedule power from these stations from January-2011 onwards to avoid load shedding and power cut etc. However, KSEB may take all possible steps to restrict the schedule from

this costly station only to the bare minimum levels. However, KSEB is compelled to schedule the power from RGCCPP- Kayamkulam irrespective of its excessive cost, to avail the equal quantum of cheaper power from Talcher-II. The scheduling from LSHS based stations BDPP and KPCL is being done mainly for peak load assistance. In order to meet the energy demand of the Northern Region of the State, KSEB has to schedule power from KDPP even if it is costly.

6.7 Likely additional liability from CGS for the period from 2009-10 onwards.

6.7.1 The power to determine the tariff of the CGS is being vested with Hon'ble CERC; the Central Commission vide notification No. L-7/145 (160)/ 2008-CERC/ 19th January, 2009 has notified the revised tariff norms applicable for the period from April-2009 to March-2014 with considerable changes in the revised norms and now in the process of approving station wise revisions and power purchase cost for 2009-10 onwards.

6.7.2 All the Power utilities had filed tariff petition for re-determination of tariff for the period from April-2009 onwards. But, the Central Commission has so far issued final tariff orders for NLC-stage-1 Expansion only vide the order dated 31-08-2010 and for the others will follow in the coming months. The abstract of the fixed cost as per the tariff petition for the period from 2009-10 to 2013-14 is given below.

**Table-6.15
Fixed cost commitment from CGS**

Name of the Station	Installed Capacity (MW)	KSEB allocation (%)	Pre-revised norms	Revised norms applicable for the period 2009-14					Remarks
				2008-09	2009-10	2010-11	2011-12	2012-13	
Ramagundam stage 1&2 of NTPC	2100	11.67	487.29	734.25	773.35	814.53	840.80	861.75	CERC Order is yet to be issued. However bills are raised provisionally at the pre-revised rates.
Ramagundam stage Stage-III of NTPC	500	12.20	304.29	346.95	347.24	348.24	346.10	344.54	
Talcher-II of NTPC	2000	21.00	987.54	1142.17	1145.01	1153.89	1157.81	1158.41	
RGCCPP- Kylm of NTPC	359.58	50.00	186.01	264.02	263.51	263.78	221.26	224.09	
NLC-II stage-1	630	10.00	123.25	214.51	235.41	249.53	262.60	229.69	
NLC-II stage-2	840	10.72	178.70	299.46	310.79	324.75	338.12	354.37	
NLC- TPS-1 Expansion	440	14.00	256.60	404.40	393.20	382.50	371.20	360.90	As per final tariff order
KSEB's share of fixed cost			461.78	610.05	616.73	625.06	608.59	609.39	
% of increase				32.11	33.55	35.36	31.79	31.97	

6.7.3 As per the tariff petition filed by the utilities based on revised norms for 2009-14, the average increase in fixed cost is likely to be 14% to 77%. The average increase in fixed cost commitment on KSEB would be to the tune of 32% to 35%. It may please note that, CERC yet to issue final

tariff orders and hence at present the bills of CGS are being raised at the pre-revised tariff applicable for the year 2008-09. Once the CERC issue tariff orders for above stations all the beneficiary power utilities including KSEB become liable to pay the arrears for the year 2009-10 and 2010-11 with interest rate as fixed by CERC. KSEB claims the fixed cost of CGS based on the tariff petition filed by CGS

6.8 Generation & Power Purchase plan from Dec-2010 to May-2011.

Normally the monsoon starts from June only and hence for the current monsoon year the Generation and Power Purchase plan including arrangements for procuring power from short-term markets has to be finalized up to May-2011. As discussed in the previous paragraphs, the revised tentative Generation and Power Purchase plan for the period from Dec-2010 to May-2011 is given below.

Table 6.16
Revised Generation and Power Purchase plan for the period from Jan-10 to May-11

Sl No.	Particulars	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11
(1)	Estimated Energy Demand (KSEB internal)	1519.08	1458.73	1701.47	1543.16	1626.25	1519.08
	Supply Position						
(2)	KSEB Hydro						
(a)	Total	629.76	603.82	780.01	682.50	672.40	629.76
(b)	Aux consumption (0.5%)	3.15	3.02	3.90	3.41	3.36	3.15
(c)	Net Hydro (a)-(b)	626.61	600.80	776.11	679.09	669.04	626.61
(3)	Wind	0.25	0.25	0.25	0.25	0.25	0.25
(4)	KSEB Thermal						
(a)	BDPP	15.50	14.00	15.50	15.00	15.50	15.50
(b)	KDPP	31.00	28.00	31.00	30.00	31.00	31.00
(c)	Sub total (a)+(b)	46.50	42.00	46.50	45.00	46.50	46.50
(d)	Aux consumption	1.16	1.05	1.16	1.13	1.16	1.16
(e)	Net total (c)-(d)	45.34	40.95	45.34	43.88	45.34	45.34
(5)	Total KSEB internal 2(c)+(3)+4(e)	672.20	642.00	821.70	723.21	714.63	672.20
(6)	Import from CGS						
(a)	At Generator bus	593.42	535.99	593.42	642.21	663.62	593.42
(b)	PGCIL line loss	27.29	24.65	27.29	32.62	33.71	27.29
	(c) Net Import at KSEB periphery	566.13	511.34	566.13	609.59	629.91	566.13
(7)	IPPs						
(a)	RGCCPP	102.44	92.53	102.44	99.14	102.44	102.44
(b)	BSES*	0.00	0.00	0.00	0.00		0.00
(c)	KPCL*	11.55	10.43	11.55	11.17	11.55	11.55
(d)	Wind	2.43	1.27	2.17	2.12	6.52	2.43
(e)	Ullumkal	2.51	1.88	2.63	2.89	2.85	2.51
(f)	MP steel	3.40	3.40	3.40	3.40	3.40	3.40
	(g) Sub total	122.33	109.51	122.18	118.72	126.76	122.33
(8)	Traders/ Power Exchange/UI	158.42	195.88	195.80	91.52	154.68	158.42
(9)	Grand total (5)+(6)+(7)+(8)	1519.08	1458.73	1705.81	1543.04	1625.98	1519.08

6.9 Revised Cost of Generation and Power Purchase for the year 2010-11

6.9.1 The revised generation, power purchase and cost for the year 2010-11 is given below. It may be noted that, the fuel cost of BDPP and KDPP only accounted under cost of internal generation. The cost of generation for KSEB hydel plants is yet to be segregated and hence the same is not included in the internal generation.

Table-6.17
Revised Cost of Generation and Power Purchase for the Year 2010-11

Sl No	Particulars	Quantum of energy			Amount (Rs in Crore)		
		KSERC Approval	Revised	Difference	KSERC Approval	Revised	Difference
		(MU)	(MU)	(MU)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Hydro						
	(a) Gross Gen	7187.00	7087.74	-99.26			
	(b) Less Aux consumption	35.94	35.44	-0.50			
	(c) Net Hydro Gen	7151.07	7052.30	-98.76			
2	KSEB thermal						
	(a) BDPP	145.00	116.50	-28.50	103.09	85.86	-17.23
	(b) KDPP	227.00	274.05	47.05	160.08	196.77	36.69
	(c) Subtotal	372.00	390.55	18.55	263.17	282.63	19.46
	(d) Less Aux consumption	9.30	9.76	0.46			
	(e) Net BDPP+KDPP	362.70	380.79	18.09	263.17	282.63	19.46
3	CGS (Import)	8491.00	7070.56	-1420.44	1985.32	1801.15	-184.17
4	UI		535.63	535.63		84.63	84.63
5	IPPs						
	(a) RGCCPP-Kylm	1011.00	1056.91	45.91	852.29	851.58	-0.71
	(b) BSES	468.00	121.01	-346.99	424.58	174.85	-249.73
	(c) KPCL	69.00	57.32	-11.68	59.24	52.35	-6.89
	(d) Wind	61.00	61.57	0.57	19.17	19.33	0.16
	(e) Ullumkal, MP Steel and Others	75.00	65.10	-9.90	16.30	14.21	-2.09
	(f) Subtotal	1684.00	1361.90	-322.10	1371.58	1112.32	-259.26
6	Purchase through traders	165.00	1527.70	1362.70	82.66	763.85	681.19
7	Net Energy Gen&PP	17853.77	17928.89	75.12	3702.73	4044.58	341.85

6.9.2 The revised schedule of Generation and Power purchase for the year 2010-11 is given as Annexure-6(1) and the cost is given as DATA FORM-F2.

CHAPTER - 7

AGGREGATE REVENUE REQUIREMENT (ARR)

7.1 Methodology adopted for the estimation of ARR&ERC for the year 2011-12

7.1.1 KSEB is a Kerala State Government owned utility constituted under the section-5 of the Electricity (Supply) Act, 1948. In exercise of powers conferred under sub-sections (1), (2), (5), (6) and (7) of section 131 of the Electricity Act, 2003, State Government vide the notification G.O (Ms). 37/2008/PD dated 25th September, 2008 has vested all functions, properties, interests, rights, obligations and liabilities of KSEB with the State Government till it is re-vested the same in a corporate entity. KSEB has been continuing the statutory functions as per the provisions of the Electricity Act-2003 as a Generator, STU and SLDC and Distribution Licensee. The accounts of the Board are being prepared based on the prevailing accounting principles and practices applicable to SEB's in the Country. The accounts of the Board is being audited and certified by C&AG of India. As per the saving provisions under section 185(2)(d) of the Electricity Act,2003, Board is continuing to follow the Commercial Accounting System for State Electricity Boards based on the Electricity (Supply) (Annual Accounts) Rules, 1985, ESSAR-1985 notified by the Ministry of Power, Government of India.

7.1.2 KSEB had been filing the Aggregate Revenue Requirement and Expected Revenue from Charges (ARR & ERC) for KSEB as a single entity since the year 2003-04. Hon'ble Commission is yet to notify the tariff regulations under section-61 of the Electricity Act, 2003 applicable to KSEB as a Generator, State Transmission Utility (STU) and Distribution Licensee. In the absence of any regulation on estimating various components of the ARR&ERC, KSEB had estimated the various expense and revenue items of ARR&ERC for the year 2003-04 based on the ESSAR-1985. Since KERC had not notified any regulation till date to estimate the various expenses of KSEB as a Generator, STU and Distribution Licensee under section-61 of the Electricity Act-2003`, KSEB had followed the same principles for estimating the ARR&ERC till for the year 2010-11.

7.1.3 Further, KERC vide the notification No. 1/3/KERC-2003/II Dated, Thiruvananthapuram, 3rd January 2004 notified Kerala State Electricity Regulatory Commission (Tariff) Regulations, 2003, under subsection (5) of the section-62 of the Act-2003. But the above said regulation covers only the procedures for filing the ARR&ERC petition. Further, Hon'ble

Commission vide notification dated 23rd March-2006 had notified KSERC (Terms and Conditions of Tariff for Retail Sale of Electricity) Regulations, 2006 and vide notification No. 1/1/KSERC-2006/ XVI dated 12th October-2006 had notified the KSERC (Terms and Conditions for Determination of Tariff for Distribution and Retail Sale of Electricity under (MYT Framework) Regulations, 2006' for the distribution licenses in the State. As per the policy of the State Government, KSEB is allowed to continue as a single entity undertaking the Generation, Transmission and Distribution functions under the provisions of the Electricity Act-2003. Since the above regulations notified by the Hon'ble Commission do not cover the 'Terms and Conditions of Tariff for Generation and Transmission sector' it could not be adopted for preparing the regulatory accounts for filing Truing Up petitions and also for estimating various components of ARR. Hon'ble Commission vide the counter affidavit filed before Hon'ble APTEL against appeal petitions 7 and 8 of 2008 also stated these facts. Hon'ble Commission is yet to issue an appropriate regulation applicable for an unbundled entity like KSEB. The regulations already issued cover provisions only for Distribution Licensees in the State and hence it could not be apply to KSEB to estimate the ARR&ERC as a single entity.

- 7.1.4 In the absence of any regulation for preparing the regulatory accounts for Truing Up process and ARR, KSEB had followed the ESAAR-1985 for preparing the accounts for regulatory scrutiny and also for estimating ARR. However, Hon'ble Commission had been adopting different approaches each year for approving ARR & Truing Up petitions. This has created lot of legal disputes between the Hon'ble Commission and KSEB. However, vide the interim order dated 31st August 2010; Hon'ble Commission had stated as under "*The Commission has always accepted the actual accounts prepared by the Board as per ESAAR*".
- 7.1.5 Further, as per the section-61(a) of the Electricity Act-2003, the tariff determination of the SERC shall be guided by the 'the principles and methodologies specified by the Central Commission for determination of tariff'. In consistence with prudent utility practices, the principles specified by the Central Commission for tariff determinations, as per the CERC (Terms and Conditions of Tariff) Regulations, 2009 has also generally adopted while preparing the present petition.
- 7.1.6 In view of the above background, Board may submit the ARR&ERC for the year 2011-12, generally based on the ESAAR-1985, provisions of the regulations so far notified by the Hon'ble Commission , CERC (Terms an

Conditions of Tariff) Regulations, 2009 and Prudent utility practices adopted by other SERC's in the Country etc. It may kindly be noted that, in the regulatory regime, KSEB has also to function on commercial principles and the cost reasonably incurred has to be allowed to recover through tariff.

7.1.7 Hon'ble Commission vide the order dated 17-05-2010 on ARR&ERC of KSEB for the year 2010-11 had directed KSEB to prepare separate ARR&ERC for each functional areas for the year 2011-12 and also directed to propose transmission tariff, SLDC charges, and open access charges along with the ARR for 2011-12. KSEB has engaged M/s Power Finance Corporation Consulting Ltd as the consultant to segregate the total assets and liabilities of KSEB into Generation, Transmission and Distribution, and the process is in progress. Only after segregating the assets and liabilities of KSEB into the three functional units, it may be possible to realistically estimate the ARR&ERC for each functional area separately.

7.1.8 However, as directed by the Hon'ble Commission, Board has decided to apportion the total ARR&ERC for the year 2011-12 into the three functional areas. The methodology proposed to apportion the same are communicated to Hon'ble Commission vide KSEB letter dated 27-11-2010. Brief descriptions on the methodology adopted for apportioning the total ARR into three functional units are as given below.

(a) Cost of Power Purchase.

The cost of power purchase is taken as input into Distribution function. However, the total energy handled by the transmission functional area includes the total power purchase and the internal Generation.

(b) Repair and Maintenance cost, Administration and General Expenses and Depreciation.

The R&M cost, A&G expense and Depreciation are apportioned into Generation, Transmission and Distribution based on the past actuals as per Statement-6 of the Annual Accounts.

(c) Employee cost

The employee cost and terminal benefits are apportioned among Generation, Transmission and Distribution on the basis of the employee strength and cost as on 31-03-2010 as per the provisional accounts for the year 2009-10.

(d) Interest and Finance charges

The interest and finance charges as on 31-03-2010 are

apportioned in the ratio of capital liabilities allocated to each functional area. Allocation of capital liabilities as on 31-03-2010 in the 'proportion of Gross Fixed Asset- Contributions and Grants & Subsidies assigned towards cost of capital assets'.

For new capital investments made after the base year 2009-10, the capital liabilities may be apportioned on the basis of capital investment made/ proposed in each functional area on normative basis at the normative debt-equity ratio of 70:30.

(e) Equity and Return on equity

Allocate the total equity as on 31-03-2010 into Generation, Transmission and Distribution as per the formula detailed below.

"The equity shall be allocated in the ratio of (net fixed assets + net current assets + CWIP + investment - capital liabilities - borrowings for working capital)"

The equity for the investments made after the base year 2009-10 may be apportioned on the basis of capital investment made/ proposed in each functional area on normative basis at the debt-equity ratio of 70:30.

The Return on Equity may be claimed as per the CERC (Terms and Conditions of Tariff) Regulations applicable from time to time. Accordingly RoE @15.5% as per CERC regulations, 2009 is claimed for the year 2011-12.

(f) Interest on Fixed Deposit

The interest on FD for meeting the capital liabilities are apportioned in the ratio of capital liabilities. However, the entire FD investments as on 31-03-2011 will be available only for meeting the pension fund commitments.

(g) Revenue Gap/ Regulatory Asset

In the ARR, the revenue gap/ regulatory asset is booked under distribution.

(h) Revenue from Tariff and other Income

The total revenue including non-tariff income is accounted under distribution.

(i) CERC Norms

As per the section-61(a) of the Electricity Act-2003, tariff norms as per CERC (Terms and Conditions of Tariff) Regulations, 2009 are adopted to the possible extent for preparing the ARR&ERC for the year 2011-12.

The detailed estimate of the various components of ARR and its apportioning among various functional units are detailed below.

7.2 ESTIMATE OF COST OF GENERATION AND POWER PURCHASE FOR THE YEAR 2011-12

7.2.1 Expected Energy Demand and Peak Demand for the year 2011-12

(a) Energy Demand

The energy sale for the year 2009-10 was 14047.75 MU. The revised estimate for the year 2010-11 is 14670.52MU and the projected sale for the year 2011-12 is 15600.15 MU. The details are discussed under Chapter-4 of this report.

The actual T&D loss for the year 2009-10 was 17.71%. With the capital investments, faulty meter replacements and other measures as discussed under Chapter-5 of this report, KSEB has revised the target to 16.52% (a reduction of 1.19% over previous year) during the year 2010-11. The loss reduction target proposed for the ensuing year is 15.83%, i.e., a reduction of 0.69% over the target for the year 2010-11.

With the estimated energy sales and T&D loss reduction targets, the anticipated energy requirement is 17574.53 MU and 18534.51 MU respectively for the years 2010-11 and 2011-12.

(b) Peak Demand

KSEB has been taking various initiatives to contain the peak demand in the State such as:

- (a) Initiative to replace 1.25 crore incandescence bulbs with CFL
- (b) Awareness campaign through visual and print media.

The peak demand met during the year 2009-10 was 2998MW. With the present trend of energy demand, the peak demand anticipated is 3088MW and 3280MW respectively for the years 2010-11 and 2011-12 respectively.

7.2.2 Estimation of Hydel generation for 2011-12

The month wise details of inflow received during the last 20 years from 1991-92 to 2009-10 is given as **Annexure 7(1)**. The 20 year average annual inflow works out to be 6624.50 MU.

As discussed under para 6.3 of the Chapter-6, the hydel position has reviewed on 20th January-2011. With the storage as on 20th January-2011 and also expecting average monsoon for remaining months of the water year 2010-11, the average hydro generation possible for the remaining months works out to 23.15MU per day. However, considering the energy

demand, availability of power from other sources including short term market, the hydro generation targeted for April-11 and May-11 is given below.

Table 7.1.
Hydel generation target for April-11 and May-2011

Month	MU for the month	MU/day
Apr-11	682.50	22.75
May-11	672.40	21.69
Total	1354.90	22.21

Anticipating the previous 20 years moving average inflow during the next water year from June-2011 to May-2012, KSEB expect an average generation of 18.27 MU per day from June 2011 onwards. The energy availability from SHP's without any storage facility was estimated separately.

Thus, the targeted hydel generation from storage plants for 2011-12 (April-2011 to March-2012) is estimated as 6908.67 MU (except SHP's)

The details of Small Hydro Plants without any storage facility and the annual energy expected are given below.

Table 7.2
Annual targeted energy generation from SHPs without storage facility

Power plant	Installed Capacity (MW)	Hydro Generation target (MU)
Kallada	15.00	64.41
Peppara	3.00	7.27
Madupetty	2.00	5.27
Chembukadavu I & II	6.45	10.26
Urumi I & II	6.15	13.51
Lower Meenmutty	3.50	4.71
Malankara	10.50	35.17
Kutiadi Tail Race	3.50	6.38
Total	50.10	146.98

Thus the total energy from hydel plants is estimated for the year 2011-12 as **7055.65 MU**. The month wise schedule of hydel generation targeted from different hydel plants is given as **Annexure- 7(2)**.

The real time schedule from each hydel plant may vary on daily basis depending on the storage facility, rainfall, variations in monthly and daily demand, strategy on conserving water for use in summer months, availability of machines, availability of power from other sources etc.

Principles adopted for scheduling power from KSEB's hydel plants

- (i) During the monsoon months from June to November, the runoff the river plant and small hydel stations are operated continuously to avoid spillage of water. On an average 550 MW to 700 MW is being scheduled from such plants during monsoon months to avoid spillage of water.
- (ii) The schedule from the storage plants is being limited to peak hours during monsoon months so as to store maximum water for the use in summer months. Further, water in the KSEB reservoirs is also used for irrigation, drinking and industrial purposes, salinity control etc during summer months. Thus the endeavor of the Board is to maximize storage in all its reservoirs during monsoon months.
- (iii) Every year, all the generating units of the hydel plants are subjected to essential annual maintenance. The annual maintenance works of the run off the river and low storage projects are being scheduled during summer months so that the full capacity shall be available for generation during the monsoon months. In the case of storage plants, the annual maintenance is being carried out during monsoon periods so as to ensure their maximum availability during the summer months. The proposed maintenance schedule for the hydel plants for the year 2011-12 is given as **Annexure-7 (3)**.
- (iv) However, the actual scheduling from hydel plants also depend on other factors such as availability of power from the short-term markets such as UI, energy exchange, power availability at competitive rates through traders, energy demand, vagaries of monsoon etc. Hence, the targets proposed may be considered only as tentative plan from hydel plants. Further, Board shall take all efforts to optimize the hydel generation by minimizing spill.
- (v) The proposed station wise hydel generation for the year 2011-12 is summarized in the following table.

Table - 7.3
Targeted Hydel Generation for 2011-12

Name of the Staton	Generation target (MU)
Idukki	2367.00
Sabarigiri	1345.50
Idamalayar	328.10
Kuutiadi	668.90
Sholayar	231.76
Poringal	159.87
PLB	99.34
Pallivasal	228.97
Panniar	146.36
Sengulam	165.80
Neriamangalam+ NES	384.45
Lower Periyar	557.30
Kakkad	225.31
Kallada	64.41
Peppara	7.27
Madupetty	5.27
Chembukadavu	10.26
Malampuzha	0.00
Urumi	13.51
Malankara	35.17
Lower Meenmutty	4.71
Kuttiady tail race	6.38
Total	7055.65

Auxiliary consumption of hydel stations

Based on the past experience, the auxiliary consumption of hydel stations is taken as 0.5% of the gross generation. Thus, the total auxiliary consumption for the year 2011-12 is estimated as 35.28 MU. The net hydel generation available at the generation end after meeting the auxiliary consumption is 7020.37 MU.

7.2.3 KSEB's Thermal Stations

Considering the exorbitant variable cost of the LSHS based plants BDPP (106.6 MW) and KDPP (128 MW), KSEB proposed to limit the schedule from these plants to the possible extent during 2011-12. However, considering the increasing energy requirement of the State, Board has to schedule power from these plants to a greater extent. The month wise energy schedule from BDPP and KDPP is given as Annexure- 7(4).

During the current year from April to September-2010, the price of LSHS, the main fuel used at BDPP and KDPP is almost steady. The fortnightly

price variation of LSHS from April to November-2010 is given below.

Table 7.4
Price variation of LSHS

Month	LSHS
	(Rs/MT)
1-Apr-10	33661
16-Apr-10	33804
1-May-10	34720
16-May-10	34875
1-Jun-10	32352
16-Jun-10	32352
1-Jul-10	32352
16-Jul-10	32079
1-Aug-10	33317
16-Aug-10	33925
1-Sep-10	32853
16-Sep-10	32853
1-Oct-10	32853
16-Oct-10	33105
1-Nov-10	33105
16-Nov-10	34319

It may be noted that, in addition to the LSHS, HSD is also being used at BDPP and KDPP. Hence, the average variable cost of KDPP and BDPP including HSD and Lube oil is being adopted for estimating the cost of generation from BDPP and KDPP for the year 2011-12.

Table 7.5
Variable cost of BDPP from April to September-2010

Month	Gen	Aux. con	Net Gen	LSHS			Diesel			Lub oil			Total Amount	Unit Cost
				Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount		
	(MU)	(MU)	(MU)	(MT)	(Rs/MT)	(Rs. Cr)	(Litre)	(Rs/ litre)	(Rs. Cr)	(Litre)	(Rs/ litre)	(Rs. Cr)	(Rs. Cr)	(Rs/kWh)
Apr-10	22.71	0.86	21.85	4369.74	33732.41	14.74	219956.00	31.73	0.70	26009.00	108.52	0.28	15.72	7.19
May-10	19.05	0.78	18.27	3550.97	34797.84	12.36	280045.00	31.73	0.89	24428.00	108.52	0.27	13.51	7.40
Jun-10	7.20	0.32	6.88	1320.23	32908.17	4.34	164979.00	31.73	0.52	11866.00	110.42	0.13	5.00	7.26
Jul-10	3.78	0.22	3.55	655.54	32376.97	2.12	156665.00	33.46	0.52	3394.00	110.42	0.04	2.68	7.56
Aug-10	4.21	0.23	3.98	731.19	33620.97	2.46	199990.00	33.46	0.67	4754.00	110.42	0.05	3.18	7.99
Sep-10	3.99	0.21	3.78	674.04	32853.14	2.21	160812.00	33.46	0.54	14106.00	110.42	0.16	2.91	7.70
Total / avg	60.93	2.62	58.31			38.24			3.84			0.92	43.00	7.37

Table 7.6
Variable cost of KDPP from April to September-2010

Month	Gen	Aux. con	Net Gen	LSHS			Diesel			Lub oil			Total Amount	Unit Cost
				Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount		
	(MU)	(MU)	(MU)	(MT)	(Rs/MT)	(Rs. Cr)	(Litre)	(Rs/ litre)	(Rs. Cr)	(Litre)	(Rs/ litre)	(Rs. Cr)	(Rs. Cr)	(Rs/ kWh)
Apr-10	37.37	0.89	36.48	7715.70	33282.78	25.68	3684.00	28.99	0.01	20243.39	93.12	0.19	25.88	7.09
May-10	38.63	0.94	37.70	7990.91	34296.99	27.41	4087.00	32.01	0.01	6274.00	93.13	0.06	27.48	7.29
Jun-10	15.32	0.50	14.82	3167.92	31947.01	10.12	17112.70	32.01	0.05	9014.14	94.89	0.09	10.26	6.92
Jul-10	9.87	0.41	9.47	2048.32	33218.11	6.80	12149.30	30.82	0.04	23975.00	94.93	0.23	7.07	7.47
Aug-10	11.23	0.43	10.80	2305.34	32640.30	7.52	19147.00	32.24	0.06	9784.00	94.74	0.09	7.68	7.11
Sep-10	10.39	0.38	10.01	2171.69	32869.26	7.14	14880.00	33.74	0.05	4902.86	94.97	0.05	7.23	7.22
Total / avg	122.82	3.53	119.28			84.67			0.23			0.70	85.60	7.18

As detailed above, the average variable cost of BDPP for the period from April to September-2010 was Rs 7.37 per unit and that for KDPP was Rs 7.18 per unit, which are used for estimating the cost of Generation from BDPP and KDPP.

The auxiliary consumption of BDPP and KDPP is taken as 2.5% of the total generation. The energy proposed to schedule from BDPP & KDPP, its cost is detailed below.

Table - 7.7
Generation and cost of BDPP and KDPP for 2011-12

Generating station	Gross Generation	Auxiliary consumption	Net Generation	Variable cost	Total Variable cost
	(MU)	(MU)	(MU)	(Rs/kWh)	(Rs in Crore)
BDPP	182.50	4.56	177.94	7.37	134.50
KDPP	365.00	9.13	355.88	7.18	262.07
Total	547.50	13.69	533.81		396.57

7.2.4 Power Purchase from Central Generating Stations

(i) Allocation from Central Generating Stations

The present allocation and expected daily generation from the existing Central Generating Stations (CGS) is given as Table- 6.9 of the Chapter-6. In addition to the existing CGS, NLC-II Expansion, Simhadri Exp of NTPC, Kudamkulam Nuclear Power Plant and Vallur JV project (TN) is expected to start commercial operation during the next financial year. The details of the energy availability from the new projects are given below.

Table - 7.8
New CGS expected to be commissioned during 2011-12

Name of the station	Total capacity	Allocation to KSEB	Allocated capacity	Expected date of commercial operation
	(MW)	(%)	(MW)	
NLC- Exp- Stge-II	500	14.00	70.00	1 st unit by Apr-11 and 2 nd by July-2011
NTPC- Simhadri	1000	8.09	80.90	1 st unit by this year end and 2 nd by June-11
Kudamkulam Nuclear Power Plant	2000	13.00	260.00	1st unit by Jun-11 and 2nd unit by Mar-12
Vallur JV project (TN)	1500		49.90	1st unit by Oct-11, 2nd unit by Dec-11 and 3rd unit by Dec-12
Total	5000		460.8	

(ii) **Cost of energy from the Central Generating stations**
(a) Fixed cost

Central Electricity Regulatory Commission (CERC) is the authority to determine the tariff of the CGS. Central Commission is yet to issue individual tariff order for CGS for the tariff period from 1st April-2009 to 31st March-2014. Hence the CGS is raising the bills based on the pre-revised tariff. The fixed cost commitment of the CGS is being estimated based on the bills raised at pre-revised rates by various CGS during the period from April to September-2010. The details are given below.

Table - 7.9
Fixed cost commitment of CGS during 2010-11

Sl No	Power Plant	Allocated Capacity	Fixed Cost
		(MW)	(Rs. Cr)
1	Thalcher - II	420.00	203.05
2	NLC- Exp-stage-1	58.80	39.27
3	NLC-II- Stage-1	63.00	12.43
4	NLC-II- Stage-2	89.96	18.99
5	RSPTS Stage I & II	305.90	84.46
6	MAPS	23.01	24.36
7	KAIGA Stg I	38.02	68.34
8	KAIGA Stg II	34.98	62.88
9	NLC - II Exp	70.00	46.80
10	Simhadri Exp	80.90	51.62
11	Kudamkulam	266.00	229.29
12	Vallur JV with	49.00	9.41
	Total	1499.57	850.88

In this matter, kind attention of the Hon'ble Commission is invited to the details given under Table-6.15 of the Chapter-6 of this report. As per the tariff petitions filed by CGS based on the revised Tariff Norms applicable for the tariff period 2009-14, KSEB share of fixed charges would increase by 32.11% over the present level. Once the Central Commission issues the revised tariff order,

the arrears w.e.f 1st April-2010 will become payable with appropriate interest as decided by the CERC from time to time. However, while estimating the fixed cost commitment under Table 7.9 above, the likely increase on account of tariff revision was not considered. KSEB shall bound to pay the arrear and the regular bill at the revised rates once CERC issue final order. Hence, KSEB request that, as and when CERC approve the final tariff order for the tariff period April-2009 to March-2014, Board may be permitted to approach the Hon'ble Commission with details on the additional liability due to tariff revision of CPSUs and the same may be allowed to recovered through tariff. It may be noted that, KSERC (Fuel Surcharge Formula) Regulations, 2009 does not have necessary provision to pass on such liability to consumers and recover the additional cost during the same year itself. Hence, Hon'ble Commission may kindly address the issue separately.

(b) Variable cost

The month wise details of variable cost of CGS for the period from April-2010 to September-2010 are given below.

Table-7.10
Variable cost of CGS for the period from April-2010 to Sep-2010

Source	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Average
NTPC-RSTPS	1.50	1.37	1.56	1.57	1.93	1.68	1.59
Talcher Stage-II	1.48	1.52	1.90	1.81	1.76	1.68	1.68
NLC-Stage-1	1.21	1.21	1.21	1.21	1.21	1.21	1.21
NLC-Stage-II	1.21	1.21	1.21	1.21	1.21	1.21	1.21
NLC Expansion	1.66	1.60	1.62	1.72	1.70	1.70	1.70

The average variable cost of CGS for the period April-2010 to September-2010 is adopted for estimating the variable cost for the year 2011-12.

The tariff of the Nuclear Power plants MAPS and KAIGA are being determined by Department of Atomic Energy (DAE) in consultation with Central Electricity Authority. Single part tariff is in force for Nuclear Power Stations. The average tariff for the energy purchased from MAPS was Rs.1.96 per unit and that from KAIGA was Rs. 3.04 per unit during the period from April-10 to September-2010. The average variable cost for NLC- Expansion is adopted for NLC-Exp- Stage-II also. The fixed cost of Simhadri project is taken as Rs 1.00 per unit and variable cost at the same rate of Talcher-II @ Rs 1.68 per unit, is adopted for the estimating the costs. The anticipated tariff of Kudamkulam Nuclear Power plant is taken as Rs 3.25 per unit. For Valluar JV project, the fixed cost is taken as Rs 1.00 per unit and variable cost is taken as Rs 2.00 per unit.

(iii) **Energy availability from CGS for the year 2011-12**

As discussed earlier, the tariff of all the CGS (except Nuclear Power Stations) is being determined by CERC. Further, Central Commission has also approved the various operating norms including target availability for full fixed cost recovery, auxiliary consumption, secondary fuel consumption etc for CGS. Usually, all the State Commissions and power utilities are estimating the energy availability from CGS as per the norms fixed by the Central Commission. Any difference in the availability over the normative levels from CGS may be taken into account during the Truing Up process.

However, while approving the ARR during the last two years, Hon'ble Commission has adopted the higher availability of 88% for Talcher-II and 89% of NTPC's Ramagundam stations instead of the target availability of 85% as per the CERC norms. In order to avoid the mismatch in KSEB projections and Commission's approval, KSEB has also adopted the availability as 88% and 89% for Tacher-II and Ramagundam stations for the year 2011-12. However, if the energy availability from these cheaper stations are less than anticipated, Hon'ble Commission may consider the issue separately and may be allowed to claim the additional liability for procuring alternate energy from short term market or other available sources. The energy availability from CGS estimated for the year 2011-12 is given below.

Table 7.11
Energy availability from CGS for the year 2011-12

Sl No.	Power Plant	Installed Capacity	Allocation	Allocated Capacity to KSEB (MW)	Aux Consumption	Target availability for FC recovery	Energy available
		(MW)	(%)	(MW)	(%)	(%)	(MU/day)
1	TALCHER - Stage II	2000	21.00%	420.0	6.50%	88.00%	8.29
2	NLC- Exp- Stage-1	420	14.00%	58.8	9.50%	80.00%	1.02
3	NLC-II- Stage-1	630	10.00%	63.0	10.00%	75.00%	1.02
4	NLC-II- Stage-2	840	10.71%	90.0	10.00%	75.00%	1.46
5	RSPTS Stage I & II	2600	11.77%	305.9	6.50%	89.00%	6.11
6	MAPS	440	5.23%	23.0	10.00%	68.50%	0.34
7	KAIGA Stg I	440	8.64%	38.0	10.00%	75.00%	0.62
8	KAIGA Stg II	440	7.95%	35.0	10.00%	75.00%	0.57
9	NLC - II Exp	500	14.00%	70.0	10.00%	80.00%	1.21
11	Simhadri Exp	1000	8.09%	80.9	6.50%	85.00%	1.54
11	Kudamkulam	2000.00	13.00%	260.0	10.00%	75.00%	4.21
12	Vallur JV with	1500.00		49.9	8.50%	85.00%	0.93
	Total	12810.00		1444.6			27.3

Considering the annual maintenance schedules and other technical constraints, an average 80% of the allotted capacity will only be available from CGS during peak hours to meet the system demand.

However, considering the schedule of commissioning of new CGS, the average monthly energy available will be 21.41MU per day for the months of April & May-2011, 24.28MU per day from June to September-2011, 24.60MU per day for the months of Oct & November-2011, 24.91MU per day from Dec-11 and Feb-2012 and 27.01 MU per day for March-2012.

Considering the competitive variable cost of CGS, KSEB has proposed to schedule the full allocation from CGS during the year 2011-12. It may be noted that the energy from CGS is being scheduled at the Generator bus. As per the Regional Energy Accounts of SRPC for the period from April to September-2010, the average line losses in the PGCIL transmission system for evacuating power from CGS is 5.08%.

The source wise details of tentative energy schedule from CGS at Generator Bus, PGCIL line losses, net energy available at KSEB periphery, Fixed cost and Energy Charge as per the pre-revised rates is given the Table below.

Table 7.12
Estimated Cost of Power Purchase from the CGS in 2011-12

Sl No	Source	Energy scheduled at generator bus	External loss	Net Energy input into KSEB system	Fixed cost	Variable cost	Total cost
		(MU)	(MU)	(MU)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	TALCHER - Stage II	3027.25	153.78	2873.46	203.05	508.58	711.62
2	NLC- Exp- Stage-1	372.92	18.94	353.98	39.27	63.40	102.67
3	NLC-II- Stage-1	372.52	18.92	353.60	12.43	45.07	57.50
4	NLC-II- Stage-2	531.96	27.02	504.93	18.99	64.37	83.36
5	RSPTS Stage I & II	2229.90	113.28	2116.62	84.46	354.55	439.01
6	MAPS	124.28	6.31	117.96	24.36	0.00	24.36
7	KAIGA Stg I	224.79	11.42	213.37	68.34	0.00	68.34
8	KAIGA Stg II	206.84	10.51	196.33	62.88	0.00	62.88
9	NLC - II Exp	441.50	22.43	419.08	46.80	75.06	121.86
10	Simhadri Exp	516.16	26.22	489.94	51.62	86.72	138.33
11	Kudamkulam	705.51	35.84	669.67	229.29		229.29
12	Vallur JV with	94.07	4.78	89.30	9.41	18.81	28.22
	Total	8847.70	449.46	8398.24	850.88	1216.56	2067.44

7.2.5 Power purchase from IPPs

(a) Thermal IPPs

BSES and KPCL are the two thermal IPP's in the State. Further, RGCCPP-Kayamkulam of NTPC is a dedicated station to Kerala. The details viz Installed capacity, capacity allotted to KSEB, target availability and maximum annual generation possible from the three IPPs,(i.e., NTPC-Kayamkulam, BSES-Kochi and KPCL Kasaragod) are given below.

Table - 7.13
Installed capacity and Energy availability from IPPs

Station	Installed capacity (MW)	Capacity allocated to KSEB (MW)	Capacity normally available	Maximum annual generation capability (MU)	Fuel used
			(MW)		
BSES	157.00	157.00	150.00	1051.20	Naphtha
NTPC-Kayamkulam	359.58	180.00	160.00	1155.62	Naphtha
KPCL	20.00	20.00	20.00	140.16	LSHS
Total	536.58	357.00	330.00	2346.98	

*50% capacity is being allocated to Tamilnadu by Ministry of Power.

NTPC Kayamkulam is a dedicated station to the State of Kerala. But from January 2003 onwards, Ministry of Power has temporarily allocated 180 MW of power from here to Tamilnadu and this arrangement is likely to continue in the coming years also. The total annual fixed cost commitment of KSEB to these stations based on the latest claims/CERC orders are given below.

Table - 7.14
Fixed cost commitment to the IPPs

Power plant	Annual Fixed cost commitment (Rs. Cr)
Kayamkulam	93.38
BSES	87.72
KPCL	7.64
Total	188.74

Naphtha is the main fuel used at BSES and RGCCPP- Kayamkulam stations and LSHS is being used at KPCL. Due to the excessive price of Naphtha and LSHS, the variable cost of these stations is comparatively higher. An indicative price variation of LSHS was already detailed under Table-7.4. The indicative price variation of Naphtha for the period from April-2010 to November-2010 is given below.

Table - 7.15
Price variation of Naphtha

Month	Naphtha (Rs/MT)
1-Apr-10	43927
16-Apr-10	43748
1-May-10	44546
16-May-10	44784
1-Jun-10	40927
16-Jun-10	40772
1-Jul-10	41320
16-Jul-10	39082
1-Aug-10	39725
16-Aug-10	41177
1-Sep-10	40641
16-Sep-10	40641
1-Oct-10	40641
16-Oct-10	43665
1-Nov-10	44867
16-Nov-10	46189

The average variable cost of RGCCPP- Kayamkulam, BSES and KPCL plants for the period from April-2010 to September-2010 are Rs 7.17 per unit, Rs 7.89 per unit and Rs 7.80 per unit respectively. The details are given under Table-6.13 of Chapter-6 of this petition. For estimating the cost of energy procurement, the average variable cost from April to September-2010 is being used for RGCCPP Kayamkulam and KPCL. Since the BSES has not been scheduled since June-2010, an indicative variable cost of Rs 7.20 per unit is being used for estimating the cost of energy from BSES.

Considering the high variable cost of BSES power, KSEB has not proposed to schedule energy from this station during the year 2011-12. However, in the event of any contingency, KSEB may be permitted to schedule power from BSES plant with the approval of the Hon'ble Commission. However, KSEB has compelled to schedule power from RGCCPP - Kayamkulam to continue the equal quantum of power from Talcher-II stations. KSEB proposed to schedule power from KPCL plant to meet the system demand especially in the Northern part of the State. However, the actual schedule may be restricted to the extent of energy available through short-term market at competitive rates without any transmission constraints.

The month wise details of proposed generation and power purchase schedule from thermal IPP's are given as **Annexure 7(4)**. The annual generation and cost of power purchase proposed from KPCL, BSES and RGCCPP - Kayamkulam for the year 2011-12 is given below.

Table - 7.16
Proposed generation and cost from IPPs

Source	Annual generation proposed (MU)	Fixed cost (Rs.Cr)	Variable Cost		Total (Rs.Cr)
			Rate (Rs/kWh)	Amount (Rs.Cr)	
RGCCPP	1002.94	93.38	7.17	719.11	812.49
BSES	0.00	87.72	7.20	0.00	87.72
KPCL	135.96	7.64	7.80	106.05	113.69
Total	1138.90	188.74	22.17	825.16	1013.90

(b) Wind Projects

As on 01-11-2010, KSEB had entered into PPA with Wind IPP's for procuring 31.65 MW from IPP wind projects at Agali and Ramakkalmedu. With the present trend of generation, KSEB expect to have an annual generation of 61.57 MU from wind projects. The month wise details of generation anticipated through wind projects are given as **Annexure-7(4)**. The State Commission has approved a uniform tariff of Rs 3.14 per unit for wind projects and the total cost for purchase of 61.57 MU from wind projects is estimated as Rs 19.33 crore for the year 2011-12.

(c) Ullumkal SHP

Ullumkal project is an IPP- SHP with installed capacity of 7 MW and annual generation potential of 34.1 MU. The month wise details of energy from Ullumkal project is given in **Annexure- 7(4)**. This IPP is yet to sign PPA with KSEB. However, KSEB continue to purchase energy provisionally @Rs 2.00 per unit. The cost estimated for purchasing 34.00 MU from Ullumka l is Rs 6.80 crore for the year 2011-12.

(d) Cogeneration plant of MP steel

KSEB has been procuring energy from co-generation plant of MP steel casting Ltd @ Rs 2.31 per unit approved by the Hon'ble Commission. The annual energy expected from MP Steel is 40.80 MU and its cost is about Rs 9.42 crore.

(e) Irruttikkanam SHP of M/s Viyyat Power (Pvt) Ltd

The Irruttikkanam SHP (3MW) of M/s Viyyat Power (Pvt) Ltd has started commercial operation during November -2010. The average energy expected is 7.88MU and the expected cost is Rs 2.13 crore at the approved tariff is Rs 2.70 per unit.

The summary of the energy availability and its estimated cost from the Wind, SHP and Cogeneration plants are as given below.

Table.7.17
Proposed generation & Cost from other IPPs

Source	Capacity (MW)	Generation target (MU)	Per unit cost (Rs/ kWh)	Total cost (Rs.Cr)
Wind IPPs	31.65	61.57	3.14	19.33
Ullumkal SHP	7.00	34.00	2.00	6.80
MP steel- Co generation plant	8.00	40.80	2.34	9.55
Iruttikkianam SHP	3.00	7.88	2.70	2.13
Total	49.65	144.25		37.81

7.2.6 Energy shortages to be met through short-term market

The month wise details of energy demand, net energy available from hydel, KSEB thermal, CGS and IPPs are as given below.

Table 7.18
Demand and Supply position for the year 2011-12

Month	Energy Demand (MU)	Availability (MU)					Shortages to be met through Traders/ PX	
		Hydro (net)	BDPP, KDPP & KSEB wind	CGS (at KSEB periphery)	IPPs	Total	Total (MU)	MU/ per day
Apr-11	1543.16	679.08	44.13	609.59	118.84	1451.64	91.52	3.05
May-11	1626.25	669.03	45.59	629.91	127.04	1471.57	154.68	4.99
Jun-11	1414.39	482.14	44.13	691.53	127.40	1345.19	69.20	2.31
Jul-11	1423.69	503.03	45.59	714.58	81.63	1344.83	78.87	2.54
Aug-11	1460.16	522.82	45.59	714.58	79.61	1362.60	97.57	3.15
Sep-11	1476.52	586.93	44.13	691.53	77.08	1399.66	76.86	2.56
Oct-11	1516.24	601.55	45.59	723.71	74.43	1445.29	70.95	2.29
Nov-11	1527.11	551.09	44.13	700.37	119.84	1415.42	111.69	3.72
Dec-11	1610.36	588.31	45.59	732.85	122.98	1489.73	120.62	3.89
Jan-12	1602.63	565.46	45.59	732.85	122.46	1466.36	136.27	4.40
Feb-12	1538.96	571.54	41.20	661.93	109.56	1384.23	154.73	5.53
Mar-12	1795.05	699.38	45.59	794.82	122.27	1662.06	132.99	4.29
Total	18534.52	7020.37	536.81	8398.24	1283.15	17238.57	1295.95	

KSEB proposes to meet the shortages by procuring energy from short-term markets. However, the following aspects may be kindly considered.

- (i) The energy availability and cost of the short-term market is highly volatile.
- (ii) The energy rates through bilateral contract at KSEB periphery (after accounting open access charges and regional losses) works out to about Rs 4.00 to Rs 5.00 per unit even during monsoon months. The same may be in the range of Rs 7.00 to Rs 8.00 per unit during summer.

- (iii) Transmission constraints in the southern region, especially in the S2 corridor comprising Tamilnadu, Kerala and Pondichery have been hindering the efforts to procure power through short-term market.
- (iv) CERC had imposed stringent penalty for importing power through UI when the frequency falls below 49.50 Hz. The UI rate is Rs 6.38 per unit at 49.60 Hz, Rs 12.22 per unit when frequency falls below 49.50z and Rs 17.46 per unit at frequency below 49.20 Hz.
- (v) Energy Exchange price is highly erratic.
- (vi) The rate quoted by the traders for advance tie-up by two or more months is usually higher than the same quoted within less than one month of tie up.

However, KSEB shall take all efforts to meet the shortages by procuring power through short-term markets at competitive rates. For estimating the cost of power procurement through traders, an average power purchase cost of Rs 4.50 per unit at KSEB periphery (including open access charges and losses) are adopted. Thus the cost for procuring power through short-term market is estimated as Rs 583.18 crore.

Hon'ble Commission may please note that, the energy proposed to be procured through short-term market is a substantial quantity of 1295.96MU. However, energy availability and rate at the short-term market is highly unpredictable. Hence, any abnormal variation in energy price over the rate of Rs 4.50 per unit adopted may affect the financials of KSEB. Moreover purchase from short-term market is being done with the approval of Honorable Commission. Hence KSEB request that, the power procurement through short-term market may also considered as an additional source of power and any abnormal variation in the energy price of short-term market may also be allowed to be recovered through KSERC (Fuel Surcharge Formula) Regulations, 2009.

7.2.7 Summary of Source and Utilization of energy for 2011-12

The summary of the total energy available from different sources, the anticipated energy requirement and the energy shortage expected are given below.

Table 7.19
Sources and Utilisation of energy for 2011-12

Sl no.	Particulars	Million Units
	KSEB Internal	
(I)	Hydel generation	
	Gross Generation	7055.65
	Less auxiliary consumption	35.28
	Net hydel availability	7020.37
(ii)	Thermal generation	
	BDPP	182.50
	KDPP	365.00
	Less auxiliary consumption	13.69
	Net availability from BDPP+ KDPP	533.81
(iii)	Wind	3.00
(iv)	Total KSEB Internal Generation	7557.18
(v)	Power purchase from CGS (at KSEB periphery)	8398.24
(vi)	Power purchase from IPPs	
	RGCCPP- Kayamkulam	1002.94
	BSES- Kochi	
	KPCL	135.96
	Wind	61.57
	Ullumkal	34.00
	MP Steel	40.80
	Iruttukkanam	7.88
	Sub total from IPPs	1283.15
(vii)	Power Purchase through traders/ power exchange etc	1295.96
(viii)	Total Energy Availability	18534.53
(ix)	Energy requirement (within KSEB)	18534.53

7.2.8 General Strategy followed by KSEB for optimization of Generation and Power Purchase:

The strategies followed by KSEB for optimizing the generation and power purchase with a view to reduce the cost of power are:

- (i) Optimizing the hydel generation by
 - Maximizing the hydel generation from runoff river plants and small hydels during monsoon months to tap the hydro potential and to limit the spillage of water.
 - Conserving maximum water in the storage reservoirs during monsoon months for the use in summer months.
 - Limit the schedule from storage plant to peak hours only during monsoon months.
 - Annual maintenance of hydel stations are scheduled in such a way that entire capacity of the run-off the river plants and small hydel plants shall be available during monsoon months and full capacity of the storage plants may be available for summer months.
 - Generation from hydel plants scheduled in such a way to tap the maximum benefits of UI and cheaper power available through energy exchanges etc.

- (ii) Avail full allocation from the less costly Central Generating Stations.
- (iii) Exploit the possibility of selling the surplus energy if available at any time slot and off peak hours.
- (iv) Schedule the generation and Power Purchase strictly as per the merit order of cost.
- (v) Limit the scheduling from liquid fuel stations BDPP, KDPP, KPCL, BSES and RGCCPP Kayamkulam to the possible extent.
- (vi) Schedule energy through short-term market/ power exchange / day ahead market as and when the energy through such sources are available without corridor constraints at competitive rates.
- (vii) Continuous efforts to add hydel capacity not only as a source of power to meet future demand, but also as a means to reduce cost.
- (viii) Ensure timely payment of dues to power purchases and transmission charges to avail maximum incentive for timely payment.

7.2.9 Merit Order Stack

The merit order stack for the year 2011-12 based on the expected variable cost of generation is given below.

Table - 7.20
Merit Order Stack of different energy sources

Source	Merit Order	Variable cost (Rs/ kWh)
Hydel	1	0
NLC-II- Stage-1	2	1.21
NLC-II- Stage-2	3	1.21
RSPTS Stage I & II	4	1.59
Thalcher - II	5	1.68
Simhadri Exp	6	1.68
NLC- Exp-stage-1	7	1.70
NLC - II Exp	8	1.70
MAPS	9	1.96
Ullumkal	10	2.00
MP steel	11	2.34
Irukkikkanam SHP	12	2.70
KAIGA Stg I&II	13	3.04
Wind	14	3.14
RGCCPP	15	7.17
KDPP	16	7.18
BSES	17	7.20
BDPP	18	7.37
KPCL	19	7.80

7.2.10 Transmission charges payable to PGCIL

Evacuation of power from CGS up to the respective State boundary is being through the transmission system developed by

PGCIL. The transmission tariff of the transmission system is being approved by the Central Commission from time to time. Hitherto, the sharing of transmission charges is being done in proportion of the capacity allocation from each CGS to the respective beneficiary states. However, CERC has recently notified the new regulation on sharing of transmission charges and losses and it is being proposed to implement with effect from January-2011. As the Kerala State is located in the southern most part of the country, KSEB proportion of transmission charges is likely to be increased by about 50% over the present level. For the initial two years, 50% of the transmission charges payable to the PGCIL are being shared based on the new methodology and 50% based on the prevailing practices.

However, in this petition, the transmission charges of PGCIL are estimated as per the present methodology based on capacity allocation. Once the new methodology on sharing of transmission charges is implemented, KSEB may be permitted to approach the Hon'ble Commission with the actual claim of PGCIL to pass on the additional liability through tariff.

The transmission charges claimed by PGCIL during April-2010 to September-2010 and the estimate for 2011-12 are as follows:

Table - 7.21
Transmission charges to PGCIL

		Rs in Crore	
Sl No	Items	Actuals- Apr-10 to Sep-10	Estimate for the year 2011-12
1	Southern region		
	Transmission charges	80.55	201.39
	ULDC Charges	6.35	15.88
	Sub total	86.9	217.27
2	NTPC Kayamkulam Transmission charges	5.68	11.36
3	Total transmission charges (excluding income tax, incentives etc)	179.48	228.63

7.2.11 Other Charges payable to CGS

In addition to fixed charges, variable energy charges and transmission charges, the beneficiary State utilities are liable to pay incentive, income tax, water cess, foreign exchange rate

variation etc The amount paid on this account during 2004-05, 2005-06, 2006-07, 2007-08, 2008-09 and the estimates for 2010-11 and 2011-12 are given below.

Table- 7.22
Other Charges payable to CGS

Rs. in Crore

Source	2003-04 (Actual)	2004-05 (Actual)	2005-06 (Actual)	2006-07 (Actual)	2007-08 (Actual)	2008-09 (Actual)	2009-10 (Actual)	2010-11 (Est)	2011-12 (proj)
Generators									
Thalcher - II	4.03	-0.87	12.76	2.64	-4.78	118.37	22.03	30.20	4.03
NLC-II - Stage-1	14.00	7.50			10.17	0.84	8.13	6.38	14.00
NTPC- RSTPS	57.64	23.80	27.21	54.70	62.99	25.06	41.90	42.37	57.64
ER	13.58	-19.08	0.00	0.22	3.03				13.58
NLC-II - Stage-2	0.00								0.00
MAPS	2.40	1.15	0.48	1.39	0.23	0.3	0.99	0.68	2.40
NLC (Exp)	2.73		1.94		4.75	0.06	2.37	2.28	2.73
Kayamkulam	0.00	0.00	0.00		1.58		0.40	0.66	0.00
KPCL					4.52				
Kaiga	0.38	0.25	5.77	2.97	0.19	0.89	1.74	2.31	0.38
PGCIL									
Eastern Region	0.30	0.00	0.00	0.09	-0.17		0.04		0.30
Southern Region	14.20		10.21	34.94	17.27	2.25	15.77	16.09	14.20
Kayamkulam	1.36				13.654				1.36
Total	110.62	12.75	58.37	96.95	113.43	147.77	93.37	100.97	110.62

7.2.12 Summary of Cost of Generation and Power Purchase

The Table below provides the summary of the cost of generation and power purchase for the year 2011-12, based on the planned schedule of drawal of power from various sources.

Table- 7.23
Projected Generation and Power Purchase Expenses for the Year 2010-11

Source	Energy Produced /Purchased	Auxiliary Consumption	External Loss	Net Energy Input to KSEB system	Fixed Cost	Incentive, Tax, etc.	Total Variable cost	Total Cost
	MU	MU	MU	MU	Rs. Cr	Rs. Cr	Rs. Cr	Rs. Cr
KSEB Internal								
Hydel	7055.65	35.28		7020.37				
Wind -Kanjikode	3.00	0.00		3.00				
BDPP	182.50	4.56		177.94	0.00		134.50	134.50
KDPP	365.00	9.13		355.88	0.00		262.07	262.07
Sub total	7606.15	48.97		7557.18			396.57	396.57
Power purchase								
(a) CGS								
Thalcher - II	3027.25		153.78	2873.46	203.05	30.20	508.58	741.82
NLC- Exp-stage-1	372.92		18.94	353.98	39.27	2.28	63.40	104.95
NLC-II- Stage-1	372.52		18.92	353.60	12.43	6.38	45.07	63.88
NLC-II- Stage-2	531.96		27.02	504.93	18.99		64.37	83.36
RSPTS Stage I & II	2229.90		113.28	2116.62	84.46	42.37	354.55	481.38
MAPS	124.28		6.31	117.96	24.36	0.68	0.00	25.04
KAIGA Stg I	224.79		11.42	213.37	68.34	2.31	0.00	70.65
KAIGA Stg II	206.84		10.51	196.33	62.88		0.00	62.88
NLC - II Exp	441.50		22.43	419.08	46.80		75.06	121.86
Simhadri Exp	516.16		26.22	489.94	51.62		86.72	138.33
Kudamkulam	705.51		35.84	669.67	229.29		0.00	229.29
Valluvar	94.07		4.78	89.30	9.41		18.81	28.22
Sub total	8847.70			8398.24	850.88			
(b)IPPs								
RGCCPP	1002.94			1002.94	93.38	0.66	719.11	813.15
BSES	0.00			0.00	87.72		0.00	87.72
KPCL	135.96			135.96	7.64		106.05	113.69
Wind	61.57			61.57			19.33	19.33
Ullumkal	34.00			34.00			6.80	6.80
MP steel	40.80			40.80			9.42	9.42
Irukkikkanam SHP	7.88			7.88			2.13	2.13
Traders	1295.96			1295.96			583.18	583.18
(c) PGCIL Transmission Charges								
Eastern Region				0.00	0.00	0.00	0.00	0.00
Southern Region				0.00	217.27	16.09	0.00	233.36
Kayamkulam				0.00	11.36	0.00	0.00	11.36
Sub total power purchase	11378.05				1268.25	100.96	2662.58	4031.80
Total	19032.95	48.97	449.46	18534.53	1268.25	100.97	3059.15	4428.38

7.3 Interest and Finance charges

(a) Introduction

- 7.3.1 Interest and finance charges includes the interest on outstanding loans and bonds, interest for additional borrowings for meeting capital liabilities, interest payable on security deposit collected from consumers, interest on working capital, Guarantee Commission to State Government, rebate allowed to electricity traders for prompt remittance of dues, discount allowed to consumers for prompt payment of electricity charges, interest on General Provident fund, cost for raising finance, interest allowed for retaining electricity duty with KSEB etc.
- 7.3.2 Hitherto the Board has been following Electricity (Supply) Annual Accounts rules 1985 (ESAAR-1985) for estimating interest and finance charges. While estimating the additional borrowing for meeting the capital liabilities, all the internal accruals including 'depreciation, statutory surplus/ return on equity, consumer contributions, duty and other charges payable to Government that is retained with KSEB, provisions made for bad and doubtful debts etc' are duly considered and additional fund requirement over and above the internal accruals only met through borrowing from financial institutions. Further, any excess internal resources with KSEB has been used for repaying the past capital liabilities.
- 7.3.3 However, Hon'ble Commission is yet to approve the present methodology followed by the Board. There are many disputed issues with Hon'ble Commission on fund management of KSEB. The State Government is also a party on most of the issues. Some of them are:
- (i) The netting of dues between KSEB and Government over the years is yet to be settled. Outstanding dues receivable from Government by the Board was there even before the constitution of the Hon'ble Commission. The following issues can be settled only after a final decision on the netting off-the dues between KSEB and Government is arrived.
 - (a) Interest on Government loans. As part of the netting-off proposal, the Government loans were adjusted against the dues to Government and hence in the ARR and Truing up of accounts, KSEB has not been claiming interest on Government loans. However, Hon'ble Commission is yet to approve the netting-off proposal and the adjustment of Government loans against duty and dues payable by Board to Government. At

the same time, Hon'ble Commission has not allowed interest on Government loans.

- (b) Considering the huge amount due from Government, KSEB has retained the electricity duty payable to the Government and used as Board's resources for meeting capital liabilities etc. The duty retained by KSEB is one of the items in the netting-off proposal. Since a final conclusion of netting-off proposal is yet to be arrived, most often C&AG and Chief Electrical Inspector is demanding interest for the electricity duty retained with KSEB. However, Hon'ble Commission has been severely criticizing the Board for retaining electricity duty and interest on duty dues were not allowed.
- (c) The amount written off during 2006-07 and 2007-08 as part of netting-off proposal had been treated as internal accruals and this amount is also duly considered for meeting fund requirements for capital investment etc. So, even though the provision made for writing-off is accounted as an expenditure item, the same has used for repaying the past liabilities.
- (ii) As discussed earlier, KSEB has utilized the excess internal resources available for meeting the past capital liabilities etc. Accordingly KSEB was able to reduce the outstanding capital liabilities from Rs 5094.16 crore during 2003-04 to Rs 1100.35 crore in 2009-10. Accordingly, the interest on capital liabilities was also reduced from Rs 622.16 crore in 2003-04 to Rs 123.08 crore in 2009-10. The details are given below.

Table 7.24
Details of outstanding capital liabilities

Year	Loan Outstanding at the beginning of the Year	Interest due for payment
	(Rs. Cr)	(Rs. Cr)
2003-04	5094.16	622.16
2004-05	5355.65	535.54
2005-06	4541.32	451.44
2006-07	3713.62	318.49
2007-08	2498.52	232.83
2008-09	1856.71	151.31
2009-10	1100.35	123.08

Board has been able to achieve this by repaying the past liabilities only through the internal resources including the provision made for netting-off the dues, electricity duty retained with KSEB etc.

However, Hon'ble Commission is yet to appreciate the fund management of the Board.

Further, Hon'ble Commission has not approved the provision made for netting-off proposal and treated this amount as surplus with KSEB and adjusted it against the revenue gap for the years 2009-10 and 2010-11. As stated earlier, the entire amount available has been utilized for repaying the past liabilities as well as capital works and already passed on its benefits to consumers through reduced interest etc. So, by adjusting the amount against the present revenue requirement, Hon'ble Commission has been passing the same amount twice to the consumers.

Thus KSEB has no surplus as concluded by the Hon'ble Commission. This has created an embarrassing situation for KSEB that, on one hand KSERC is claiming that the Board has surplus for the past years and adjusted against the present revenue gap, but in reality, no such surplus exists.

7.3.4 As per the information available, almost all the regulators are allowing interest and finance charges for the new investment on normative basis.

7.3.5 Considering the above reasons, KSEB has decided to change the procedure followed for claiming interest and finance charges for new investments and proposed to claim the same on normative basis from the year 2011-12.

(b) Interest & Finance charges of 2009-10

7.3.6 In the ARR for the year 2009-10, the Board had projected a total borrowing of Rs 764.87 Crore and repayment of bonds and loans to the tune of Rs 227.65 Crore. The outstanding loans and bonds as per the ARR at the end of the financial year 2009-10 was Rs.2037.53 Crore. But the actual borrowing and redemption during 2009-10 was Rs 991.99 crore and Rs 682.86 crore respectively and the outstanding balance as on 31-03-2010 was Rs 1409.49 crore. The details are given below.

Table - 7.25
Borrowings & repayments during the year 2009-10 (Rs in crore)

Item	Opening Balance		Borrowing		Redemption		Closing Balance	
	ARR	Revised	ARR	Actual	ARR	Actual	ARR	Actual as per provisional accounts
Loans from GOK	69.50	0.00	69.50	0.00	0.00	0.00	139.00	0.00
Bonds	43.20	43.20	0.00	0.00	20.90	22.30	22.30	20.90
Loans from Financial Institutions	1387.61	1057.17	695.37	991.99	206.75	660.56	1876.23	1388.59
Total	1500.31	1100.37	764.87	991.99	227.65	682.86	2037.53	1409.49

7.3.7 The additional borrowings for meeting capital liabilities during the year were Rs 309.13 crore. In addition to the above, KSEB has utilized the electricity duty amounts to Rs 258.26 crore as internal resources and the borrowings has been restricted to that extent. Further, Board had utilized all the internal accruals such as additional security deposit collected during the year 2009-10, consumer contribution under section-46 of the Electricity Act-2003 etc.

7.3.8 Further, the actual revenue gap as per the provisional accounts for the year 2009-10 was Rs 1227.51 crore. Even though Hon'ble Commission has approved a revenue gap of Rs 335.00 crore for the year 2009-10 while approving the ARR, the gap was unfortunately not allowed to be recovered through tariff. More over, as per the orders on approving fuel surcharge for the year 2009-10, a total additional liability of Rs 455.00 crore was approved, but the same was also not allowed to be passed on to the consumers during the year 2009-10. This has resulted into a situation where the ways and means position can be managed only by availing overdraft from financial institutions during the year 2009-10. KSEB has availed an average overdraft of Rs 300 crore during the year 2009-10 and the interest paid was Rs 24.58 crore.

7.3.9 The details in respect of interest and finance charges approved and the actuals for the year 2009-10 are detailed below.

Table - 7. 26
Interest and Finance Charges incurred in 2009-10

Rs.in Crore

Particulars	2008-09	2009-10		
	(Actual)	ARR	SERC (Approved)	Actual (Provl.)
Interest on outstanding loans and bonds	151.32	188.45	188.94	123.08
Other Interest and Finance Charges				
Interest on borrowings for working	22.14	18.00	5.31	24.57
Discount to consumers for timely	10.46	5.50	5.50	2.74
Interest on PF	37.93	64.88	64.88	44.42
Other Interest	0.00	0.01	0.01	0.00
Cost of raising finance:	0.03	1.00	1.00	
Other Charges	67.22	16.97	16.97	10.70
Interest to consumers	50.50	50.50	50.50	58.05
Subtotal	188.28	156.86	144.17	140.48
Total	339.60	345.31	333.11	263.57

(c) Revised Estimate of Interest on outstanding debts for the year 2010-11

7.3.10 While approving the ARR&ERC for the year 2010-11, Hon'ble Commission has approved a revenue gap of Rs 457.47 crore for the year 2010-11, but the same was not allowed to be recovered through tariff. It may be noted that, while approving the ARR, Hon'ble Commission had made disallowances totaling to Rs 1542. 13 crores from the amount projected by the Board under following heads.

- (i) Cost of Generation by Rs 273.41 crores
- (ii) Cost of Power Purchase by Rs 385.19 crores
- (iii) Interest and finance charges by Rs 123.33 crores
- (iv) Employee cost by Rs 443.11 crores
- (v) Administration and General Expenses(excluding section 3(1) duty by Rs 16.88 crores
- (vi) R&M expenses by Rs 13.85 crores
- (vii) Other expenses by Rs 1.6 crores
- (viii) Not admitted Section 3(1) duty by Rs 85.40 crores.
- (ix) Disallowed Return on Equity by Rs 186.99 crores quoting the reason that Board has no Government equity.

7.3.11 But it may be seen that the actuals so far is very close to the Board's projection. As detailed under Chapter-6, the cost of Generation and Power Purchase for the year 2010-11 would likely to be at Rs 4379.31 crore against the approved amount of Rs 3702.73 crore, i.e., generation and power purchase cost may increase by Rs 676.58 Crore over the approval during 2010-11. Further, as against the Board's projection of Rs 1690.42 crore towards employee cost, Commission had approved only Rs 1247.31 crore. But as per the revised estimate, the employee cost for the year 2010-11 will be Rs 1662.74 crore. Similarly, all other expense components under ARR are likely to increase over the approved level due to the reasons beyond the control of the Board. The actual revenue gap for the year 2010-11 will be Rs 1933.82 crore against the approval of Rs 457.47 crore for the year 2010-11.

7.3.12 However, Hon'ble Commission had declined to allow passing on even the approved revenue gap through tariff, but adjusted it against the past surplus which was actually not available with the Board as per the books of accounts. As explained earlier, KSEB has utilized all the past internal accruals for clearing the past capital liabilities and such surplus as approved by the Hon'ble Commission is not in reality available with KSEB. This has resulted into a situation that, Board has to resort to overdraft even for meeting the revenue expenditure.

7.3.13 As detailed under Table-7.25 above, the outstanding capital liabilities as on 31-03-2010 is Rs 1409.49 crore. Out of the above, loans and bonds

amount to Rs 40.16 crore, KPFC loan of Rs 330.07 crore and LIC and short term loans of Rs 89.23 crore , (total Rs 459.46 crore) has to be repaid during the current financial year. KSEB had already made a short-term deposit of Rs 295.00 crore during the financial year 2007-08 as detailed below with financial institutions for meeting the capital liabilities in 2010-11. The maturity value of these short-term deposits realizable in 2010-11 is Rs 389.17 crore. Since this maturity proceeds of Rs 389.17 crore from the short-term deposit specifically made for meeting the capital liabilities is available, fresh borrowing to this extent was not necessitated for repaying the capital liabilities to the extent of Rs 389.17 crore. In this matter KSEB would like to submit that, Hon'ble Commission has not yet appreciated the short-term deposit specifically made for meeting the capital liabilities and pension fund during the years 2006-07 and 2007-08.

Table 7.27
Details of short-term deposit specifically made for meeting capital liabilities.

Sl No.	Year of deposit	Amount Deposited	Interest accrued	Maturity value	Purpose
		(Rs. in Cr)	(Rs.Cr)	(Rs.Cr)	
1	2007-08	255.00	80.30	335.30	Principal & Interest to KPFC-11/2010
2	2007-08	40.00	13.87	53.87	Principal Repayment to REC-3/11
	Sub total	295.00		389.17	

It may be noted that, the interest accrued on short-term deposit and pension fund is accounted as non-tariff income of the respective year itself.

7.3.14 As against the proposed capital investment of Rs 995.16 crore for the year 2010-11, the revised target is Rs 1054.32 crore. The present interest rate for short-term loans is comparatively less than that of long term borrowings. Hence, KSEB has been availing short-term loans instead of long term borrowings for meeting the capital liabilities during the year 2010-11. The details of the short-term loans availed during the current financial year and interest there on are detailed below.

Table 7.28
Amount of short-term loan availed

Month	Amount (Rs.Cr)	Interest (Rs. Cr)
April-10	398.34	2.80
May-10	435.00	3.67
June-10	655.00	2.75
July-10	325.00	2.55
August-10	620.00	2.28
September-10	560.00	3.69
October-10	600.00	3.58
Total		21.32

7.3.15 But the short-term loans have to be repaid within one year and hence a major portion of the Short-term loans availed during the current year and last year has to be repaid during the year itself.

7.3.16 The following table summarizes the revised estimate of the borrowings and repayments and also the interest and finance charges for loans and bonds for the year 2010-11.

Table - 7.29
Interest charges on Loans & Bonds (2010-11) (Rs. In Crore)

Sl. No.	Particulars	Rate of Interest in %	Balance at the beginning of the year	Amount Received during the year	Amount Redeemed during the year	Balance out standing at the end of the year	Interest for the year	Remarks
I	Loans from others secured							
	KSE Bond	11.50 - 13.00	20.90	0.00	10.45	10.45	1.87	Maturity proceeds amounts to Rs 389.17 crore from the deposit made specifically for meeting the capital liabilities has been utilized for meeting the repaying obligations to that extent
	REC	7.00 - 11.75	197.17	0.00	16.13	181.04	20.36	
	LIC	9	18.00	0.00	2.00	16.00	1.55	
	PFC	6.00 - 9.00	17.37	0.00	11.58	5.79	1.52	
	Subtotal		253.44	0.00	40.16	213.28	25.30	
II	Loans from others unsecured			0.00				
	IDBI	9.50 - 13.50	0.44	0.00	0.44	0.00	0.19	Short-term loans
	LIC	9	47.76	0.00	13.37	34.39	4.34	
	REC	7.00 - 11.75	251.78	0.00	75.42	176.36	26.09	
	KPFC	6.25 - 12.25	330.09	0.00	330.07	0.02	21.30	
	PFC-R-APDRP	11.5	64.31	0.00	0.00	64.31	7.40	
	STL from REC		195.00	0.00	195.00	0.00	5.15	
	STL from UBI		100.00	445.00	545.00	0.00	9.29	
	STL from SBT		66.67	0.00	66.67	0.00	0.43	
	STL from SBI	7.50 - 8.00	100.00	300.00	400.00	0.00	8.05	
	Subtotal		1156.05	745.00	1575.55	275.08	82.24	
	Additional borrowing 10-11	10.5	0.00	1030.00	0.00	1030.00	54.07	
	Total		1409.49	1775.00	1666.13	1518.36	161.61	

7.3.17 It may be noted that, the outstanding capital liabilities is likely to be increased from Rs 1409.49 crore to Rs 1518.36 crore, i.e, an increase of Rs 108.87 crore during the current year. The increase could be limited mainly due to the fact that, as detailed earlier Rs 389.17 crore was available from short-term deposit made earlier specifically for meeting the capital liabilities which is to be made use during the current year. Further, KSEB has utilized the electricity duty collected (about Rs 250.00 crore) during the current year as internal resources. In addition to the above, Hon'ble Commission had allowed the fuel surcharge of Rs 190.00 crore which pertain to the year 2009-10 and allowed to be recovered during the current financial year.

7.3.18 The summary of the sources and utilization of the funds for the year 2010-11 is detailed below.

Table - 7.30
Sources & Uses (2010-11)

Sl. No.	Particulars	Rs in Crore
1	Net Deficit from earnings	-1358.37
2	Add Depreciation	506.04
3	Add Contributions and Grants	250.00
4	Add Receipts from Debt & Deposit	1547.78
5	Internal resources (1+2+3+4)	945.45
6	Less Repayment of Loans	1666.13
7	Less Funds for capital work	1054.32
8	Fresh Borrowing required (5-6-7)	1775.00

7.3.19 The revised estimate of borrowing and redemption of loans in 2010-11 against the estimate in the ARR is given below. The differences between the revised estimate and ARR figures are mainly on account of increase in the outstanding balances as on 01.04.2010, repayment of short term loans and increase in the revised borrowing during the year 2010-11.

Table- 7. 31
Summary of Borrowings & Repayments for the year 2010-11(RE)

Rs.in Crore

Item	Opening Balance as on 01.04.10		Borrowing in 2010-11		Redemption in 2010-11		Closing Balance as on 31.03.11	
	ARR	Revised	ARR	Revised	ARR	Revised	ARR	Revised
Loans from GOK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Existing Bonds	20.90	20.90	0.00	0.00	10.45	10.45	10.45	10.45
Loans from Financial Institutions	1186.09	1388.59	450.00	1775.00	642.90	1655.68	993.19	1507.97
Total	1206.99	1409.49	450.00	1775.00	653.35	1666.13	1003.64	1518.36

(d) Estimate of Interest on outstanding debts payable in 2011-12.

7.3.20 As detailed above, the outstanding loans and bonds as on 31-03-2011 would be 1518.36 crore. The interest and finance charges on the same for the year 2011-12 is estimated based on the prevailing interest rates.

7.3.21 As summarized under Chapter-3, KSEB proposed for a total capital investment of Rs 1036.00 crore during the year 2011-12. Considering the accumulated revenue gap during the year 2008-09, 2009-10 and 2010-11 and resulting present financial position, KSEB proposed to meet the entire capital invest through borrowing from financial institutions. The details are given below.

Table 7.32
Interest charges on Loans and Bonds for the year 2011-12

Rs. in. Cr

Sl. No.	Particulars	Rate of Interest in %	Balance at the beginning of the year	Amount Received during the year	Amount Redeemed during the year	Balance outstanding at the end of the year	Interest for the year
I	Loans from others secured						
	KSE Bond	11.50 - 13.00	10.45	0.00	10.45	0.00	0.93
	REC	7.00 - 11.75	181.04	0.00	20.00	161.04	20.73
	LIC	9	16.00	0.00	2.00	14.00	1.51
	PFC	6.00 - 9.00	5.79	0.00	5.79	0.00	0.30
	Subtotal		213.28	0.00	38.24	175.04	23.47
II	Loans from others unsecured						
	LIC	9	34.39	0.00	12.01	22.38	3.24
	REC	7.00 - 11.75	176.36	0.00	39.97	136.39	17.56
	KPFC	6.25 - 12.25	0.02	0.00	0.02	0.00	0.00
	STL from UBI		0.02	0.00	0.00	0.00	0.00
	PFC-RAPDRP	11.5	64.31	0.00	0.00	0.00	7.40
	STL from SBI	7.50 - 8.00	0.00	0.00	0.00	0.00	0.00
	Subtotal		275.10	0.00	52.00	158.77	28.20
	Borrowing proposed for the year 2010-11	10.5	1030.00		0.00	1030.00	108.15
	<u>Total interest and finance charges for outstanding loans and bonds as on 31-03-2011</u>						<u>159.82</u>
	Addl borrowing proposed for the year 2011-12	10.5		1036.00		1036.00	54.39
	Total		1518.38	1036.00	90.24	2399.81	214.21

As discussed under para 7.3.1 to 7.3.5 above, KSEB has proposed to claim interest and finance charges for the fresh capital investment made on normative basis, once Hon'ble Commission finalise the 'Terms and Conditions of Tariff' under section-61 of the Electricity Act, 2003, which is under process and the same is likely to be finalized during the year 2011-12. Hence, KSEB request that, once Hon'ble Commission finalise the tariff norms, KSEB may be permitted to claim the interest charges for new investment on normative basis only.

(e) Interest on borrowings for working capital for the year 2010-11
7.3.22 As discussed under para 7.3.9 to 7.3.11 above, the actual revenue gap for the current year 2010-11 is likely to be at Rs 1933.82 crore against the approval of Rs 457.47 crore. But, Hon'ble Commission had even not allowed recovering the approved revenue gap through tariff. This has resulted into a situation that, Board has to depend heavily on overdraft during the current year for meeting even day to day expenses. The

details of overdraft availed during the current financial year from April-10 to October-2010 are detailed below.

Table 7.33
Details of overdraft availed from April-10 to October-2010

Month	Amount	Interest
	(Rs.Cr)	(Rs.Cr)
Apr-10	244.63	1.51
May-10	252.07	2.32
Jun-10	98.63	2.39
Jul-10	365.35	1.59
Aug-10	232.59	3.20
Sep-10	214.84	2.17
Oct-10	139.13	1.94
Total		15.12

7.3.23 Since Hon'ble Commission has not been taking any steps to bridge the revenue gap, KSEB has to depend on over draft for the coming months also. In the light of the above, the interest on working capital for the year 2010-11 will be about Rs 26.00 crore.

(f) Interest on working capital for the year 2011-12

7.3.24 Hon'ble Commission may please note that, due to the accumulated revenue gap since the year 2008-09, KSEB has been passing through severe financial crunch. This has forced KSEB to depend heavily on overdraft/ short-term borrowing from financial institutions during the year 2010-11 and the situation may be further worsened during the year 2011-12 .

7.3.25 Most of the regulators are allowing the interest on working capital on normative basis. Since Hon'ble Commission is already in the process of notifying the 'Tariff Regulations' under section-61 of the of the Electricity Act-2003, KSEB may claim IWC based on the norms. However, considering the anticipated over draft position, KSEB has made a lump-sum provision of Rs 30.00 crore on interest on working capital for the year 2011-12.

7.3.26 While approving the ARR&ERC for the year 2010-11, Hon'ble Commission had commented that KSEB had Rs 1324.75 crore available as security deposit and hence there is no need for working capital requirements. But, the amount of Rs 1324.75 crore cited by the State Commission is the total amount collected by the KSEB as security deposit since its inception in the year 1957. The amount collected as security deposit in each year accounted as deposit from consumers. Since the amount so collected is required to refund only when the consumer dismantle the service connection from KSEB system KSEB had utilized the amount so collected as internal resources and utilized in the respective year itself.

Hence the amount of security deposit so collected over the years from 1957 to 2010 is not freely available with KSEB for meeting its short term liability.

(g) Interest payable on the security deposit of the consumers

7.3.27 As per sub clause (4) of section 47 of the Electricity Act, 2003, KSEB as a Distribution Licensee is required to pay interest on the security deposit to the consumers at a rate equivalent to the bank rate or more. In accordance with the clause 16(1) of the Supply Code specified by the KSERC and further clarification issued by the Commission thereon, KSEB has been crediting interest on security deposit at 6% on the outstanding deposit as on 1st April since the year 2005-06. The amount of security deposit to the credit of consumers as on 01.04.2009 is Rs. 967.43 Crore and same as on 01-04-2010 is Rs.1078.92 Crore. The amount of interest payable for 2010-11 is estimated at Rs.58.05 Crore and for 2011-12 it is estimated at Rs. 64.73 Crore.

(h) Rebate to consumers for advance payment of Charges/Rebate to traders for prompt payment.

7.3.28 Present rate of rebate allowed by the Board on advance payment of electricity charges by the consumers is 4% for advance payment of 12 months' charges and 2% for 6 months charges. The actual payment towards rebate to the consumers during 2009-10 was Rs.2.74 Crore. In line with the above, the amount estimated for the year 2010-11 is revised to Rs.3.00 Crore and the amount for 2011-12 is estimated at Rs.3.25 Crore excluding prompt payment rebate to traders.

(i) Interest on Provident Fund balance.

7.3.29 As per the Annual Accounts for 2009-10, the GPF credit as on 31-03-2010 is Rs.627.53 Crore in the GPF accounts of the Board employees and interest at the prescribed rate payable for the year 2010-11 is estimated as Rs.53.34 Crore. Expecting a nominal increase, the interest on PF balance estimated as Rs.55.25 Crore. These are statutory payments and hence may be admitted.

(j) Cost of raising finance

7.3.30 An amount of Rs.1.00 Crore is provided in the ARR for 2010-11 towards cost of raising finance. The same level is estimated for the year 2011-12 for raising fresh loans etc.

(k) Guarantee Commission

7.3.31 The Board is paying guarantee commission to the Government at the rate of 0.75% on the outstanding guaranteed amount of loans/bonds. The guarantee commission due and payable during the year 2004-05 in pursuance of the G.O.(Ms) No.487/04/Fin dated 16.10.04 of the Government that the Board should pay Guarantee Commission for all

kinds of guaranteed loans outstanding as on 31st March of the preceding year. In this connection, it is to be noted that the Government of Kerala vide G.O. dated 20.5.04, has frozen the guarantee provided to the Board and directed that the Board should negotiate all the loans without Government Guarantee in future. Therefore, the Board has not availed any new guarantee from the Government. The outstanding balance of Government secured loan as on 31-03-2010 is Rs. 253.43 Crore and the same at the end of the financial year 2010-11 are estimated at Rs.213.28 Crore for the existing guarantee. The amount of guarantee commission payable in 2010-11 would be Rs.2.49 Crore including Rs.0.56 crores payable towards Board's share on loan from KPFC and it would be Rs. 1.61 Crore in 2011-12.

(I) Other charges and bank charges

7.3.32 Other charges include bank charges for remittance between offices, collection of electricity charges from the consumers, service tax and other bank charges like LC charges bank guarantee charges. After taking into account the newly added item of service tax on cheques issued from current account and the increase in the number of new section offices and collection centers opened by the Board, the total bank charges is likely to increase and it is estimated that the charges would be Rs.12.00 Crore in the year 2010-11 and, Rs.15 Crore in the year 2011-12.

7.3.33 The summary of the revised estimate of Interest and Finance charges for 2010-11 and the estimate for 2011-12 is given below.

**Table - 7.34
Summary of Interest and Finance Charges**

Rs.in Crore

Particulars	2009-10	2010-11		2011-12
	Accounts	SERC approval	Revised	Estimate
I - Interest on outstanding Loans & Bonds	124.79	116.71	161.61	214.21
II - Interest on Security Deposit	58.05	64.18	58.05	64.73
III - Other Interest and Finance Charges				
Interest on borrowings for working capital	22.87	5.31	26.00	30.00
Rebate to consumers for timely payment	2.75	2.00	3.00	3.25
Interest on PF	44.41	55.59	53.34	55.25
Cost of raising finance:	0.00	1.00	1.00	1.00
Guarantee Commission			2.49	1.61
Bank Charges	10.70	23.49	12.00	15.00
Total of (III)	80.73	87.39	97.83	106.11
Grand Total (I+II+III)	263.57	268.28	317.49	385.05

(m) **Apportioning of interest and finance charges into Generation, Transmission and Distribution functions.**

7.3.34 The interest and finance charges are apportioned into Generation, Transmission and Distribution as detailed below.

- (i) The interest and finance charges on the existing capital liabilities as on 31-03-2011 are allocated in the ratio of capital liabilities assigned to each function.
- (ii) Capital liabilities are assigned on the basis of Gross fixed assets reduced by Contribution, Grants and Subsidies towards cost of capital assets.
- (iii) For new capital investments made during the year 2011-12, capital liabilities are apportioned on the basis of capital investments made/proposed in each functional area.
- (iv) Other interest and finance charges are apportioned as follows.
 - (a) Interest on security deposit- 100% for distribution
 - (b) Interest on working capital in the ratio of the ARR - ie. at 18% on Generation, 24% for Transmission and 58% for distribution
 - (c) Rebate to consumers- 100% for distribution
 - (d) Interest to PF - in the ratio of employee cost- 7.93% for generation, 29.24% for transmission and 62.83% for distribution
 - (e) Cost of raising finance and Guarantee Commission in the ratio of capital liabilities
 - (f) Bank charges- 100% to the distribution

7.3.35 The capital liabilities as on 31.03.2010 have been assigned to the Generation, Transmission and Distribution in the proportion of GFA less Contribution is as shown below:

Table 7.35
Ratio of capital liabilities for apportioning existing interest and finance charges

Particulars	Unit	Generation	Transmission	Distribution	Total
GFA as on 31.03.2010	(Rs. Cr)	3401.75	3253.94	3529.34	10185.03
Contribution as on 31.03.2010	(Rs. Cr)			2953.91	2953.91
GFA less Contribution	(Rs. Cr)	3401.75	3253.94	575.43	7231.12
Ratio	(%)	47.04	45.00	7.96	100.00

7.3.36 As discussed under para-7.36 above, the interest on additional borrowings proposed for the year 2011-12 for meeting the fund requirements for the new investment may be apportioned in the ratio of normative debt requirements of each functional unit. The details are given below.

Table 7.36
Ratio of capital liabilities proposed for the year 2011-12 into the three functional areas.

Sl No	Particulars	Unit	Generation	Transmission	Distribution	Total
1	Capital investment proposed for the year 2011-12	(Rs. Cr)	308.28	254.85	444.00	1007.13
2	Others (including IT enabled services)	(Rs. Cr)	8.84	7.31	12.73	28.87
3	Total	(Rs. Cr)	317.12	262.16	456.73	1036.00
6	Debt proposed	(Rs. Cr)	317.12	262.16	456.73	1036.00
7	Ratio of new debts service to each functional units	(%)	30.61	25.30	44.09	100.00

7.3.37 The summary of the ratio of apportioning of interest and finance charges into three functional units for the year 2011-12 is given below.

Table 7.37
Allocation of interest and finance charges for the year 2011-12 among the three functional units (in percentage)

Sl No.	Particulars	Generation (%)	Transmission (%)	Distribution (%)
1	Interest on existing loans and bonds as on 31-03-2011	47.04	45.00	7.96
2	Interest on additional borrowings proposed for the year 2011-12	30.61	25.30	44.09
3	Interest on security deposit			100.00
4	Other interest & finance charges			
	(a)Interest on borrowings for working capital	18.00	24.00	58.00
	(b)Rebate to consumers for timely payment			100.00
	(c)Interest on PF	7.93	29.24	62.83
	(d)Cost of raising finance:	49.76	38.11	12.13
	(e)Guarantee Commission	49.76	38.11	12.13
	(f)Bank Charges			100.00

7.3.38 Based on the allocation as above, the function wise break of interest and finance charges for the year 2011-12 is detailed below.

Table 7.38
Function wise break up of interest and finance charges for the year 2011-12

Sl No.	Particulars	Generation	Transmission	Distribution	Total
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Interest on existing loans and bonds as on 31-03-2011	75.18	71.92	12.72	159.82
2	Interest on additional borrowings proposed for the year 2011-12	16.65	13.76	23.98	54.39
3	Interest on security deposit	0.00	0.00	64.73	64.73
4	Other interest & finance charges				
	(a)Interest on borrowings for working capital	5.40	7.20	17.40	30.00
	(b)Rebate to consumers for timely payment	0.00	0.00	3.25	3.25
	(c)Interest on PF	4.38	16.16	34.71	55.25
	(d)Cost of raising finance:	0.50	0.38	0.12	1.00
	(e)Guarantee Commission	0.80	0.61	0.20	1.61
	(f)Bank Charges	0.00	0.00	15.00	15.00
	Grand Total	102.91	110.03	172.11	385.05

Hon'ble Commission may kindly approve the interest and finance charges as detailed above.

7.4 Depreciation

7.4.1 Since the year 2006-07, Hon'ble Commission has been approving the depreciation as per the CERC norms based on the recommendations in the National Tariff Policy dated 6th January-2006 quoted as below:

“The Central Commission may notify the rates of depreciation in respect of generation and transmission assets. The depreciation rates so notified would also be applicable for distribution with appropriate modification as may be evolved by the Forum of Regulators.

The rates of depreciation so notified would be applicable for the purpose of tariffs as well as accounting.”

However, FOR is yet to make modification on the depreciation rates notified by the CERC for Generation and Transmission Assets.

7.4.2 KSEB still continuing as a single entity and it is yet to be re-vested into a new company. The accounts of KSEB has been preparing strictly in accordance with the ESAAR-1985. Accordingly, KSEB had been accounting the Depreciation as per the ESAAR-1985 at the rates notified by the Gol, Ministry of Power vide the Gazette dated 1994. The Accounts of KSEB are still audited and certified by Comptroller & Auditor General of India. However, as directed by the Commission, KSEB has also been claiming depreciation as per the CERC norms.

7.4.3 The details of the Gross Fixed Assets for the year 2009-10 (provisional accounts), revised estimate for the year 2010-11 and estimate for 2011-12 are given under DATA-FORM -V of this report. The summary is given below.

Table 7.39
Gross Fixed Assets at the beginning of the Financial Year

Asset Class	(Rs in Cr)		
	2009-10	2010-11	2011-12
Land & Rights	306.27	331.88	362.18
Buildings	536.50	581.37	634.44
Hydraulic Works	974.37	1055.86	1152.24
Other Civil Works	325.36	352.57	384.75
Plant & Machinery	3767.85	4083.58	4456.39
Cable Network etc	4205.45	4557.16	4973.81
Vehicles	13.57	14.70	16.05
Furniture and Fixtures	15.04	16.30	17.79
Office Equipments	40.62	44.02	47.99
Assets not belongs to the Board	7.14	7.14	7.14
Total	10192.17	11044.57	12052.76

7.4.4 The asset class shown above is as per the classification under schedule-19 of the Annual Accounts of KSEB. The rate of depreciation adopted in each asset class is the average rate of depreciation for the respective asset class based on the CERC norms. The amount of depreciation estimated for the year 2010-11 and 2011-12 is given below.

**Table - 7.40
DEPRECIATION**

Asset Class	Depreciation rates	Amount	
		2010-11 (Estimate)	2011-12 (Estimate)
	%	Rs. Cr	Rs. Cr.
Land and Land Rights	0.00	0.00	0.00
Buildings	3.34	17.92	19.42
Hydraulic Works	5.28	51.45	55.75
Other Civil Works	3.34	10.87	11.78
Plant and Machinery	5.28	198.94	215.61
Lines, Cable Network, etc.	5.28	222.05	240.62
Vehicles	9.50	1.29	1.40
Furniture and Fixtures	6.33	0.95	1.03
Office Equipments	6.33	2.57	2.79
Total		506.04	548.39

Apportioning of Depreciation among Generation, Transmission and Distribution

7.4.5 As stated under para-7.1 above, the total depreciation is apportioned into Generation, Transmission and Distribution in the proportion of past actuals as per the Statement-6 of the audited accounts. The details are given below.

**Table 7.41
Function wise details of depreciation for the year 2011-12
Rs.in Crore**

Functional area	Proportion (average of last five years from 2005-06 to 2009-10)	Amount
	(%)	(Rs.Cr)
Generation	28.91	158.54
Transmission	33.20	182.07
Distribution	37.89	207.78
Total	100.00	548.39

Hon'ble Commission may kindly approve the Depreciation as claimed above for the year 2011-12.

7.5 Employee Costs

(a) Salary and allowances to serving employees

7.5.1 As on 31-09-2010, KSEB has 28157 numbers of serving employees, their function wise split up is detailed below.

Table-7.42

Total number of employees in each functional unit

Functional Unit	Numbers
Generation	1514
Transmission	2757
Distribution	22946
Corporate Office	940
Total	28157

7.5.2 KSEB is still continuing as SEB under the transitional provisions under section-172 and 131 of the Electricity Act-2003. The wage and service conditions of the employees prior to the enactment of the Electricity Act-2003, is continuing. The salary, DA and other benefits to its employees are governed by the wage agreement with the trade unions.

7.5.3 The Government of Kerala vide the order G.O (Ms) No. 34/06/PD dated 16-12-2006 had also issued a policy directive to the State Commission under Section 108 of the Electricity Act 2003. Paragraph (x) of the Policy directives deals with the approval of ARR&ERC of KSEB, which is reproduced below.

“The Aggregate Revenue requirement of State Electricity Board should be determined in a realistic manner and should be objective. Appointment of contract workers in vacancies of permanent nature cannot be allowed. While approving the revenue expenditure, the fluctuations in Dearness Allowances, Pay revision etc shall also be considered. Wide difference between the ARR approved at the beginning of the Year and revenue requirement at the end of the financial year shall lead to tariff shock than systematic tariff change. This will lead to great social adverse consequences. The Accounts of the Board is being prepared and the Constitutional Functionary C&AG auditing the accounts of the Board based on norms prescribed by the Central Government. It is not beneficial to have wide difference in the C&AG audited accounts and the ARR while ascertaining the expenses including depreciation. While approving the ARR, these factors shall also be considered.”

7.5.4 The actual basic pay disbursed during the year 2009-10 as per the provisional accounts was Rs 387.85 crore. As per the wage /settlement agreements, KSEB has to give annual increment to its employees at the prevailing scale of pay. Accordingly KSEB has made a provision of Rs 407.36 crore as basic salary for the year 2010-11 and Rs 430.12 crore for the year 2011-12 expecting compound annual increase of 5% on the

actual salary of Rs 387.85 crore for the year 2009-10. The increase in basic pay proposed is Rs 19.51 crore for the year 2010-11 over 2009-10 and Rs 22.76 crore for the year 2011-12 over the previous year.

7.5.5 DA to the KSEB employees are allowed periodically in line with inflationary factors as per the policy of the Government of Kerala, in the same rate allowed to the State Government employees from time to time. As and when the State Government releases DA, the same is extended to KSEB employees also. This is in line with the wage agreement with the employees. The State Government releases DA in line with the pattern adopted by the Government of India based on inflation. The DA as on 31-03-2009 was 55%. Two installment of DA, 9% w.e.f July-2009 and 14% w.e.f January-2010 were allowed to the KSEB pensioners and employees. Thus the total DA/DR released during the year 2009-10 was 23%. The DA w.e.f July-2010 is due and the same is to be allowed to the Board employees. In this matter, Hon'ble Commission vide the letter No. 1235/ARR&ERC 10-11/KSERC/2010/77 dated 28th July, 2010 has clarified that, DA/DR can be paid to the employees and pensioners of the Board as announced by the Government from time to time without reference to the Commission. KSEB has made a provision of 22% of additional DA for the year 2010-11 (total for two DA release from July-2010 and January-2011) and 24% for the year 2011-12 (total for two DA release from July-2011 and January-2012). Since the DA is being provided to employees as relief to cover the risk of inflation, the same is to be allowed to the KSEB employees also.

7.5.6 KSEB has to provide the HRA, project allowances etc as per the provisions in the wage agreement with the employees unions. As per the wage agreement with trade unions and also as per the Government policies, KSEB employees are entitled to claim earned leave encashment for 30 days and Terminal Leave surrender for 300 days. The actual earned leave encashment including Terminal leave surrender for the year 2009-10 was Rs 56.03crore. KSEB has made a provision of Rs 60.00 crore for the year 2010-11 and Rs 64.00 crore for the year 2011-12. It may be noted that, the actual EL encashment may depend on the number of employees who opt to claim earned leave surrender. Employees also can choose to avail earned leave instead of encashing the same. Hence, any deviation/ excess on actual disbursement over the approval may be admitted at the time of truing up of accounts. However, in the previous orders on ARR and True-Up, Hon'ble Commission has considered it as a controllable expenses and allowed only 7% increase over previous year.

7.5.7 Revision of pay and allowances of workmen category is due from August-2008 and officers from July-2008. As per the prevailing accounting

practices, the provision of salary revision is to be made for the respective years since it became due. KSEB has made a provision of Rs 120.52 crore for the year 2010-11 and Rs 141.58 crore for the year 2011-12 for meeting the additional liability likely to arise due to pay revision.

7.5.8 The projection of salary and benefits to serving employees for the year 2011-12 is detailed below.

Table 7.43
Details of salary and benefits of serving employees

Sl No.	Particulars	2009-10	2010-11	2011-12
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
A.	Basic Pay	387.85	407.36	430.12
B.	DA at the beginning of the year *	213.32	317.74	430.12
	DA released/ provision made during the year	44.79	44.81	51.61
C	Other allowances (HRA, Project allowances)	27.87	29.50	32.00
	Over Time/ holiday wages	0.18	0.20	0.24
	Bonus	4.95	5.20	5.45
	Medical reimbursements	3.60	3.85	4.15
	Compensation	0.29	0.45	0.50
	Leave salary & Pension Contribution	0.11	0.15	0.18
	Earned Leave encashment	56.03	60.00	64.00
	Staff Welfare			
D	Addl provisions made for pay revision, which is due from July/Aug-2008	107.15	120.52	141.58
E	Total	846.14	989.78	1159.95
F	Less amount capitalized from employee cost	79.84	95.96	111.37
G	Net Employee cost	766.30	893.82	1048.58

* DA as on 31-3-2009 = 55%
DA as on 31-3-2010 = 78%
DA anticipated as on 31-3-2011= 100%
DA anticipated as on 31-3-2012= 124%

7.5.9 A comparison of the business growth of KSEB during the period from 2004-05 to 2010-11 and the increase of employee strength during the same period is given below.

Table-7.44
Details employee strength

Year	Consumer Strength			Energy sales			Employee Strength		
	(Lakhs)	% of increase	Cumulative	(MU)	% of increase	Cumulative	(Nos)	% of increase	Cumulative
2004-05	78.00			9384.00			24454.00		
2005-06	83.00	6.41	6.41	10270.00	9.44	9.44	25565.00	4.54	4.54
2006-07	87.10	4.94	11.67	11331.00	10.33	20.75	25894.00	1.29	5.89
2007-08	90.30	3.67	15.77	12050.00	6.35	28.41	25110.00	-3.03	2.68
2008-09	93.60	3.65	20.00	12414.00	3.02	32.29	27089.00	7.88	10.78
2009-10	97.43	4.09	24.91	13971.09	12.54	48.88	28049.00	3.54	14.70
2010-11	101.68	4.36	30.36	14670.52	5.01	56.34	28157.00	0.39	15.14
2011-12	105.68	3.93	35.49	15600.15	6.34	66.24	28157.00	0.00	15.14

It can be seen that, over the last six years from 2004-05 the consumer's strength and the energy sales have increased by 35.49% and 66.14% respectively, but during the same period the number of employees has increased by 15.14% only.

7.5.10 A comparison of the increasing trend of salaries and other benefits of serving employees is detailed below.

Table-7.45
Year wise details of employee cost

Year	Salary & benefits to serving employees (Rs. Cr)	Total expenses (Rs. Cr)	(%) of salary in total expenses
2006-07	502.74	4558.40	11.03
2007-08	469.67	5227.13	8.99
2008-09 (prov)	692.15	6098.99	11.35
2009-10 (prov)	766.30	6944.44	11.03
2010-11 (R.E)	893.82	7581.04	11.79
2011-12 (estimate)	1048.58	8571.46	12.23

It may be noted that, the main reason for the increase in employee cost is inflationary factors as well as business growth and stringent performance standards imposed by the Commission.

7.5.11 The major indicators for assessing the employee productivity is the number of consumers served per employee and also employee per MU of energy sold. The details of number of employees, energy sold, revenue earned etc. is given in the following table.

Table-7.46
Performance analysis of employee cost

Year	Consumer per employee (Nos)	Employee per MU handled (Nos)
2003-04	295	2.78
2004-05	319	2.61
2005-06	324	2.34
2006-07	337	2.09
2007-08	360	1.87
2008-09	346	2.10
2009-10	347	1.95
2010-11	361	1.92
2011-12	375	1.81

7.5.12 There is wide spread criticism that, the employee cost of KSEB is comparatively high when compared to similar power utilities. But the geography and demography of the State is entirely different from other states. Due to the uniform distribution of consumers across the State,

the number of consumers served by KSEB is much higher than that of other states. Further, majority of consumers of KSEB is domestic and other LT category spread across the State.

(b) Pension and Terminal benefits to the Retired Employees

7.5.13 As on 31.03.2010, KSEB has a total of 30567 pensioners. About 541 employees are due for retirement during the current financial year. Pensionary claims are firm commitment and KSEB could not deny this to its past employees. Moreover, as and when DA is released to serving employees, same relief is also granted to the pensioners in line with Government policies. Hon'ble Commission may kindly note that, the pension also being revised as and when the pay revision is made applicable to serving employees.

7.5.14 The revised estimate of the pension and other benefits to the retired employees for the year 2009-10 and the estimate of the same for the year 2010-11 are given below.

Table-7.47
Estimate of pension and terminal benefits

Particulars	2009-10 (prov)	2010-11 (Revised)	2011-12
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
Annual Pension	496.44	549.30	616.14
Commutation	42.13	42.13	45.00
DCRG	29.88	22.88	23.50
Medical, interim relief and festival allowance	5.45	5.60	6.00
Provision for pension revision	30.41	53.05	60.03
Total	604.31	672.96	750.67

7.5.15 The total employee cost including salary and allowances to the serving employees and the pension, terminal benefits for the retired employees are given below.

Table 7.48
Total employee cost

Particulars	2009-10 (prov)	2010-11 (Revised)	2011-12
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
Salary and allowance to serving employees	846.14	989.78	1159.95
Terminal benefits	604.31	672.96	750.67
Total	1450.45	1662.74	1910.62

7.5.16 In this matter, KSEB submits before the Hon'ble Commission that, the Kerala Service Rules and other service conditions as applicable in the Government are applicable to employees of KSEB also. Till date pension liabilities of KSEB remain unfunded and this liability has been accounted over the years on the principle of "pay as you go" as in Government. If the assets and liabilities of KSEB are re vested into a new company, the pension liabilities are needed to be separated from the new company. As directed by the Government as part of re-structuring of KSEB, M/s PFC consultants is entrusted with a study report on separation of pension liabilities from the new company. The initial report of M/s PFC on the subject matter is yet to be approved by the Government.

Apportioning of Employee Cost among different functional units.

7.5.17 As stated under para-7.1 above, the total employee cost is apportioned into Generation, Transmission and Distribution based on the basis of the employee strength and cost as on 31-03-2010 as per the provisional accounts for the year 2009-10. The details are given below.

Table 7.49
Function wise details of employee cost for the year 2011-12

Functional area	Proportion for the year 2009-10	Amount for the year 2011-12
	(%)	(Rs.Cr)
Generation	4.42	84.45
Transmission	9.68	184.95
Distribution	85.90	1641.22
Total	100.00	1910.62

7.6 Repairs and Maintenance Cost (R&M)

7.6.1 KSEB is engaged in Generation, Transmission and Distribution of Electricity. As on 31-03-2010, KSEB has total fixed assets of Rs 10185.03 crore, the details are as given below.

Table 7.50
Gross fixed as on 31-03-2010

Functional area	Gross Fixed asset as on 31-03-2010
	(Rs. in Cr)
Generation	3401.75
Transmission	3253.94
Distribution	3529.34
Total	10185.03

7.6.2 The assets of KSEB include plant and machinery, lines, cable networks, buildings, office equipments etc. In order to provide quality power with minimum interruptions, the assets have to be maintained in good condition throughout its economical life. The R&M cost is the essential cost required to maintain the assets. Most of the assets of KSEB are very old and it is to be repaired & maintained properly for ensuring desired level of performance. Further Hon'ble Commission has imposed stringent performance standards to maintain quality and reliability in power supply. Irrespective of use, the plant and machinery of the electricity utility has to be kept in a state of readiness to achieve the performance standards. As per accounting policies, the expenditure on repairs & maintenance has to be charged to revenue in the same year in which it is incurred. In order to the meet the standards, reasonable expenses under R&M heads based on the prudent utility practices is inevitable to maintain the assets properly.

7.6.3 In the previous orders on ARR, Hon'ble Commissions has treated the R&M expenses as a controllable item and criticized KSEB for not limiting R&M expenses with in the approved level. During the last few years, the actual R&M expenses incurred was slightly higher than the estimate in the ARR due to the following reasons.

- (i) Stringent performance standards imposed by the Commission. The officers in charge of the assets are given delegation of powers to incur essential expenditure require to maintain the assets including restoration of power supply etc,
- (ii) It may be difficult to estimate the R&M expenses in advance.
- (iii) Every year about 7 to 8% assets is being added into KSEB system.
- (iv) Escalation in the cost of labour and material. The inflation during the last two years is given below.

Table 7.51
Inflation during the years from 2008-09 to 2009-10

Year	2008	2009	2010
Jan	5.51	10.45	16.22
Feb	5.47	9.63	14.86
Mar	7.87	8.03	14.86
Apr	7.81	8.70	13.33
May	7.75	8.63	13.91
June	7.69	9.29	13.73
July	8.33	11.89	11.25
Aug	9.02	11.72	9.88
Sep	9.77	11.64	9.82
Oct	10.45	11.49	
Nov	10.45	13.51	
Dec	9.70	14.97	

7.6.4 The budget estimate of R&M expenses is prepared based on the report from field offices. By middle of every year, Board is collecting the details of the R&M work plan and financial requirement for the ensuing

year as well as the revised estimate for the current year. The financial targets proposed by the field ARU's are restricted with the overall budget and the estimate in the ARR is made. Board is limiting the R&M expenses in accordance with the ARR estimate anticipating that the Hon'ble Commission may approve excess if any during true up. However, the actual may be different from the ARR estimate due to the reasons cited under para 7.6.3 above.

- 7.6.5 In this matter, KSEB may invite the approach of the other SERC's and CERC in allowing the R&M expenses. Almost all the regulators are approving the R&M expenses on normative basis including that for generators. It may be difficult for a power utility especially for transmission and distribution utilities for a precise estimation of the R&M expenses in advance or limit the expenses strictly to the level approved at beginning of the year. Any such control if imposed will adversely affect the quality of power supply.
- 7.6.6 Considering the difficulty in precise estimation of the R&M expenses, KSEB has estimated the R&M expenses as certain percentage of the GFA at the beginning of every year.
- 7.6.7 As per ARR for 2009-10, the Board had projected Rs.152.74 Crore as Repair and maintenance cost, and the same was admitted in full by Honorable Commission. However, the actual expenditure as per the provisional accounts risen up to Rs.173.16 Crore. This increase was inevitable on account of the inflation, newly added assets etc.
- 7.6.8 The average annual asset addition into the KSEB system is about 7 to 8%. Similarly, the average inflation for the last years was in the order of 11 to 15%. Considering the asset growth as well as inflationary factors, KSEB expect an average increase of 19% on R&M expenses for the year 2010-11 and 2011-12. Further details in this regard are given below.

Table 7.52
Repair and Maintenance Cost (Rs. in Cr)

Sl No.	Particulars	2009-10	2010-11			Estimate for 2011-12
		Provisional accounts.	ARR	KSERC approved	Revised estimate	
1	Plant & Machinery	52.93	47.63	43.87	63.52	76.22
2	Buildings	4.41	4.92	4.53	4.85	5.38
3	Other Civil works	5.34	6.25	5.76	5.87	6.52
4	Hydraulic works	2.01	2.12	1.95	2.21	2.44
5	Lines, Cable networks	101.53	107.49	99	121.84	144.5
6	Vehicles	5.5	6.01	5.54	6.05	6.78
7	Furniture & fixtures	0.5	0.28	0.26	0.55	0.61
8	Office equipment	0.94	0.62	0.57	1.08	1.3
	Total	173.16	175.32	161.47	205.97	243.75

7.6.9 The R&M expense as a percentage of Gross Fixed Assets is given below.

Table - 7.53
R&M as percentage of Gross Fixed Asset

Details of Assets	2009-10			2010-11			2011-12		
	GFA at the beginning of the year	R&M expenses	%	GFA at the beginning of the year	R&M expenses	%	GFA at the beginning of the year	R&M expenses	%
	(Rs. Cr)	(Rs.Cr)		(Rs. Cr)	(Rs.Cr)		(Rs. Cr)	(Rs.Cr)	
Buildings	497.3	4.41		536.5	4.85		581.37	5.38	
Hydraulic Works	899.02	2.01		974.37	2.21		1055.86	2.44	
Other Civil Works	301.93	5.34		325.36	5.87		352.57	6.52	
Plant and Machinery	3454.35	52.93		3767.85	63.52		4083.58	76.22	
Lines, Cable Network etc.	3753.53	101.53		4205.45	121.84		4557.16	144.5	
Vehicles	13.05	5.5		13.57	6.05		14.7	6.78	
Furniture and Fixtures	13.91	0.5		15.04	0.55		16.3	0.61	
Office Equipments	35.22	0.94		40.62	1.08		44.02	1.3	
Total	8968.31	173.16	1.93	9878.76	205.97	2.08	10705.55	243.75	2.27

Apportioning of R&M Cost among different functional units.

7.6.10 As stated under para-7.1 above, total R&M cost is allocated among Generation, Transmission and Distribution based on the proportion of actual expenditure in the past as per the Statement-6 of the audited accounts. The details are given below.

Table - 7.54
Function wise details of R&M cost for the year 2011-12

Functional area	Proportion (average of last	Amount
	(%)	(Rs.Cr)
Generation	8.69	21.18
Transmission	28.33	69.06
Distribution	62.98	153.51
Total	100.00	243.75

7.7 Administration and General Expenses

7.7.1 Administration & General (A&G) expenses include various items such as rents, rates and taxes, insurance, telephone charges, internet and related charges, legal charges, audit fees, consultancy charges, printing and stationary, advertisement etc. All these items are inevitable for a utility like KSEB to perform its obliged duties and functions.

7.7.2 Hon'ble Commission has considered the A&G expense as a controllable item. But it is highly amenable to inflation. Further, the A&G expenses

have a direct bearing on the business growth of the utility. Unlike a generating station or a process industry, the volume of business activity of KSEB has been increasing over the years. The energy sale has been showing an annual growth of 7%. The number of consumers served by KSEB has also been increasing by 5 to 6% per annum. Further, to achieve the performance standards stipulated by the Hon'ble Commission, the infrastructure, man power and other associated activities are also increasing.

7.7.3 The average growth during the last few years is about 7 to 8%. As detailed under Table 7.51 above, the average inflation during the year 2009 was 10.83% and the same so far in 2010-11 is 13.10%. Considering the business growth of the utility and inflation, a moderate increase of 17 to 18% in A&G cost is expected for the years 2010-11 and 2011-12.

7.7.4 The actual A&G expenses as per the provisional accounts for the year 2009-10, the revised estimate for the year 2010-11 and the projected expenditure for the year 2011-12 are detailed below.

Table - 7.55

Administration and General Expenses (Rs. in Crore)

Sl. No.	Particulars	2009-10	2010-11	2011-12
		Provisional	Revised	Estimate
1	Rents, rates and taxes	4.30	4.69	5.39
2	Insurance	0.40	0.44	0.48
3	Telephone/telex charges, etc.	3.73	4.29	4.80
4	Internet and related charges	0.01	0.02	0.03
5	Legal charges	2.80	3.16	3.61
6	Audit fees	2.30	3.00	3.00
7	Consultancy charges	0.62	0.70	0.82
8	Other Professional charges	0.24	0.27	0.33
9	Conveyance and vehicle hire charges	17.11	18.99	21.84
10	Sub Total (Total of 1 to 9)	31.51	35.56	40.30
11	OTHER EXPENSES			
	a) Fees and subscriptions	0.56	0.62	0.71
	b) Printing & stationary	8.49	9.51	10.46
	c) Advertisements	6.40	7.36	8.46
	d) Contributions/donations	0.54	0.58	0.61
	e) Electricity charges	4.91	5.16	5.36
	f) Water charges	0.22	0.24	0.27
	g) Entertainment	0.22	0.24	0.28
	h) Training expenses	1.87	2.06	2.37
	i) Miscellaneous expenses	13.95	16.04	17.11
	Sub total	37.16	41.81	45.63
13	Freight	14.61	16.07	17.50
14	Other purchase related expenses	2.89	3.47	3.85
	Total	86.17	19.54	21.35
15	Ele. Duty u/s 3(l), KED Act	80.79	84.37	89.78
	GRAND TOTAL	166.96	181.28	197.06

- 7.7.5 All the expense components show an average increase of 11 to 15% over the previous years. Considering the business growth and inflation, the increase on A&G expenses expected is reasonable.
- 7.7.6 The Board is imparting training on a large-scale to the Officers and staff to improve productivity and efficiency, training on safety measures, maintenance and skill development in computer application, modern management and financial techniques etc. has become inevitable. Therefore, the Board plans to depute the staff to the various training centers within the state under the control of the Board and other centers outside the state.
- 7.7.7 With the efforts of the Board to provide “electricity on demand to all”, there is sizable increase in procurement of materials and execution of schemes. All these activities are expected to increase the charges of freight, traveling of personnel and purchase related administrative activities.
- 7.7.8 Miscellaneous expenses include expenses for which no specific classification is given under Administration and General expenses group.
- 7.7.9 One of the major expense items booked under A&G expense is the section 3(1) duty payable by KSEB to the Government. The section 3(1) duty is a statutory levy. While approving the ARR&ERC for the years from 2003-04 to 2006-07, Hon’ble Commission has considered this as revenue expenditure as part of the A&G expenses of the Board. Comptroller & Auditor General (C&AG) have also certified this as an essential expenditure under A&G expenses since the inception of the Board. But, while approving the Truing Up of accounts of KSEB since the year 2003-04 and also while approving the orders on ARR since the year 2007-08, Hon’ble Commission has not been admitting section 3(1) duty as a revenue expenditure quoting the provisions in the “Kerala Electricity Duty Act- 1963” that “(3) The duty under this section on the sales of energy should be borne by the Licensee and shall not be passed on to the consumers”. Accordingly, since the year 2003-04, Hon’ble Commission has not admitted duty aggregating to Rs 558.72 crore so far and the details are given below.

Table 7.56
Section 3(1) Duty not admitted.

Year	Section 3(1) duty not admitted by KSERC
2003-04	51.53
2004-05	54.98
2005-06	63.26
2006-07	71.78
2007-08	77.54
2008-09	74.47
2009-10	80.79
2010-11	84.37
Total	558.72

7.7.10 As directed by the Hon'ble Commission, KSEB has been apportioning the total ARR&ERC of KSEB into Generation, Transmission and distribution. Section-3(1) duty is an essential expenditure of the Distribution function.

7.7.11 All the regulators including CERC are admitting the statutory levies and taxes as pass through in tariff. As per the provisions of the Act, all the power utilities have to function on commercial principles. Also, all the utilities are entitled to earn the minimum return allowed on the Equity and internal resources. As detailed under **Section-7.8**, the RoE claimed for Distribution in the year 2011-12 is Rs.38.58 crore only, that is the RoE claimed itself is not sufficient to meet the obligation on the payment of section-3(1) duty to the Government. KSEB is a public sector undertaking fully owned by the State Government. As such, is not in a position to meet such a huge amount from its own sources. If Hon'ble Commission has not allowed the same as essential revenue expenditure, the financial sustainability of KSEB as a distribution utility will be seriously affected. The Government of Kerala has not exempted the Board from remitting Section 3(i) duty. As such it is a genuine expenditure of the Board. If the Hon'ble Commission is not allowing the same, the Board has no option but to set off the same against its non tariff income. As a Statutory body, Hon'ble Commission may kindly look into the matter in the right perspective of financial sustainability of KSEB and kindly admit the section 3(1) duty as revenue expenditure.

7.7.12 The projection of section -3(1) duty payable to the State Government is detailed below.

Table - 7.57
Electricity duty payable

Sl No.	Particulars	2009-10	2010-11	2011-12
		(Actual)	(Revised Estimate)	(Estimate)
1	Energy available for sale(MU)	13971.09	14670.52	15600.15
2	Consumption by NPG (MU)	4.30	4.00	4.00
3	Bulk supply(MU) including railway traction	578.00	603.65	632.98
4	Subtotal (2+3)	582.30	607.65	636.98
5	Total energy on which duty is payable (MU) (1-4)	13388.79	14062.87	14963.05
6	Ele. Duty @ 6ps /unit (Rs. In Cr)	80.33	84.37	89.78

7.7.13 Electricity Duty payable is projected on the anticipated generation and purchase of energy. The A&G Expenses excluding the Electricity Duty payable by the Board in 2009-10 were Rs.86.17Crore. The estimated amount of duty payable in 2010-11 and 2011-12 are Rs 84.37 crore and Rs 89.78 crore respectively.

Hon'ble Commission may kindly approve the A&G expenses as detailed under Table 7.55 and as explained above.

Apportioning of A&G expenses among Generation, Transmission and Distribution

7.7.14 As stated under para-7.1 above, the total A&G expense is apportioned among Generation, Transmission and Distribution based on the proportion of actual expenditure in the past as per the Statement-6 of the audited accounts. The details are given below.

Table-7.58
Apportioning of A&G expenses into three functional areas

Functional area	Proportion (average of last five years from 2005-06 to 2009-10)	Amount
	(%)	(Rs.Cr)
Generation	3.32	6.54
Transmission	15.62	30.78
Distribution	81.06	159.74
Total	100.00	197.06

7.8 Other Expenses

7.8.1 Prior period Expenses

As per the commercial accounting principles the Board has to take into account both the income materialized as well as the expenses crystallized relating to the prior periods. The Board may receive electricity charges, interest charges etc related to prior period during an accounting year. The expenses also relating to prior period like expenses

towards power purchase on the basis of CERC orders, claims from CGS& CTU, fuel related expenses, operating expense, employee cost, depreciation on account of belated capitalization of assets, interest and finance charges, other charges of past liabilities etc usually become liable every year. The actual net prior period income during 2009-10 as per the accounts was Rs.48.81 Crore. As explained before, the Central Commission yet to approve the tariff of CPSU's with effect from April-2009 and as per the revised tariff norms approved for 2009-14 there is every possibility that substantial additional payment shall become due for payment during this year towards the cost of power purchase and the same is to be disbursed as soon as the CPSUs makes the claims. The increase in such cost related to past period over the tariff claimed is accounted under prior period expenses.

In the previous orders on ARR, Hon'ble Commission has taken the stand that, the prior period expenses may be approved during the truing up after prudence check. But the increase in tariff of CGS due to tariff revision is an automatic pass through. Hence KSEB may be permitted to approach the Hon'ble Commission with details on additional liability on power purchase likely to be arise on account of the tariff revision of CGS w.e.f April-2009. For other claims under prior period expenses, KSEB may approach the Hon'ble Commission with details during the truing up process. Hence, in this petition, KSEB has not made any claim for prior period expenses.

7.8.2 Other Debits

The expenses relating to research and development, bad and doubtful debts, debit balance under material cost variance and miscellaneous losses and write-offs are included in 'Other Debits'. The details of other debits for the year 2009-10 as per the provisional accounts, the revised estimate for the year 2010-11 and projection for the year 2011-12 are detailed below.

Table 7.59
Other Debits (Rs in Crore)

Sl. No.	Particulars	(2009-10)	(2010-11)	2011-12
		(Provisional)	(Revised estimate)	(Estimate)
1	Research and Development Expenses	1.11	1.25	1.50
2	Provision for Bad and Doubtful debts	8.75	6.70	7.50
3	Miscellaneous Losses and write-offs	9.88	3.00	3.00
4	Material cost variance	51.82	0.00	0.00
	Total	71.56	10.95	12.00

It may be noted that, for the year 2009-10, KSEB had incurred Rs 51.82 crore towards material cost variance. It represents the difference between the actual rate at which material had been procured and the standard rate fixed for pricing the issue of material. However KSEB has

not made any provision under this head for the year 2010-11 and 2011-12. But in the event of such variance if occurred, Hon'ble Commission may be kind enough to permit to claim the same during truing up process.

Provision against doubtful debts has been created as per the audit observation of the C&AG that the provision created by the Board is insufficient and debts outstanding for more than five years are to be provided in full. This is also in accordance with the accepted Accounting Practices, on the basis of age of receivables. It may be noted that the receivables also consists of long pending dues from Government Departments, Public sector undertakings, pending due to court cases etc. which can not be written off from books. All possible efforts are regularly made to recover the out standing dues. Whenever a receivable has to be finally written off, the same is adjusted against the provision created and WILL NOT BE DEBITED TO THE EXPENDITURE AGAIN. The adequacy of the provision will be reviewed every year; the provision shall be suitably revised.

7.8.3 Apportioning of Other expenses among Generation, Transmission and Distribution

The research and development expenses are generally related to hydel projects and hence the same is accounted under generation. Other items such as provision for bad and doubtful debts, miscellaneous losses and write-offs are on account of distribution business and hence the same is accounted under distribution. The details are given below.

Table 7.60
Apportioning of other expenses into different functional arrears

Particulars	Function	Gen	Trans	Dist	Total
		(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
Research and Development Expenses	Generation	1.50	0.00	0.00	1.50
Provision for Bad and Doubtful debts	Distribution	0.00	0.00	7.50	7.50
Miscellaneous Losses and write-offs	Distribution	0.00	0.00	3.00	3.00
Material cost variance					
Total		1.50	0.00	10.50	12.00

7.9 Return on Equity

7.9.1 As per the provisions of the Electricity Act, 2003 and Tariff policy notified by the Central Government all the power utilities are to function on commercial principles and entitled to earn reasonable return on its investments. At present the State Government has been not been extending any subsidy to the KSEB and has to find adequate internal resources to meet its capital investments. Accordingly, KSEB has been claiming return at the rates approved by CERC on the Government equity

of Rs 1553.00 crore as per the Government Order G.O (Ms) No. 27/98/PD dated 14-09-1998. State Commission has allowed the RoE while approving the Truing up orders for the year 2005-06 and all orders on ARR&ERC for the years 2006-07 up to the year 2009-10.

7.9.2 However, vide the order dated 14-05-2010 on Truing Up of accounts of KSEB for the year 2006-07 and order dated 17-05-2010 on ARR&ERC of KSEB for the year 2010-11, Hon'ble Commission has withheld the RoE in the light of the Government Order dated G.O (Ms) No. 25/02/PD dated 09-10-2002. Government vide order G.O (Ms) No. 35/10/PD dated 13-12-2010 has clarified that, 'the equity of Rs 1553 crores ordered in G.O (Ms) No. 27/98/PD dated 14-09-1998 will continue to be treated as Government's capital in KSEB and para-5 of the G.O (Ms) No. 25/02/PD dated 09-10-2002 has been amended with retrospective effect to that extent.'

7.9.3 Accordingly, the equity as on 31-03-2010 is taken as Rs 1553.00 crore. As per the provisions of the Electricity Act and Tariff Policy, KSEB should have to function on commercial principles. More over as a power utility engaged in generation, transmission and distribution of electricity, KSEB should have to find out adequate resources for the capital investments made in each year. In this matter, KSEB would like to invite the kind attention of the Hon'ble Commission on the Letter from Secretary Power, Ministry of Power, Government of India dated 8-10-2009 addressed to the Chief Secretary, Government of Kerala. Central Government had expressed serious concern on not claiming permissible return by many State Power utilities. The relevant portion of the Central Government letter is quoted below. *"Para-3. Our information is that some State power utilities are not seeking permissible return on equity in their annual revenue requirements submitted to the SERCs. These State Utilities are either claiming less than the permissible RoE or are conveying SERCs that the State Governments has directed them to operate on a non profit no loss basis. Foregoing the permissible RoE is a matter of serious concern and is adversely affecting the expansion in the power sector"*.

7.9.4 Also, the tariff policy and CERC regulations permit KSEB to claim permissible return on the 30% contribution made from its own internal resources, however, KSEB has not claimed the same in this petition. Hon'ble Commission is in the process of notifying tariff norms under section-61 of the Electricity Act-2003, once it is finalized, KSEB may be allowed to claim RoE on normative basis.

7.9.5 As per the CERC (Terms and Conditions of Tariff) Regulations, 2009, the rate of return allowed by the Central Commission is 15.50% on equity as well as investment made out of internal resources. As per the subsection (a) of the section-61 of the Electricity Act, 2003, the principles and methodologies specified by the Central Commission for determination tariff is a guiding factor for determination of tariff by SERC's.

Accordingly, as per the prevailing regulations and utility practices, KSEB proposed to claim 15.5% return on Government Equity as well as for the investment made out of its internal resources.

Apportioning of Government Equity of Rs 1553.00 crore among Generation, Transmission and Distribution

7.9.6 KSEB proposed to apportion the total equity of Rs 1553.00 as on 31-03-2010 into Generation, Transmission and Distribution as per the formula detailed below.

“The equity shall be allocated in the ratio of (net fixed assets + net current assets + CWIP + investment - capital liabilities - borrowings for working capital)”

7.9.7 The ratio of existing equity of Rs 1553.00 crore into Generation, Transmission and Distribution is detailed below.

Table 7.61
Ratio of existing equity among Generation, Transmission and Distribution

Sl No	Particulars	Unit	Gen	Tran	Dist	Total
1	NFA as on 31.03.2010	(Rs Cr)	1941.91	2150.03	1717.77	5809.71
2	Net current assets as on 31-03-2010	(Rs Cr)	-264.94	-562.93	-1464.70	-2292.57
3	CWIP as on 31.03.2010	(Rs Cr)	304.87	217.85	347.00	869.72
4	Investment as on 31.03.2010	(Rs Cr)	6.83	4.88	7.78	19.50
5	Sub Total (1 to 4)	(Rs Cr)	1988.68	1809.84	607.85	4406.36
6	Less: Capital liabilities	(Rs Cr)	661.46	623.07	124.96	1409.49
7	Less: Borrowings for working capital	(Rs Cr)	28.88	38.51	93.07	160.46
8	Sub total (6 to 7)	(Rs Cr)	690.34	661.58	218.03	1569.95
9	Net Total	(Rs Cr)	1298.33	1148.25	389.82	2836.41
10	Proportion	(%)	45.77	40.48	13.74	100.00
11	Equity as on 31.03.2010	(Rs Cr)	710.87	628.70	213.44	1553.00

7.9.8 The function wise details of the equity and RoE claimed for the year 2011-12 is detailed below.

Table 7.62
Function wise details of Equity and RoE claimed for the year 2011-12

Sl No	Particulars	Gen	Tran	Dist	Total
		(Rs Cr)	(Rs Cr)	(Rs Cr)	(Rs Cr)
1	Equity as on 31-03-2010	710.87	628.70	213.44	1553.00
2	RoE claimed	110.18	97.45	33.08	240.72

7.10 Summary of the Aggregate Revenue Requirement

The summary of the projections of various items of expense components of ARR & ERC as discussed under the preceding sections of this petition is detailed below.

Table 7.63
Summary of the Aggregate Revenue Requirement

Particulars	2009-10	2010-11			2011-12
	KSEB (ARR)	KSEB (ARR)	KSERC (Order)	KSEB Revised)	KSEB ARR
Generation Of Power	364.35	536.58	263.17	282.63	396.57
Purchase of power	3384.52	3824.75	3439.56	3761.95	4031.80
Interest & Finance Charges	263.57	391.62	268.29	317.49	385.05
Depreciation	451.22	532.89	490.53	506.04	548.39
Employee Cost	1451.53	1690.42	1247.31	1662.74	1910.62
Repair & Maintenance	173.16	175.32	161.47	205.97	243.75
Administration & General	166.96	171.05	68.76	181.28	197.06
Other Expenses	22.75	11.70	10.10	10.95	12.00
Gross Expenditure (A)	6278.06	7334.33	5949.19	6929.05	7725.24
Less : Interest Capitalised	22.46	23.24	23.24	23.24	33.87
Less : Expenses Capitalised	85.35	94.10	94.10	100.33	116.32
Net Expenditure (B)	6170.26	7216.99	5831.85	6805.48	7575.05
Statutory Surplus/ RoE	240.71	286.99	100.00	240.72	240.72
ARR (D) = (B) + (C)	6410.97	7503.98	5931.85	7046.20	7815.77

7.11 Function wise breakup of ARR for the year 2011-12

As discussed earlier, the function wise break up ARR&ERC for the year 2011-12 is detailed below.

Table 7.64
Summary of the Aggregate Revenue Requirement into three functional area

Sl No.	Particulars	Generation	Transmission	Distribution	Total
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Generation of Power (Fuel cost of BDPP & KDPP)	396.57			396.57
2	Purchase of power			4031.80	4031.80
3	Interest & Finance Charges	102.91	110.03	172.11	385.05
4	Depreciation	158.54	182.07	207.78	548.39
5	Employee Cost	84.45	184.95	1641.22	1910.62
6	Repair & Maintenance	21.18	69.06	153.51	243.75
7	Administration & General Expenses	6.54	30.78	159.74	197.06
8	Other Expenses	1.50	0.00	10.50	12.00
9	Gross Expenditure (A)	771.69	576.89	6376.66	7725.24
10	Less : Expenses Capitalized	5.10	11.30	99.92	116.32
11	Less : Interest Capitalized	9.05	9.68	15.14	33.87
13	Net Expenditure (B)	757.54	555.91	6261.60	7575.05
14	Statutory Surplus/ RoE	110.18	97.45	33.08	240.71
15	ARR (D) = (B) + (C)	867.72	653.36	6294.68	7815.76

7.12 Cost of energy at generation, transmission and distribution end

The cost of energy at generation, transmission and distribution end for the year 2011-12 is detailed in the following table.

Table 7.65
Cost of energy at Generation end, transmission end distribution end

1	Cost of Generation		
(a)	Total ARR of Generation Functional Area	(Rs.Cr)	867.72
(b)	Total internal Generation (excl. auxiliary consumption)	(MU)	7554.98
(c)	<i>Perunit cost of generation</i>	<i>(Rs/kWh)</i>	<i>1.15</i>
2	Cost of Power Purchase		
(a)	Cost of Power Purchase	(Rs.Cr)	4031.80
(b)	Total power purchase (KSEB periphery)	(MU)	10979.54
(c)	<i>Per unit cost of power purchase</i>	<i>(Rs/kWh)</i>	<i>3.67</i>
3	Pooled average Cost of Generation and Power Purchase		
(a)	Total cost of Generation and Power Purchase	(Rs.Cr)	4899.52
(b)	Total Generation and Power purchase at KSEB periphery	(MU)	18534.52
(c)	<i>Pooled average Cost of Generation and Power Purchase</i>	<i>(Rs/kWh)</i>	<i>2.64</i>
4	Transmission Cost		
(a)	Total ARR of Transmission Functional Area	(Rs.Cr)	653.56
(b)	Total energy input into Transmission	(MU)	18534.52
(c)	Total energy sold to Distribution (after accounting 5% transmission loss)	(MU)	17607.79
(d)	<i>Overhead cost of Transmission</i>	<i>(Rs/kWh)</i>	<i>0.37</i>
(e)	<i>Cost of transmission loss</i>	<i>(Rs/kWh)</i>	<i>0.14</i>
(e)	<i>Per unit cost at transmission end</i>	<i>(Rs/kWh)</i>	<i>3.15</i>
5	Distribution		
(a)	Total ARR of distribution (excl. cost of power purchase)	(Rs.Cr)	2262.88
(b)	Non tariff income	(Rs.Cr)	390.36
(c)	Net ARR of distribution (excl. cost of Power Purchase)	(Rs.Cr)	1872.52
(c)	Total energy input into distribution	(MU)	17607.79
(d)	Total energy sale	(MU)	15600.15
(e)	Loss in the distribution	(MU)	2007.64
(f)	Over head cost of Distribution function	(Rs/kWh)	1.20
(g)	Cost of Dist loss	(Rs/kWh)	0.41
(g)	<i>Cost at Distribution end</i>	<i>(Rs/kWh)</i>	<i>4.76</i>

CHAPTER- 8

EXPECTED REVENUE FROM CHARGES

8.1 Introduction

The revenue from sale of power is estimated based on the prevailing Schedule of Tariff and terms and conditions of supply. Even though Hon'ble Commission had approved a revenue gap of Rs 335.30 crore for the year 2009-10 and Rs 457.48 crore for the year 2010-11, the existing tariff has not revised to bridge the revenue gap. Vide the order dated 2-12-2009, Hon'ble Commission had revised the ToD tariff of HT&EHT consumers and also introduced ToD tariff for LT industrial consumers as an optional scheme. KSEB has a revenue shortfall of about Rs 5.00 crore per month due to the revised ToD tariff for HT&EHT consumers. The Hon'ble Commission vide order dated 13.12.2010 has revised the Bulk supply tariff w.e.f 01.12.2010.

Hon'ble Commission vide the order dated 05-04-2010 had approved the additional liability incurred on Generation and Power Purchase for the period from April-2009 to September-2009 as Rs 190.00 crore and this amount is allowed to be recovered as fuel surcharge @ 25 paise per unit through the energy consumption from April-2010 to September-2010. The State Government has exempted domestic consumers with monthly consumption upto 120 units from payment of fuel surcharge and allowed Rs 54.54 crore as subsidy for meeting the revenue short fall. KSEB has collected Rs 133.94 crore as fuel surcharge during the period from April-10 to September-2010 and further Government has ordered to provide a cash subsidy of Rs 54.54 crore for exempting domestic consumers with monthly consumption upto 120 units from payment of fuel surcharge during the same period. The amount collected as fuel surcharge and also the cash subsidy allowed by the State Government has adjusted as the additional revenue for the year 2010-11 in addition to the revenue from tariff.

8.2 Revenue from tariff for the year 2009-10

The summary of the revenue from tariff realized during the year 2009-10 is given in the table below:

Table 8.1
Revenue from Sale of power for the year 2009-10

Category	Energy sale	Revenue
	(Rs. Cr)	(Rs. Cr)
Domestic	6554.70	1254.98
NPG	4.30	0.00
Commercial	1793.00	1259.39
Public Lighting	303.00	58.07
Irrigation & Dewatering	257.00	28.24
Industrial LT	1064.00	453.70
HT&EHT	3417.09	1416.30
Railway Traction	165.00	65.65
Bulk Supply	413.00	143.33
Sub Total	13971.09	4679.66
Sale to NVVN&PTC*	11.03	13.89
Inter state	48.92	41.66
Sale through power exchange	16.71	11.96
Grand Total	14047.75	4747.17

8.3 Estimate of revenue from sale of power for the year 2010-11 and 2011-12

8.3.1 During the proceedings of the previous ARR&ERC, various stake holders had raised remarks on the slab wise details of consumption of domestic consumers. Hence, KSEB has collected the details of slab wise consumption from field offices through the 'Oruma billing software' and the percentage of slab wise details of consumers and consumption so computed is given below.

Table 8.2
Slabwise details of consumers and energy consumption of domestic category

Consumer slab	Slab wise Consumer strength	Slab wise consumption
	(%)	(%)
0-40	35.22	11.08
41-80	30.35	23.41
81-120	17.32	23.05
121-150	7.21	12.73
151-200	5.64	12.60
201-300	3.06	9.45
301-500	0.95	4.87
Above 500	0.27	2.81

8.3.2 The energy consumed and energy billed under each slab for the years 2010-11 and 2011-12 is detailed below.

Table 8.3
Slab wise details of energy consumption for the years 2010-11 and 2011-12

Month wise consumption range	Energy Consumption (MU)	
	2010-11	2011-12
0-40	765.81	825.01
41-80	1618.57	1743.69
81-120	1593.45	1716.63
121-150	879.93	947.95
151-200	870.82	938.14
201-300	653.64	704.17
301-500	336.8	362.83
Above 500	194.21	209.22
Total	6913.23	7447.63

Table 8.4
Slab wise details of energy billed for the years 2010-11 and 2011-12

Tariff slab range	Tariff of each slab	Energy Billed (MU)	
		2010-11	2011-12
0-40	1.15	3222.47	3369.86
41-80	1.90	1773.61	1904.30
81-120	2.40	929.24	1028.58
121-150	3.00	341.86	390.57
151-200	3.65	271.87	317.68
201-300	4.30	188.62	222.45
301-500	5.30	118.05	136.23
Above 500	5.45	67.51	77.98
Total		6913.23	7447.63

8.3.3 Hon'ble Commission vide the order dated 13th December-2010 has made a 15% increase on the energy charges applicable to all other Licensees and Bulk consumers of KSEB. KSEB has estimated the revenue from Sale of power for the years 2010-11 and 2011-12 at the prevailing tariff applicable. The revised estimate of revenue for the year 2010-11 and estimate for 2011-12 is given below

Table 8.5
Estimate of revenue from sale of power for the years 2010-11 & 2011-12

Category	2010-11 (Revised Estimate)		2011-12 (Projection)	
	Sale of energy	Revenue from tariff	Sale of energy	Revenue from tariff
	(MU)	(Rs.Cr)	(MU)	(Rs.Cr)
I. Revenue from sale of power				
Domestic	6921.00	1316.91	7456.00	1444.08
Commercial	1933.00	1373.27	2104.00	1488.69
Public Lighting	305.00	58.45	307.00	58.83
Irrigation & Dewatering	259.57	23.42	260.00	23.56
Industrial LT	1081.00	432.76	1118.84	447.32
NPG	4.00	0.00	4.00	0.00
HT&EHT	3563.30	1437.35	3717.33	1507.29
Railway Traction	166.65	66.56	169.98	67.89
Bulk Supply	437.00	149.75	463.00	179.44
Total from revenue through Tariff	14670.52	4858.47	15600.15	5217.10
II. Fuel surcharge				
Fuel Surcharge collected from April to Sept-10		133.94		
Subsidy allowed by the State Government for exempting domestic consumers from payment of fuel surcharge		54.54		
Grand Total	14670.52	5046.95	15600.15	5217.10

The projected revenue from sale of power in 2010-11 is Rs 5046.95 Crore. Revenue from sale of power estimated for the year 2011-12 is Rs 5217.10 Crore. The detailed computation of the revenue expected from the various tariff categories for 2011-12 are given in the Data form G&Z.

8.4 Non Tariff Income

In the ARR for the year 2010-11, Board has estimated a non-tariff income for the year 2010-11 as Rs.417.13 Crore . However, as per the revised estimate, the same for the current year would be Rs 400.16 crore. The projection of the same for the year 2011-12 is Rs.390.36 Crore. The details are given below.

Table - 8.6
Non Tariff Income

Rs. in Crore

Sl. No.	Particulars	2009-10	2010-11			2011-12
		Accounts	ARR	KSERC	Revised	
1	Meter Rent/Service Line Rental	148.22	152.00		152.00	160.00
2	Miscellaneous Charges. (UCM, Service connection fee, Fee for maintenance of Public lighting, Testing fee, Reconnection fee, Penalty charges, Minimum Guarantee charges, Charges for Service connection minimum, Meter Box charges, Power allocation charges etc.	55.21	70.00	417.13	50.00	50.00
3	Interest on Staff Loans and Advances	0.53	0.25		0.38	0.30
4	Income from Investments	0.45	0.00		0.00	0.00
5	Interest on Advances to suppliers/ Contractors	4.15	1.30		3.15	3.00
6	Interest from Banks	105.00	88.58		84.63	64.06
7	Rebate Received	65.70	60.00		60.00	60.00
8	Income from Trading	19.79	10.00		15.00	15.00
19	Miscellaneous Receipts	37.09	35.00		35.00	38.00
	Grand Total	436.69	417.13		417.13	400.16

The major items of non tariff income are the following:

Meter Rent

The consumer strength of the Board excluding HT, EHT consumers as on 01.04.2010 was 97.43 lakh. Board proposes to provide 4.24 lakhs new service connections during the year 2010-11 and the target for the year 2011-12 is 4 lakhs. The revised target of meter rent for the year 2010-11 is Rs 152.00 crore and the projection for the year 2011-12 is Rs 160.00 crore.

Miscellaneous Charges

It includes charges such as unconnected minimum, testing fee, minimum guarantee charge, theft recovery, meter box charges, power allocation charges etc. The revised target of miscellaneous charges for the year 2010-11 and the projection for 2011-12 is Rs 50.00 crore.

Rebate

Rebate is the incentive receivable by the Board for arranging timely payment of power purchase and transmission cost etc to CPSUs. This also includes rebate for prompt repayment of principal amount due to PFC/REC etc.

Interest from Banks

Interest from Banks represents interest accrued on fixed deposit during the year. As stated else where, deposits were made for meeting loan repayment as well as corpus of the pension fund. FD as on 31-03-2010, include Rs 295.00 crores deposited during the year 2007-08, which is due to mature in 2010-11 and the amount including interest is available

for specific repayment of capital liabilities during the year 2010-11. Balance Fixed deposit amounts to Rs 505.00 crores as on 31.03.2011, which is earmarked for meeting the Corpus of proposed Pension fund, is due to mature during the period from Dec-2012 to May-2013. The interest accrued on FD outstanding is shown as income for 2011-12. It may kindly be noted that, even through the interest on fixed deposit is shown as income on accrual basis; it is not actually available for meeting the revenue requirement.

Income from trading

This head comprise of income earned by the Board by way of hire charge from contractors, profit on sale of store, sale of scrap and tender forms.

Miscellaneous receipts

Receipts in this account include items like rental for staff quarters, rental from contractors and others, excess found on physical verification of cash, stock and fixed assets, security deposit forfeited, receipts from sale of trees , usufructs etc.

8.5 Total Expected Revenue from charges

The total revenue from tariff and revenue from non-tariff income for the years 2009-10, 2010-11 and 2011-12 are given in the following table.

Table 8.7
Total Expected Revenue from Charges (Rs.Cr)

Particulars	2009-10	2010-11	2011-12
	(Provisional)	(Revised)	(Estimate)
Tariff Income	4747.17	5046.95	5217.10
Non- Tariff Income	436.69	400.16	390.36
Total Income	5183.86	5447.11	5607.46

CHAPTER - 9

SUMMARY OF AGGREGATE REVENUE REQUIREMENT FOR THE FINANCIAL YEAR 2011-12

9.1 The Aggregate Revenue Requirement and Expected Revenue from Charges (ARR & ERC) projected for the year 2011-12 have been described in details in the previous chapters 7 & 8. The following table summarizes the various items of expenditure and revenue requirement for the year 2011-12 vis-à-vis the revised estimate for the year 2010-11 and actual of 2009-10.

Table-9.1
Aggregate Revenue Requirement for the year 2011-12
Rs. in Crore

Particulars	2009-10	2010-11			2011-12
	KSEB (Actual)	KSEB (ARR)	KSERC (Order)	KSEB Revised)	KSEB ARR
Generation Of Power	364.35	536.58	263.17	282.63	396.57
Purchase of power	3384.52	3824.75	3439.56	3761.95	4031.80
Interest & Finance Charges	263.57	391.62	268.29	317.49	385.05
Depreciation	451.22	532.89	490.53	506.04	548.39
Employee Cost	1451.53	1690.42	1247.31	1662.74	1910.62
Repair & Maintenance	173.16	175.32	161.47	205.97	243.75
Administration & General Expenses	166.96	171.05	68.76	181.28	197.06
Other Expenses	22.75	11.70	10.10	10.95	12.00
Gross Expenditure (A)	6278.06	7334.33	5949.19	6929.05	7725.24
Less : Interest Capitalized	22.46	23.24	23.24	23.24	33.87
Less : Expenses Capitalized	85.35	94.10	94.10	100.33	116.32
Net Expenditure (B)	6170.26	7216.99	5831.85	6805.48	7575.05
Statutory Surplus/ RoE	240.71	286.99	100.00	240.72	240.72
ARR (D) = (B) + (C)	6410.97	7503.98	5931.85	7046.20	7815.77
Less Non-Tariff Income	436.70	417.13	417.13	400.16	390.36
Less : Revenue from Tariff					
(a) With in the State	4747.16	4867.25	4867.25	4858.47	5217.10
(b) Fuel surcharge			190.00	188.48	
Total Income	5183.86	5284.38	5474.38	5447.11	5607.46
Revenue Gap	1227.11	2219.60	457.47	1599.09	2208.31

9.2 A brief description on the various items included in the ARR&ERC is given below.

(1) Energy Sales

- The average growth of energy sale in the State during the last six years since 2004-05 is about 7%. However, the energy consumption in the State showing a declining trend during the current year. KSEB target to provide 4.24 lakhs new service connections during 2010-11 and 4 lakhs during 2011-12. With the present trend of consumption and considering the new service connections targets for the current year and ensuing year, KSEB expect an average increase in energy consumption at consumer end by 5.01% during the year 2010-11 and 6.34% during the year 2011-12.
- The actual energy sale for the year 2009-10 was 13971.09MU. The annual energy sale estimated for the year 2010-11 is 14670.52 MU and 15600.15MU for the year 2011-12. The category wise energy sale forecast is given in Chapter-4 of the ARR.

(2) AT & C Loss

- The actual T& D loss in the KSEB system for 2009-10 was 17.71%, which is 1.12% less than the actuals in 2008-09.
- The Board targets to reduce the loss to 16.52% in 2010-11 (a reduction of 1.19% over 2009-10) and to **15.83% in 2011-12 (a reduction of 0.69% over 2010-11)**.
- The annual collection efficiency for the LT consumers for the year 2009-10 is about 97.50% and that of HT & EHT consumers is about 96%. The overall weighted average collection efficiency for the year 2009-10 is 97%.
- The AT & C loss target for the year 2011-12 is 18.35%

(3) Energy & Peak Demand

- Based on the estimated sale of energy and T&D loss reduction, the Board has estimated the total energy requirement of the State (within the State) as 17568MU for the year 2010-11 and 18534MU for the year 2011-12.
- The peak demand so far met was 2998MW. The peak demand expected is 3088MW and 3280MW respectively for the years 2010-11 and 2011-12.

(4) KSEB Hydel Generation & Thermal generation

- Anticipating a normal monsoon in the year 2011-12, the hydel generation target fixed for the year 2011-12 is 7055.65MU. The details are given under Para-7.2.2 of the ARR.

- To meet the anticipated energy and peak demand during 2010-11 & 2011-12, KSEB scheduled/ propose to schedule BDPP & KDPP to a greater extent. The revised target of generation from BDPP & KDPP for 2010-11 is 390.55 MU. The generation target proposed from BDPP and KDPP for the year 2011-12 is 547.50MU (182.50MU from BDPP and 365.00 MU from KDPP). With the present average variable cost of Rs 7.37 per unit for BDPP and Rs 7.18 per unit for KDPP, the total fuel cost requirement of these stations is estimated as Rs 396.57 crore for the year 2011-12.

(5) Cost for Purchase from Central Generating Stations

- KSEB has a total allocation of 1016.17MW from Central Generating Stations (CGS) as on 1st October-2010. The 2nd unit of Kaiga- Stage-II is expected to be commissioned during the current financial year and KSEB has an allocation of 17.5MW from this plant. Further, NLC-Exp-Stage-II, NTPC's Simhadri plant, Kudamkulam Nuclear Power Plant and Vallur JV project (TN) is expected to start commercial operation during the next financial year 2011-12. KSEB has an allocation of 70MW from NLC, 80.90MW from Simhadri power plant, 266MW from Kudamkulam and 49.90MW from Valluar plant. With the commissioning of all these plants, the allocated capacity from CGS may increase to 1444.60 MW during the year 2011-12.
- The energy availability from CGS at generator bus is estimated as 8847.70MU for the year 2011-12. After accounting the PGCIL line losses, the net energy available at KSEB periphery will be 8398.24 MU.
- The total power purchase cost of CGS for the year 2011-12 is estimated as Rs 2067.44 crore. In addition to this, the transmission charges payable to PGCIL for evacuating the power from CGS is estimated as Rs 228.63 crore. Further, the incentives, water cess, taxes and duties etc payable to the CGS for the year 2011-12 works out to Rs 100.96 crore. The average cost of CGS power at Kerala periphery works out to Rs 2.85 per unit.
- It may be noted that, CERC is in the process of revising the tariff of all CPSU's based on the CERC (Tariff Regulations), 2009. The fixed cost of all CPSU's is likely to be increased by an average 35% with the proposed revision. Further, as per the CERC Regulation on sharing of transmission charges and losses, which is applicable from 1st January-2011, there is likely 45 to 50% increase in transmission charges payable to PGCIL. However, KSEB had not claimed the likely increase in tariff of CPSUs due to the tariff revision initiated by CERC.

(6) Power Purchase from IPPs

(i) Thermal IPPs

- In order to meet the anticipated energy demand and also to get the equal allocation from Talcher-II, KSEB propose to schedule full allocation from the IPP's NTPC- RGCCPP Kayamkulam during the year 2011-12. However, due to the exorbitant variable cost, KSEB had not proposed to schedule BSES power. The power from KPCL also required to meet the energy demand of the northern part of the State. KSEB proposed to schedule 1002.94 MU from RGCCPP-Kayamkulam and 135.96MU from KPCL.
- With the average variable cost of Rs 7.17 per unit for RGCCPP Kayamkulam and Rs 7.80 per unit for KPCL, the total variable cost requirement are estimated as Rs 825.16 crore. In addition to the variable cost, the fixed cost commitment on these plants is about Rs 188.74 crore for the year 2011-12.
- The cost for procuring the total quantity of 1138.90 MU from these three stations will be Rs 1013.90 crore.

(ii) Other IPPs (Wind, Ullumkal, MP steel etc)

- The energy expected from Wind IPPs at Agali and Ramalkkal medu is 61.57MU. With the approved tariff of Rs 3.14 per unit, the power purchase cost will be Rs 19.33 crore.
- 34MU is expected from Ullumkal SHP for the year 2011-12 and the cost is estimated as Rs 6.80 crore for the year 2011-12.
- KSEB has been procuring power from the co-generation plant of MPS Steel castings Ltd and the energy expected to be available for the year 2011-12 is estimated as 40.80 MU. At the approved tariff of Rs 2.31 per unit, the cost is estimated as Rs 9.43 crore.
- Iruttukkanam SHP is started commercial operation during November-2010. KSEB expect an energy availability of 7.88MU from Iruttikkanm and at the approved tariff of Rs 2.70 per unit, the cost of power purchase is estimated as Rs 2.13 crore for the year 2011-12.

(7) Power purchase through power exchange & traders

- Even after availing the full quantum of energy from all potential available sources, KSEB expect a energy deficit of 1295.95 MU for the year 2011-12. The details are given as Para- 7.2.6 of the ARR. KSEB propose to meet the shortfall by procuring power from short-term markets such as through traders, energy exchanges, UI etc.
- With the present trend in the energy price of short-term markets, an average cost of Rs 4.50 per unit at Kerala periphery including open

access charges and losses is adopted for estimating the cost of power procurement through short-term markets. The cost for procuring power from short-term market is estimated as Rs 583.18 crore for the year 2011-12.

(8) Interest and Finance charges

- Interest and finance charges includes interest on outstanding loans and bonds, interest on security deposit, interest for borrowings for capital works, interest on working capital loan , interest on PF and other finance charges.
- The interest and finance charges for the year 2011-12 are estimated as Rs 385.05 crore.

(9) Depreciation

- The general approach on depreciation is that the rates of depreciation should be adequate to provide resources for replacement of assets after their useful life. As directed by the Commission in the previous orders on ARR, KSEB has estimated the depreciation as per the CERC norms.
- The amount estimated as depreciation for the year 2011-12 as Rs 548.39 crore.

(10) Employee Cost

- The salary and benefits to the serving employees (excluding pensionary claims of the retired employees) estimated for the year 2011-12 is Rs 1159.95 crore. This includes a provision of Rs 141.58 crore for pay revision and also Rs 51.61 crore for DA releases.
- The pension and terminal benefits to the retired/ retiring employees for the year 2011-12 is estimated as Rs 750.67 crore, including the provision for two DA revisions in July and January and pension revision.
- Thus, the total employee cost including pension for the year **2011-12 works out to be Rs 1910.62 crore.** The revised estimate of employee cost including pensionary claims for the year 2010-11 is works out to be Rs 1662.74 crore against the approved amount of Rs 1247.31 crore by KSERC

(11) Repair and Maintenance cost

R&M cost includes the cost for upkeep and maintenance of plant and machinery, lines cables, buildings, vehicles, office equipments etc. The Board has estimated R&M expenses for the year 2011-12 as Rs 243.75 crore.

(12) Administration and General Expenses

The A&G expenses include the electricity duty payable to Government under section 3(1) of the Electricity Duty Act, rent, rates & taxes etc, Insurance charges, telephone/telex charges, consultancy charges, conveyance, other professional charges, printing and stationary etc. The A&G expenses estimated for the year 2011-12 is Rs 197.06 crore. Out of the above, Rs 89.78 crore is the section 3(1) payable by the Board to the Government. However, in all previous ARR, the State Commission has not allowed section- 3(1) duty as revenue expenditure quoting the provisions in the Kerala Electricity Duty act-1963 that, it shall not be passed on to the consumers. KSEB has taken up the matter with the State Government to delete the subsection -3 of section (3) of Electricity Duty Act-1963,

(13) Other expenses

Other expenses include prior period expenses and other debits. Prior period expenses includes (i) income related to prior period such as income from consumers, interest and other income related to prior periods and (ii) expenses related to period including power purchase expenses related to prior periods on the basis of CERC orders, employee expenses related to prior period on account of DA revision etc. For the ensuing year, KSEB has not made any claim for prior period expenses, but requested before the Commission to approve the actual during Truing Up process.

Other debits include expenses relating to research and development, bad and doubtful debts provision and miscellaneous losses and write-offs. KSEB has made a provision of Rs 12.00 crore as other debits for the year 2011-12.

(14) Return on equity

As per the CERC (Tariff Regulations), 2009, 15.5% return on the Equity & investment made of internal resources is allowed to all CPSU's including NTPC, NHPC, NLC, PGCIL etc. Most of the SERC's also allowing same return to the State Power Utilities also. Hence, KSEB also eligible to claim RoE @15.5% on the equity of Rs 1553 crore plus 30% on the capital investment proposed. However, for the year 2011-12, KSEB had claimed RoE for the Equity of Rs 1553.00 crore only .

The Return on Equity claimed for the year 2011-12 is Rs 240.72 crore.

(15) Aggregate Revenue Requirement

As detailed under Table-9.1, the Aggregate Revenue Requirement (ARR) estimated including all expenses and statutory surplus for the financial year 2011-12 is Rs 7815.77 crore. The revised estimate for

the year 2010-11 is Rs 7046.20 crore.

(16) Revenue from Charges

- The revenue from tariff estimated as Rs 5217.10 crore for the year 2011-12 at the prevailing tariff applicable. The revised estimate of revenue from tariff for the year 2010-11 is estimated as Rs 5046.95 crore including the amount of Rs 188.48 crore as fuel surcharge collected during the year 2010-11.
- The non-tariff income such as meter rent, wheeling charge recoveries, penalties, belated interest, theft recoveries and other miscellaneous charges etc have been computed at the existing trend. The non-tariff income expected is Rs 400.16 crore for the year 2010-11 and Rs 390.36 crore for the year 2011-12.

(17) Revenue Gap

- The revised estimate of revenue gap for the current year (2010-11) is Rs 1599.09 crore and the revenue gap estimated for the year 2011-12 is at Rs 2208.31 crore. The estimated revenue gap is about 28.22% of the total estimated ARR for the year 2011-12.

9.3 As directed by the Hon'ble Commission, KSEB vide the BO (FM) No. 3043/2010 dated 23-11-2010 has decided to apportion the total ARR into three functional areas. The summary of the function wise breakup of ARR into three functional areas is given below.

**Table-9.2
Summary of the ARR into three functional area**

Sl No.	Particulars	Generation	Transmission	Distribution	Total
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Generation of Power (Fuel cost of BDPP & KDPP)	396.57			396.57
2	Purchase of power			4031.80	4031.80
3	Interest & Finance Charges	102.91	110.03	172.11	385.05
4	Depreciation	158.54	182.07	207.78	548.39
5	Employee Cost	84.45	184.95	1641.22	1910.62
6	Repair & Maintenance	21.18	69.06	153.51	243.75
7	Administration & General Expenses	6.54	30.78	159.74	197.06
8	Other Expenses	1.50	0.00	10.50	12.00
9	Gross Expenditure (A)	771.69	576.89	6376.66	7725.24
10	Less : Expenses Capitalized	5.10	11.30	99.92	116.32
11	Less : Interest Capitalized	9.05	9.68	15.14	33.87
13	Net Expenditure (B)	757.54	555.91	6261.60	7575.05
14	Statutory Surplus/ RoE	110.18	97.45	33.08	240.71
15	ARR (D) = (B) + (C)	867.72	653.36	6294.68	7815.76

9.4 Further, the cost of energy at KSEB periphery, transmission end and distribution end is computed for the year 2011-12 and the details are given below.

Table 9.3
Cost of energy at Generation end, transmission end distribution end

1	Cost of Generation		
(a)	Total ARR of Generation Functional Area	(Rs.Cr)	867.72
(b)	Total internal Generation (excl. auxiliary consumption)	(MU)	7554.98
(c)	<u>Perunit cost of generation</u>	<u>(Rs/kWh)</u>	<u>1.15</u>
2	Cost of Power Purchase		
(a)	Cost of Power Purchase	(Rs.Cr)	4031.80
(b)	Total power purchase (KSEB periphery)	(MU)	10979.54
(c)	<u>Per unit cost of power purchase</u>	<u>(Rs/kWh)</u>	<u>3.67</u>
3	Pooled average Cost of Generation and Power Purchase		
(a)	Total cost of Generation and Power Purchase	(Rs.Cr)	4899.52
(b)	Total Generation and Power purchase at KSEB periphery	(MU)	18534.52
(c)	<u>Pooled average Cost of Generation and Power Purchase</u>	<u>(Rs/kWh)</u>	<u>2.64</u>
4	Transmission Cost		
(a)	Total ARR of Transmission Functional Area	(Rs.Cr)	653.56
(b)	Total energy input into Transmission	(MU)	18534.52
(c)	Total energy sold to Distribution (after accounting 5% transmission loss)	(MU)	17607.79
(d)	<u>Overhead cost of Transmission</u>	<u>(Rs/kWh)</u>	<u>0.37</u>
(e)	<u>Cost of transmission loss</u>	<u>(Rs/kWh)</u>	<u>0.14</u>
(e)	<u>Per unit cost at transmission end</u>	<u>(Rs/kWh)</u>	<u>3.15</u>
5	Distribution		
(a)	Total ARR of distribution (excl. cost of power purchase)	(Rs.Cr)	2262.88
(b)	Non tariff income	(Rs.Cr)	390.36
(c)	Net ARR of distribution (excl. cost of Power Purchase)	(Rs.Cr)	1872.52
(c)	Total energy input into distribution	(MU)	17607.79
(d)	Total energy sale	(MU)	15600.15
(e)	Loss in the distribution	(MU)	2007.64
(f)	Over head cost of Distribution function	(Rs/kWh)	1.20
(g)	Cost of Dist loss	(Rs/kWh)	0.41
(g)	<u>Cost at Distribution end</u>	<u>(Rs/kWh)</u>	<u>4.76</u>

9.5 The revised estimate for 2010-11 and estimate for 2011-12 have been made taking into consideration of past trends as well as the actuals in the year 2009-10 and also considering the present trend up to September-2010. It is also expected that a near normal monsoon in the ensuing year and the current trend in the cost of thermal power including liquid fuels will also be continued. These factors being dynamic in nature, the projections for 2011-12 may undergo changes depending on the actual situations.

9.6 The Board with the concurrence of the Government shall file separate proposal to bridge the revenue gap for the year 2011-12 once the revenue gap is finalised by the Hon'ble Commission. Pending submission of proposal to bridge the revenue gap, the Board requests before the Hon'ble Commission:

- (1) To approve the revised estimated expenses of Rs 7046.20 Crore, income of Rs 5447.11 Crore and the revenue gap of Rs. 1599.09 Crore for the year 2010-11.
- (2) To approve the estimated expenses of Rs 7815.77 Crore, income of Rs. 5607.46 Crore and the revenue gap of Rs. 2208.31 Crore for the year 2011-12.
- (3) To permit the Board to submit separate proposal for bridging the revenue gap of 2011-12 once the revenue gap is finalised by the Hon'ble Commission
- (4) To allow the revenue gap as per the revised estimates for 2010-11 projected in this petition.
- (5) To allow the Board to revise the present estimates in the event of abnormal increase in fuel price or failure of monsoon during 2011-12 or if there are major changes in the assumptions taken in this petition due to any contingency that may occur due to reasons beyond the control of the Board.
- (6) To allow the Board to submit a proposal for truing up of the cost at the end of financial year 2011-12 and any revenue gap arising out of such truing up be allowed separately.
- (7) To issue necessary orders to bridge the revenue gap for the year 2010-11 and 2011-12.
- (8) To recognize the concept of Regulatory Asset and treat the revenue gaps as Regulatory Asset, if the gaps are not otherwise covered by tariff revision or subsidy from the Government.
- (9) To permit the Board to present the case in person and submit other details / information as may be necessary before the Commission takes its final decision on the matter.

CHAPTER-10

ACTION TAKEN ON COMMISSION'S DIRECTIVES ISSUED VIDE ORDER DATED 17-05-2010 ON ARR&ERC OF KSEB FOR THE YEAR 2010-11

Hon'ble Commission had issued a set of directives for compliance vide the order dated 17-05-2010 on ARR&ERC for the year 2010-11. The present status of the action taken is given below.

1. Direction No.1.

"T&D Loss"

- (a) *"Separation of Transmission and distribution loss: The Board shall estimate transmission losses and distribution losses at different voltage levels with supporting details along with all ARR & ERC filing.*
- (b) *Board shall initiate a study for assessing loss levels in 33kV/11kV system and LT system separately. The estimates with supporting details shall be filed along with ARR & ERC filing.*
- (c) *Separation of technical and commercial loss: The Board shall study and submit along with ARR & ERC separate estimates for technical and commercial losses with supporting details."*

Action taken.

(a) Segregation of Transmission Losses

KSEB vide the letter dated 30-11-2010 had submitted a report on the transmission loss study before the Hon'ble Commission. The summary of the study is given below.

- (i) KSEB had conducted a study on the transmission losses in the Transmission system with the aid of the software 'MiPOWER' available with KSEB. All the transmission net work including 400kV, 220kV, 110kV system, the sub-transmission (66kV & 33kV), substations and the Generating Stations (11/220kV, 11/110kV, 11/66kV and 6.6/33kV) network up to 11kV, are included in the transmission net work model used for MiPOWER software package.
- (ii) The study has done with the system load on two typical days, i.e., on 01-04-2010 and 01-06-2010.
- (iii) After modeling, system loss calculation were carried out by conducting load flow and network analysis of the Transmission network for the above two cases. Transmission Loss = 400/220kV ICT and 11/220kV, 11/110kV, 11/66kV and 6.6/33kV Generator Transformer Loss + 220kV Line Loss +

220/110kV Transformer Loss + 110kV Line Loss + 220/66kV and 110/66 Transformer Loss + 66kV Line Loss + 110/33kV and 66/33kV Transformer Loss + 33kV Line Loss + 110/11kV, 66/11kV and 33/11kV Transformer Loss.

- (iv) The summary of the study results of the two cases is given below.

Table 10.1

Case - 1: April 2010 - Simulated Demand - 2901MW						
Voltage Level	Flow in MW	Loss in MW	%Loss	LF	LLF	Loss in Mu
400kV	428.32	2.92	0.68%	0.70	0.553	14.13
220kV	2294.62	72.66	3.17%	0.70	0.553	351.97
110kV	2672.23	53.95	2.02%	0.70	0.553	261.37
66kV	1006.73	24.84	2.47%	0.70	0.553	120.32
33kV	362.49	5.99	1.65%	0.70	0.553	29.01
	Total Loss	160.36	5.53%			776.80
Case - 2: June 2010 - Simulated Demand - 2746MW						
Voltage Level	Flow in MW	Loss in MW	%Loss	LF	LLF	Loss in Mu
400kV	394.82	2.06	0.52%	0.70	0.55	9.98
220kV	2155.76	64.29	2.98%	0.70	0.55	311.46
110kV	2534.19	46.74	1.84%	0.70	0.55	226.41
66kV	924.45	19.09	2.06%	0.70	0.55	92.47
33kV	356.21	5.01	1.41%	0.70	0.55	24.28
	Total Loss	137.19	5.00%			664.60

- (v) It can be seen from the above table that, the transmission losses in the KSEB system varies from 5.00% to 5.53%. Since KSEB is not owning any 400kV Transmission system, the losses in the 400kV system is due to transformation losses while those in the lower level voltages consists of both transmission line losses and transformation losses in the step-down transformers at the Substations and in the step-up transformers at the Generating Stations.

(b) Segregation of Technical and Commercial losses in the KSEB system.

KSEB vide the letter dated 28-12-2010 had submitted a report on the sample study conducted at Vizhinjam section to segregate the Technical and Commercial losses in the KSEB system. The summary of the study report is given below.

- (i) KSEB had initiated a sample study at Vizhinjam section to segregate the technical and commercial losses in the LT

system. The study is based on the methodology detailed in the study report published by FOIR on ‘Loss Reduction Strategies’.

- (ii) Three sample feeders in the Vizhinjam section are identified such as
 - lightly loaded
 - Medium loaded and
 - Over loaded
- (iii) The meters of all the consumers under the sample was tested using 0.50 class reference meter and the results of testing recorded.
- (iv) Burned/ stopped meters replaced with correct tested meters.
- (v) Un-metered consumers are provided with correct tested meters.
- (vi) Meter reading of all consumers fed from the feeder done quickly on the same day itself.
- (vii) Meter reading of feeder was done at beginning and at end. Average of two readings is taken as the reading for the feeder.

The abstract of the sample study is given below.

Sl No.	Particulars		Lightly loaded feeder	Medium loaded feeder	Over loaded feeder
1	Energy Input	in Unit	5422.00	6750.00	14664.80
2	Energy Recorded/ billed	in Unit	4344.84	5581.04	11439.04
3	Total losses (Technical and Commercial)	in Unit	1077.16	1168.96	3225.76
4	Total losses in the LV system (%)	(%)	19.87	17.32	22.00
5	Commercial Losses (excl. collection efficiency)	in Unit	288.37	255.87	330.55
6	Commercial losses (%)	%	5.32	3.79	2.25
7	Technical Loss	in Unit	788.79	913.09	2895.21
8	Technical Loss (%)	(%)	14.55	13.53	19.74

- (viii) KSEB may extend the study to few more section offices to generalize the result once Hon’ble Commission approves the methodology adopted by KSEB.

2. Direction No.2

“Board shall chalk out plans for loss reduction to the targeted level by fixing section wise /month wise targets for execution of capital works for loss reduction and faulty meter replacement and continuous monitoring of the same.”

Action taken.

- (i) KSEB vide the letter dated 27-11-2010 has submitted the section wise details of Capital Works and faulty meter replacement done for loss reduction during the year 2010-11 upto September-2010. The summary of works done is given below.

Work	Quantum
Construction of 11 KV line	1039.4 KM
Conversion	1929.1 KM
Installation of Transformers	1749 Nos
Replacement of faulty meters	272442 Nos

- (ii) The section wise details of capital works and faulty meter replacement proposed for loss reduction on monthly basis from October-2010 to March-2011 has submitted vide the letter dated 28-12-2010.

3. Direction No.3 & Direction No.13

“Directive No. 3

The Board shall prepare scheme/project wise details with date of commencement, funding pattern, physical and financial progress, target date of completion etc., are and submit along with ARR&ERC. For all new projects, an analytical report showing cost and benefit shall also be furnished. Further, Board shall within one month furnish the status report on the R-APDRP and RGGVY schemes for evaluation and monitoring.

Directive No. 13

The Board shall prepare an implementation plan including procurement plan for all the important capital projects under generation, transmission and distribution with information to the Commission”

Action Taken

- (i) As explained under Chapter-3 of this petition, Board is in the process of preparing the Capital investment proposal including cost benefit analysis for the year 2011-12. The planning process for the year 2011-12 is now under final stage and Board shall submit the details of the capital works by end of January-2011.

(ii) R -APDRP scheme and RGGVY scheme

As directed by the Hon’ble Commission, Board has been submitting the status of the APDRP & RGVVY scheme periodically for the kind information. The details are submitted vide the letters dated 15-07-2010, 08-09-2010, 22-09-2010 and 30-11-2010.

4. **Direction No.4**

“The Board shall within one month initiate a work study to assess the reasonable level of employee strength and cost taking into consideration improvement in technology, possibility of outsourcing, mechanization, improved management strategies etc. Progress shall be intimated in the first week of August 2010.”

Action taken.

Board has engaged Center for Management Development (CMD) to conduct the detailed work study to assess the reasonable level of employee strength and cost taking into consideration improvement in technology, possibility of outsourcing, mechanization, improved management strategies etc.

Board, in consultation with officers and M/s CMD, had identified the list of sample offices in each functional units and corporate office where detailed studies is to be undertaken. The details are provided to M/s CMD. M/s CMD may start the study during the month of January-2011.

5. **Direction No.5**

“The Board shall take steps for the establishment of pension funds and efforts for reducing pension liabilities immediately. The progress shall be intimated in the end of August 2010”

Action taken.

As directed by the Government, M/s PFC has been engaged to study upon the option of creating a pension fund and the Government is yet to take a decision on the report submitted by M/s PFC. The present status of the subject matter was communicated to the Hon’ble Commission vide the letter dated 10-06-2010.

6. **Direction No.6.**

“The Board shall revive the Task Force for overseeing arrear collection as directed in Chapter 2.3 and file a first report for the first quarter by 20th of the July 2010. Further quarterly report will be filed by 20th of succeeding month.”

Action taken.

- (i) As directed by the Honorable Commission, Board vide the **order** B.O. (FM) No. 1524/2010(KSEB/TRAC/TF-08) dated Tvpm dated 11 -06-2010 has constituted a taskforce for collection of arrears under Chief Engineer (Commercial and Tariff). The Task Force is entrusted with the following:
 - a. ABC analysis and Age wise analysis of receivables by suitably segregating in to Pvt/ Govt. sector, litigation/RR cases etc.

- b. Cases held up in litigation to be analyzed based on the probability of collection / settlement through negotiation/ out of court settlement.
 - c. Separation of receivables which are completely bad and steps to be taken to write off.
 - d. Receivables from the Govt. department/ PSUs may be realised by taking up with the Government for additional budgetary allocation of funds.
 - e. Devise schemes for collection by giving incentives such as write off of excess surcharge.
- (ii) The task force is now in fully operational. KSEB vide the letter dated 25-10-2010 has submitted the interim report on the collection arrears before the Hon'ble Commission. Further, the next Quarterly report can be submitted before by 1st week of January-2010.
- (iii) As part of realization of long pending current charge arrears, especially for those under litigation, adalaths had been conducted at the circle level by the Deputy Chief Engineers, for settling pending arrears in LT side. In the case of HT&EHT consumers adalaths were conducted at corporate office level under Chief Engineer (Commercial & Tariff). During the year 2010-11, through the special adalaths Rs. 3.6190 crore has been released from HT&EHT consumers and Rs. 1.727 crore from LT consumers.
- (iv) The outstanding arrears of various categories of consumers as on 30-06-2010 is given below.

Sl No	Name of Department	LT	HT/EHT	Total
		(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
1	State Government Departments	139.69	6.88	146.57
2	State Public Sector Undertakings & Co-operative Sector	58.28	282.89	341.17
3	Local Bodies	10.93	0.00	10.93
A	Total under State Government Departments and PSU's	208.90	289.77	498.67
4	Central Government Departments	0.50	0.29	0.79
5	Central Public Sector Undertakings	0.27	79.94	80.21
6	Interstate energy	0.00	4.23	4.23
7	Private Sector	85.90	507.43	593.33
B	Total under Private Sector and others	86.67	591.89	678.56
C	Licensees		14.30	14.30
Grand Total (A+B+C)		295.57	895.96	1191.53

7. Direction No.7

“The Board shall furnish benchmark Performance parameters for diesel stations for determining the fuel surcharge within one month”.

Action taken.

Board vide the letter dated 27-11-2010 had submitted the benchmark parameters of diesel stations before the Hon’ble Commision.

8. Direction No.8

“Board shall within three months furnish comprehensive proposal for determining the operation norms for generating and transmission system with all supporting details with detailed analysis of actual performance.”

Action taken.

(a) Operating norms for Generating Plants- Hydel

KSEB vide the letter dated 2-11-2010 has submitted the operating norms for Hydel plants before the Hon’ble Commission. The summary of the proposal is given below.

AVAILABILITY DETAILS FOR HYDEL STATIONS				
No	Name of Station	% AVAILABILITY		
		2008-09	2009-10	Proposed 2010-11
A. STORAGE/ BASE LOAD PLANTS				
1	IDUKKI	84.02	88.17	86
2	KUTTIADY+KES	89.73	92.58	88
3	IDAMALAYAR	82.26	88.55	79
4	PALLIVASAL	76.53	93.2	90
5	PANNIAR	0	88.25	88
6	PORINGALKUTHU & PLBE	48.55	84.58	87
7	SABARIGIRI	33.31	64.74	85
8	SHOLAYAR	88.76	66.27	85
B. RUN OFF RIVER PLANTS				
9	KAKKAD	49.41	83.54	90
10	SENGULAM	87.08	83.56	87
11	LOWER PERIYAR	90.62	90.26	88
12	NERIAMANGALAM+ NES	76.18	85.3	87
C. SMALL HYDRO PLANTS				
13	KALLADA	86.22	83.5	85
14	MALANKARA	55.67	82.67	90
15	PEPPARA	21.5	89	88
16	CHEMPUKADAVU - I	22.45	99.82	90
17	CHEMPUKADAVU - II	22.09	99.57	90
18	URUMI - I	52.25	92.57	90
19	URUMI - II	100	96.55	90
20	MADUPETTY	80.29	15.06	80

Table-2. AUXILIARY CONSUMPTION DETAILS FOR HYDEL STATIONS

No	Name of Station	% Auxilliary Consumption		
		2008-09	2009-10	Proposed
A.	STORAGE/BASE LOAD PLANTS			
1	Idukki	0.5	0.6	0.7
2	Kuttiadi + KES	0.2	0.24	0.5
3	Idamalayar	0.14	0.09	0.5
4	Pallivasal			0.5
5	Panniar		0.53	0.5
6	Poringal & PLBE	0.66	0.29	0.5
7	Sabarigiri	0.2	0.21	0.5
8	Sholayar	0.29	0.5	0.5
B.	RUN OFF RIVER PLANTS			
9	Kakkad	0.67	0.67	0.5
10	Sengulam	0.15	0.17	0.5
11	Lower Periyar	0.14	0.18	0.5
12	Neriamangalam + NES	0.2	0.22	0.5
C.	SMALL HYDRO PLANTS (Tail Race / Storage)			
13	Kallada	0.4	0.46	1
14	Malanakara	0.66	0.56	1
15	Peppara	0.77	0.68	1
16	Maduppatty	1.54	0.36	1
C 1.	SHEP - Run off River Schemes			
17	Chempukadavu - I			1.5
18	Urumi - I			1.5
19	Chempukadavu - II			1.5
20	Urumi - II			1.5

- (b) Operating Norms for Diesel Plants
KSEB vide the letter dated 27-11-2010 has submitted the operating norms for KSEB diesel plants before the Hon'ble Commission.
- (c) Operating norms for Transmission System
(i) KSEB vide the letter dated 2-11-2010 has submitted the feeder availability for the years 2008-09, 2009-10 and 2010-11 (up to September-2010). The summary is given below.

Feeder Voltage KV	Feeder availability in percentage- (actual range)			Feeder availability norms- proposed
	2008-09	2009-10	2010-11	
220	97.16 to 99.39	96.29 to 98.87	97.06 to 99.25	98.00
110	97.06 to 99.05	96.95 to 99.05	97.05 to 99.19	97.00
66	97.09 to 99.14	95.10 to 99.15	95.90 to 99.19	96.00

- (ii) The month wise availability of the selected sample substations across the state is submitted before the Hon'ble Commission vide this office letter dated 27-11-

2010. The summary of the availability and the target proposed is given below.

Substation	Substation availability (%)			Norms proposed (%)
	2007-08	2008-09	2009-10	
400 kV	100	100	99.89	98
220 kV	85.95 to 100	72.11 to 100	77.80 to 100	97
110 kV	90.73 to 100	96.08 to 100	72.95 to 100	97
66 kV	80.41 to 100	72.92 to 100	94.19 to 100	97

9. Direction No.9.

“Board shall within in one month prepare a status report on implementation of standards of performance regulation at the circle level and the monitoring mechanism if any created by higher offices. The baseline data on standards shall also be provided for each circle along with the status report. Also report on the amount of compensation paid to consumers may be submitted monthly as envisaged in Section 59(b) of the Act.”

Action taken.

- (i) A detailed report on the compliance on the implementation of Standards of performance was submitted by Member (Transmission & Distribution) on 13-09-2010.
- (ii) KSEB has submitted the monthly circle wise level of performance achieved in respect of collection efficiency, Distribution transformer failures and Reliability Indices before the Honorable Commission from August 2010 onwards.

10. Direction No.10

“The Board shall prepare separate ARR&ERC for each licensed business from 2011-12. The Board shall also propose transmission tariff, SLDC charges, and open access charges along with the ARR for 2011-12.”

Action taken.

In compliance of the direction issued by the Hon’ble Commission, Board vide the order No. BO (FM) No. 3043/2010 (KSEB/TRAC/ ARR 2011-12) dated 23-11-2010 has decided to apportion the ARR into Generation, Transmission and Distribution for the year 2011-12. KSEB vide the letter dated 27-11-2010 has submitted the methodology before the Hon’ble Commission. The summary of the methodology proposed is submitted below.

(j) Cost of Power Purchase.

The cost of power purchase is an input into Distribution function. However, the total energy handled by the transmission functional area includes the total power purchase and the internal Generation.

(k) Repair and Maintenance cost, Administration and General Expenses and Depreciation.

The R&M cost, A&G expense and Depreciation apportion into Generation, Transmission and Distribution based on the past actuals as per Statement-6 of the Annual Accounts.

(l) Employee cost

The employee cost and terminal benefits apportion among Generation, Transmission and Distribution on the basis of the employee strength and cost as on 31-03-2010 as per the provisional accounts for the year 2009-10.

(m) Interest and Finance charges

The interest and finance charges as on 31-03-2010 apportion in the ratio of capital liabilities allocated to each functional area. Allocate the capital liabilities as on 31-03-2010 in the 'proportion of Gross Fixed Asset- Contributions and Grants & Subsidies assigned towards cost of capital assets'.

For new capital investments made after the base year 2009-10, the capital liabilities may be apportioned on the basis of capital investment made/ proposed in each functional area on normative basis at the normative debt-equity ratio of 70:30.

(n) Equity and Return on equity

Allocate the total equity as on 31-03-2010 into Generation, Transmission and Distribution as per the formula detailed below.

“The equity shall be allocated in the ratio of (net fixed assets + net current assets + CWIP + investment - capital liabilities - borrowings for working capital)”

The equity for the investments made after the base year 2009-10 may be apportioned on normative basis at the debt-equity ratio of 70:30. for the capital investment made/ proposed in each functional area

The Return on Equity may be claimed as per the CERC (Terms and Conditions of Tariff) Regulations applicable from time to time. For

the year 2011-12, the RoE @15.5% as per CERC regulations, 2009 may be claimed.

(o) Interest on Fixed Deposit

The interest on FD for meeting the capital liabilities apportion on the ratio of capital liabilities. However, the entire FD investments as on 31-03-2011 will be available for meeting the pension fund commitments only.

(p) Revenue Gap/ Regulatory Asset

In the ARR, the revenue gap/ regulatory asset book under distribution.

(q) Revenue from Tariff and other Income

The total revenue, including non-tariff income, account under distribution.

(r) CERC Norms

As per the section-61(a) of the Electricity Act-2003, adopt the tariff norms as per CERC (Terms and Conditions of Tariff) Regulations, 2009 to the possible extent for preparing the ARR&ERC for the year 2011-12.

11. Direction No.11

“The Board shall revise the budget for 2010-11 based on this order and submit the same within one month from the date of this order.”

Action taken.

KSEB has been taking dedicated efforts to contain the various expenses as ordered by the Commission. The revised estimate of various expenses components for the year 2010-11 is detailed in this petition. In this matter Hon’ble Commission may please note that, the cost of power purchase, employee costs etc has considerably increased over the approved levels. Hon’ble Commission is regularly monitoring the scheduling of Generation and Power Purchase of KSEB. Further, Hon’ble Commission has communicated that, the DA can be released to the employees and pensioners of KSEB as and when the same is released to Government employees. Also, to meet the Performance standards issued by the Hon’ble Commission, the R&M Costs and A&G expenses require adequate increase over the approved level.

12. Direction No.12.

“The Board shall study and report the impact of the revised ToD tariff for HT-EHT consumers within two months.”

Action taken.

KSEB had filed a petition on 21-07-2010 to review the ToD tariff of HT&EHT consumers issued vide the order dated 2-12-2010. Hon'ble Commission vide the order dated 8th December-2010 has issued the final order.

13. Direction No. 13

"The Board shall prepare an implementation plan including procurement plan for all the important capital projects under generation, transmission and distribution with information to the Commission. The SCMS shall be fully operational within 6 months and the status should be reported in six months."

Action taken.

The SCMS software is under pilot implementation and it may take another six months for full implementation

14. Direction No.14

"The Board shall file a Proposal for new bill payment mechanism and other customer satisfaction measures within two months."

Action taken.

Board has issued direction to the IT steering committee and this shall incorporate as part of the modification of the 'ORUMA' billing software. The proposed modification will be submitted to the Hon'ble Commission by mid of January-2010. The modification will be effected by February-2011.

15. Direction No.15

"The Board shall propose programs for achieving the 5% energy sales through renewable sources by encouraging private/own renewable generation within three months."

Action taken

Hon'ble Commission has changed the target of obligation of power procurement from renewable as 3%. Board vide the letter dated 17th August-2010 has furnished the various action initiated for meeting the 3% of the total energy sale from renewable.

16. Other Directions

"Board shall prepare and submit month wise energy generation and purchase plan based on the approved figures for 2010-11 in accordance with KSERC (fuel surcharge formula) regulations".

Action taken.

KSEB vide letter dated 06.11.2010 has submitted the month wise generation and power purchase plan for the year 2010-11 based on the approved figure.

ANNEXURES

AND

DATA FORMS

Annexure 6(1)

GENERATION AND POWER PURCHASE SCHEDULE 2010-11 (Million Units)

Sl No.	Particulars	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Total
(1)	Estimated Energy Demand (KSEB internal)	1462.71	1541.46	1340.65	1349.47	1384.04	1399.54	1437.19	1447.50	1526.40	1519.08	1458.73	1701.47	17568.26
	Supply Position													
(2)	KSEB Hydro													
(a)	Total	574.85	571.08	557.00	594.37	600.61	550.17	568.57	498.97	558.52	629.76	603.82	780.01	7087.74
(b)	Aux consumption (0.5%)	2.87	2.86	2.79	2.97	3.00	2.75	2.84	2.49	2.79	3.15	3.02	3.90	35.44
(c)	Net Hydro (a)-(b)	571.98	568.23	554.22	591.40	597.61	547.42	565.73	496.48	555.72	626.61	600.80	776.11	7052.30
(3)	Wind	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	3.00
(4)	KSEB Thermal													
(a)	BDPP	22.71	19.05	7.20	3.78	4.21	3.99	10.57			15.50	14.00	15.50	116.50
(b)	KDPP	37.37	38.63	15.32	9.87	11.12	10.39	23.51	22.24	15.62	31.00	28.00	31.00	274.05
(c)	Sub total (a)+(b)	60.07	57.68	22.52	13.65	15.32	14.38	34.08	22.24	15.62	46.50	42.00	46.50	390.55
(d)	Aux consumption	1.50	1.44	0.56	0.34	0.38	0.36	0.85	0.56	0.39	1.16	1.05	1.16	9.76
(e)	Net total (c)-(d)	58.57	56.24	21.95	13.31	14.94	14.02	33.23	21.68	15.23	45.34	40.95	45.34	380.79
(5)	Total KSEB internal 2(c)+(3)+4(e)	630.80	624.72	576.42	604.96	612.80	561.69	599.21	518.41	571.20	672.20	642.00	821.70	7436.09
(6)	Import from CGS													
	(a) At Generator bus	631.51	629.43	577.41	564.18	522.92	610.33	601.58	616.74	593.64	593.42	535.99	593.42	7070.56
	(b) PGCIL line loss	41.83	35.12	27.57	23.32	22.24	29.81	39.81	40.70	27.30	27.29	24.65	27.29	366.93
	(c) Net Import at KSEB periphery	589.68	594.31	549.84	540.86	500.68	580.52	561.77	576.04	566.34	566.13	511.34	566.13	6703.63
(7)	IPPs													
(a)	RGCCPP	101.46	103.61	95.54	56.76	56.89	54.00	59.53	121.18	110.51	102.44	92.53	102.44	1056.91
(b)	BSES	76.73	44.28	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	121.01
(c)	KPCL	5.33	6.46	2.95	1.08	0.88	1.43	3.12	1.76	0.80	11.55	10.43	11.55	57.32
(d)	Wind	1.70	6.30	10.55	11.10	10.51	7.22	6.30	1.74	2.04	2.43	1.27	2.17	61.57
(e)	Ullumkal	1.48	1.57	2.63	3.17	2.91	2.10	2.53	1.92	1.43	2.51	1.88	2.63	26.77
(f)	MP steel	2.70	3.66	2.69	3.11	2.99	3.26	3.32	3.32	3.07	3.40	3.40	3.40	38.32
(g)	Sub total (a)+(b)+(c)	189.40	165.88	114.36	75.22	74.18	68.01	74.81	129.92	117.85	122.33	109.51	122.18	1361.90
(8)	Traders/ Power Exchange/UI	50.13	156.80	100.28	128.69	196.63	189.57	201.41	223.13	270.93	158.42	195.88	191.45	2063.33
(8)	Grand total (5)+(6)+7(d)	1460.01	1541.71	1340.90	1349.72	1384.29	1399.79	1437.19	1447.50	1526.32	1519.08	1458.73	1701.46	17566.72
(9)	Surplus/ shortage	-2.71	0.25	0.25	0.25	0.25	0.25	0.00	0.00	-0.08	0.00	0.00	0.00	-1.53

Annexure- 7(1)
INFLOW REVIEW FROM 1997-98 TO 2008-09 (WATER YEAR)

Sl No.	Year	June	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
1	1991-92	1266.4	1650.05	1134.06	270.43	382.21	321.37	124.63	63.48	55.429	48.1	61.83	107.57	5485.559
2	1992-93	1165.32	1863.2	1302.716	922.1935	865.92	849.232	193.34	90.52	66.08	70.215	71.941	66.854	7527.532
3	1993-94	709.03	1802.74	1560.88	1085.92	992.30	717.02	289.27	141.15	97.63	78.49	99.00	126.48	7699.903
4	1994-95	928.03	1893.13	1355.37	822.57	730.02	600.89	204.18	164.46	101.22	111.84	87.67	391.66	7391.028
5	1995-96	687.73	1323.25	1055.58	1289.10	426.06	409.94	166.28	124.18	58.78	36.83	94.98	63.39	5736.1
6	1996-97	614.19	1519.38	1020.47	834.30	735.43	302.99	210.41	127.06	77.63	86.20	83.70	115.96	5727.72
7	1997-98	150.10	1232.26	1049.01	658.18	739.67	922.50	476.93	185.60	113.00	72.74	77.05	108.60	5785.64
8	1998-99	678.70	1476.49	2357.60	1036.91	1243.80	694.70	457.53	157.27	118.00	94.11	96.03	421.89	8833.03
9	1999-00	1046.46	1416.49	973.60	441.59	1198.43	451.57	197.19	130.38	148.00	82.90	104.00	98.60	6289.21
10	2000-01	835.07	946.10	2199.13	789.14	502.59	227.58	198.97	153.05	80.74	47.50	162.21	127.20	6269.28
11	2001-02	1062.21	1765.90	1079.95	501.10	865.14	712.89	231.18	116.03	86.99	81.26	71.06	161.75	6735.46
12	2002-03	489.76	750.90	1255.86	322.19	585.44	391.14	134.13	78.51	63.04	63.21	52.63	81.22	4268.03
13	2003-04	304.74	748.03	916.01	376.53	983.43	325.98	160.00	91.92	78.81	39.28	58.56	426.20	4509.49
14	2004-05	1401.61	986.94	1436.86	510.74	716.44	464.39	208.73	155.27	70.42	72.18	109.30	99.29	6232.17
15	2005-06	569.38	2261.04	1252.98	1475.76	715.88	714.76	442.33	217.85	110.07	170.31	154.37	434.29	8519.02
16	2006-07	725.23	1596.83	1117.81	963.41	1009.56	907.56	253.21	164.44	90.93	111.60	123.39	113.14	7177.11
17	2007-08	1002.94	2797.48	1499.21	1700.29	1095.25	596.39	283.09	140.52	126.85	214.10	180.18	132.23	9768.534
18	2008-09	433.63	1144.88	1358.87	962.98	629.36	297.35	169.30	69.86	44.43	78.41	65.67	115.77	5370.518
19	2009-10	330.87	2023.70	779.47	1147.56	898.70	642.91	242.24	128.35	76.47	81.11	102.16	128.30	6581.834
20	2010-11	800.02	1407.08	1175.58	818.34	921.18	651.47	244.36	131.57	87.61	86.34	97.67	174.76	6595.961
	Avg.	760.07	1530.29	1294.05	846.46	811.84	560.13	244.36	131.57	87.61	86.34	97.67	174.76	6625.156

Annexure 7(2)

Stationwise Monthly Hydro Generation Schedule for the Year 2011-12

	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Total
Idukki	330.00	341.00	195.00	93.00	93.00	120.00	124.00	120.00	186.00	217.00	238.00	310.00	2367.00
Sabarigiri	150.00	146.00	75.00	62.00	77.50	75.00	93.00	93.00	124.00	139.50	140.00	170.50	1345.50
Idamalayar	40.30	30.00	25.00	9.00	9.30	31.00	30.00	31.00	30.00	24.80	34.10	33.60	328.10
Kuutiadi	23.89	16.63	28.34	73.16	79.27	79.88	75.27	75.75	69.74	59.70	48.72	38.54	668.90
Sholayar	24.58	25.92	12.96	0.90	1.94	27.78	24.48	20.36	22.99	20.20	23.65	26.00	231.76
Poringal	9.10	7.24	12.80	22.90	23.79	21.94	20.93	14.07	9.44	5.93	6.07	5.64	159.87
PLB	4.32	5.61	8.01	11.73	11.57	11.12	9.03	7.82	7.62	6.94	7.36	8.23	99.34
Pallivasal	18.26	19.12	18.08	19.85	20.25	20.02	20.22	20.55	19.07	18.53	15.95	19.08	228.97
Panniar	7.40	6.52	6.32	13.64	13.87	10.61	20.29	18.19	20.54	9.97	5.93	13.07	146.36
Sengulam	10.43	10.71	13.23	18.27	18.77	17.19	18.21	16.69	13.38	9.74	8.65	10.54	165.80
Neriamangalam+ NES	16.55	18.43	27.10	53.29	54.46	55.58	55.75	39.31	26.34	11.98	8.75	16.91	384.45
Lower Periyar	17.07	20.11	37.82	94.42	87.15	85.96	75.56	60.37	33.77	16.85	11.35	16.87	557.30
Kakkad	19.92	17.35	15.31	19.69	20.18	18.24	21.36	21.20	18.62	17.27	15.23	20.94	225.31
Kallada	5.94	2.91	1.19	2.38	4.44	5.39	7.76	8.88	5.02	5.96	6.43	8.11	64.41
Peppara	0.18	0.15	0.44	0.85	0.91	1.23	0.92	1.13	0.62	0.30	0.28	0.25	7.27
Madupetty	0.67	0.50	0.24	0.01	0.04	0.21	0.66	0.61	0.58	0.55	0.50	0.71	5.27
Chembukadavu	0.00	0.00	1.46	2.93	2.35	2.21	1.02	0.29	0.00	0.00	0.00	0.00	10.26
Malampuzha	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Urumi	0.00	0.03	2.22	3.57	2.75	2.44	1.56	0.85	0.10	0.00	0.00	0.00	13.51
Malankara	3.10	3.24	3.02	3.13	3.03	2.93	2.92	2.41	2.60	2.78	2.83	3.19	35.17
Lower Meenmutty	0.08	0.17	0.49	0.68	0.58	0.81	0.77	0.67	0.30	0.08	0.03	0.05	4.71
Kuttiady tail race	0.72	0.76	0.53	0.17	0.29	0.33	0.88	0.70	0.55	0.21	0.59	0.66	6.38
Total	682.50	672.40	484.57	505.56	525.45	589.88	604.58	553.86	591.27	568.30	574.41	702.89	7055.65

Annexure 7(3)

MAINTENANCE SCHEDULE AND NET HYDRO CAPACITY AVAILABLE FOR THE YEAR 2011-12(MW)

Sl no.	Stations	No. of units and unit size	Installed Capacity under operation (MW)	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Remarks
				Maintenance Schedule (MW)												
1	Idukki	6 x 130	780			130	130	130	130	130	130					Annual maintenance
2	Sabarigiri	1 x60+ 5*55	280			60	55	55	55	55						One unit is complete break down
3	Idamalyar	2 x 37.5	75				37.5					37.5				Annual maintenance
4	Sholayar	3 x 18	54		18	18	18									Annual maintenance
5	Pallivasal	3 x 7.5 + 3 x 5	37.5	4.54	7.95							4.54	7.95	7.95	4.54	Annual Maintenece
6	Kuttiady+ KES	3 x 25 + 50 + 2x 50	225	25	50	50						25	50	25		Annual Maintenece
7	Panniar	2 x 15	30	15										15		Annual Maintenece
8	Poringal +PLBE	4 x 8 + 16	48	16								8	8	8	8	Annual Maintenece
9	Sengulam	4 x 12	48	12	12								12	12		Annual Maintenece
10	Neriamangalam	3 x 15+ 1x 25	77.5	25	17.5								17.5	17.5		Annual Maintenece
11	L. Peiyar	3 x 60	180	60									60	60		Annual Maintenece
12	Kakkad	2 x 25	50										25	25		Annual Maintenece
13	Kallada	2 x 7.5	15			7.5	7.5								7.5	Annual Maintenece
14	Peppara	1 x 3	3									3				Annual Maintenece
15	Malankara	3 x 3.5	10.5			3.5	3.5	3.5								Annual Maintenece
16	Maduppatty	1 x 2	2									2				Annual Maintenece
17	Small hydro		17.1													Annual Maintenece
18	Kuttiadi Tail Race	3 x 1.25	3.75													
19	Total Hydro (MW) including proposed capacity addition during 2008-09		1936.35	158	105	269	252	189	185	185	130	80	180	170	20	
22	Net hydro capacity available after maintenance (MW)			1779	1831	1667	1685	1748	1751	1751	1806	1856	1756	1766	1916	

Annexure 7(5)

MONTHLY NET CAPACITY AVAILABILITY FOR MEETING THE PEAK DEMAND

	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11
Net Hydro capacity	1601	1648	1501	1516	1573	1576	1576	1626	1671	1580	1589	1725
KSEB thermal												
KDPP	80	80	80	60	60	60	80	80	80	80	80	80
BDPP	60	60	60	60	60	60	60	60	60	60	60	60
Import from CGS	851	851	977	1002	1002	1002	1015	1027	1040	1096	1096	1191
IPP												
RGCCPP	160	160	160	80	80	80	80	160	160	160	160	160
BSES												
KPCL	13	13	13	13	13	13	13	13	13	13	13	13
Ullumkal	3	3	3	3	3	3	3	3	3	3	3	3
MP steel	5	5	5	5	5	5	5	5	5	5	5	5
Total capacity available MW (Max)	2773	2820	2799	2739	2796	2799	2832	2974	3032	2997	3006	3237
Power demand, MW	3013	3112	3005	2841	2899	2962	2986	3008	3137	3155	3194	3280
Demand to be met through Short-term markets	240	291	207	102	104	163	155	34	105	157	188	43

Annexure 7(4)

GENERATION AND POWER PURCHASE SCHEDULE 2011-12 (Million Units)

SI No.	Particulars	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Total
(1)	Estimated Energy Demand (KSEB)	1543.16	1626.25	1414.39	1423.69	1460.16	1476.52	1516.24	1527.11	1610.36	1602.63	1538.96	1795.05	18534.52
	Supply Position													
(2)	KSEB Hydro													
(a)	Total	682.50	672.40	484.57	505.56	525.45	589.88	604.58	553.86	591.27	568.30	574.41	702.89	7055.65
(b)	Aux consumption (0.5%)	3.41	3.36	2.42	2.53	2.63	2.95	3.02	2.77	2.96	2.84	2.87	3.51	35.28
(c)	Net Hydro (a)-(b)	679.08	669.03	482.14	503.03	522.82	586.93	601.55	551.09	588.31	565.46	571.54	699.38	7020.37
(3)	Wind	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	3.00
(4)	KSEB Thermal													
(a)	BDPP	15.00	15.50	15.00	15.50	15.50	15.00	15.50	15.00	15.50	15.50	14.00	15.50	182.50
(b)	KDPP	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	31.00	28.00	31.00	365.00
(c)	Sub total (a)+(b)	45.00	46.50	45.00	46.50	46.50	45.00	46.50	45.00	46.50	46.50	42.00	46.50	547.50
(d)	Aux consumption	1.13	1.16	1.13	1.16	1.16	1.13	1.16	1.13	1.16	1.16	1.05	1.16	13.69
(e)	Net total (c)-(d)	43.88	45.34	43.88	45.34	45.34	43.88	45.34	43.88	45.34	45.34	40.95	45.34	533.81
(5)	Total KSEB internal 2(c)+(3)+4(e)	723.21	714.62	526.27	548.62	568.41	631.05	647.14	595.21	633.90	611.05	612.74	744.96	7557.18
(6)	Import from CGS													
(a)	Energy at Generator bus	642.21	663.62	728.54	752.82	752.82	728.54	762.45	737.85	772.07	772.07	697.35	837.36	8847.70
(b)	PGCIL line loss	32.62	33.71	37.01	38.24	38.24	37.01	38.73	37.48	39.22	39.22	35.43	42.54	449.46
(c)	Net Import at KSEB bus	609.59	629.91	691.53	714.58	714.58	691.53	723.71	700.37	732.85	732.85	661.93	794.82	8398.24
(7)	IPPs													
(a)	RGCCPP	99.14	102.44	99.14	51.22	51.22	49.57	51.22	99.14	102.44	102.44	92.53	102.44	1002.94
(b)	BSES													
(c)	KPCL	11.17	11.55	11.17	11.55	11.55	11.17	11.55	11.17	11.55	11.55	10.43	11.55	135.96
(d)	Wind	2.12	6.52	10.42	11.27	9.32	7.88	3.75	2.02	2.40	2.43	1.27	2.17	61.57
(e)	Ullumkal	2.89	2.85	2.44	3.05	3.14	3.70	3.23	2.98	2.69	2.51	1.88	2.63	34.00
(f)	MP steel	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	40.80
(g)	Iruttikkanam SHP	0.13	0.28	0.83	1.14	0.97	1.36	1.28	1.12	0.50	0.13	0.06	0.09	7.88
(g)	Sub total (a)+(b)+(c)	118.84	127.04	127.40	81.63	79.61	77.08	74.43	119.84	122.98	122.46	109.56	122.27	1283.15
(8)	Traders/ Power Exchange	91.52	154.68	69.19	78.87	97.57	76.85	70.95	111.69	120.62	136.28	154.73	132.99	1295.96
(9)	Grand total (5)+(6)+7(d)	1543.16	1626.25	1414.39	1423.70	1460.16	1476.51	1516.24	1527.11	1610.36	1602.64	1538.96	1795.05	18534.53

Data Form - A

Energy Balance Statement

Particulars	2009-10	2010-11	2011-12
Gross Generation in MU	7240.38	7345.56	7607.83
Aux. Consumption in MU	50.87	45.18	52.86
Net Generation in MU	7189.51	7300.38	7554.97
Power Purchase from CGS at Generator bus	7286.49	6980.11	7844.69
Receipt from IPPs in MU	1926.03	1697.12	2282.42
UI units in MU	371.40	535.63	0.00
Purchase through traders/shortage	616.04	1415.29	1250.94
Sale to other states in MU	53.90	0.00	0.00
External loss in PGCIL lines (MU)	357.53	354.59	398.01
Available to Transmission system in MU	16978.04	17573.94	18535.01
EHT Sales in MU	1637.00	1681.65	1730.65
Transmission Loss in MU	848.90	878.70	926.75
Supply to Distribution system in MU	14492.14	15013.59	15877.61
HT Sales in MU	2358.09	2485.30	2619.66
LT Sales in MU	9976.00	10503.57	11249.84
Distribution Loss in MU	2158.05	2024.72	2008.11
Total T&D Loss in MU	3006.95	2903.42	2934.86
Transmission loss as % of Combined input to T&D System	5.00%	5.00%	5.00%
Distribution loss as % of Combined input to T&D System	14.89%	13.49%	12.65%
T&D loss as % of Combined input to T&D System	17.71%	16.52%	15.83%
Gross Imports in MU (incl. ext loss)	7644.02	7334.70	8242.70
External Loss from Imports in MU	357.53	354.59	398.01
Total T&D Loss (incl. external loss) in MU	3364.48	3258.01	3332.87
Total Input (incl.ext. Loss) (Excl. Aux) in MU	17335.57	17928.53	18933.02
Total T&D Loss (incl. Extnl. Loss) (%)	19.41%	18.17%	17.60%

Data Form - B				
Profit & Loss Account				
Rs in crore				
Ref. Form.	Particulars	2009-10 (Actual)	2010-11 (Revised)	2011-12 Estimate
	I. INCOME			
G	a. Revenue from Sale of Power	4747.17	5046.95	5217.10
H	b. Revenue Subsidies and Grants	0.00	0.00	0.00
I	c. Other Income	436.69	400.16	390.36
	Regulatory asset	1227.51	1599.09	2208.31
	Total (a+b+c+d)	6411.37	7046.20	7815.77
	II. EXPENDITURE			
J	a. Repairs and Mntce.	173.16	205.97	243.75
K/L	b. Employee Cost	1451.53	1662.74	1910.62
M	c. Administration and General Expense	166.96	181.28	197.06
N	d. Depreciation	451.22	506.04	548.39
O	e. Interest and Finance charges	263.57	317.49	385.05
	f. Subtotal (a+b+c+d+e)	2506.44	2873.51	3284.87
Q	g. Less Capitalised Expenses:			
	- Interest & Finance Charges	22.45	23.24	33.87
	- Other Expenses	85.35	100.33	116.32
R	h. Other Debits	71.56	10.95	12.00
S	i. Extra Ordinary Items	0.40	0.00	0.00
F	j. Purchase of power	3384.52	3761.95	4031.80
	k. Generation of Power	364.35	282.63	396.57
	Total Expenditure (f-g+h+i+j+k)	6219.47	6805.48	7575.05
	III. Profit /(Loss) before Tax (I-II)	191.90	240.72	240.72
	IV. Provision for Income Tax	0.00	0.00	0.00
T	V. Net Prior period credits (Charges)	48.81	0.00	0.00
	VI. Surplus (Deficit)	240.71	240.72	240.72
	Transfer price			0.00
	VII. Net Assets at the beginning of the year (Less consumer's Contribution)			
	VIII. Rate of Return	15.50% on Capital	15.50% on Capital	15.50% on Capital

Data Form - C
BALANCE SHEET AS AT THE END OF THE YEAR

Rs. in crore

Ref. Form No.	Particulars	2009-10 (Actual)	2010-11 (Revised)	2011-12 (Estimate)
	Sources of Funds:			
	(A) Capital Funds:			
	Share Capital (Govt. equity)	1553.00	1553.00	1553.00
	Reserves & Surplus	2473.27	2793.99	3114.71
	Total (A)	4026.27	4346.99	4667.71
O	(B) Loan from State Government	0.00	0.00	0.00
	Loan from others :	1409.49	1518.36	2464.12
	Total (B)	1409.49	1518.36	2464.12
U	(C) Contribution, grants & subsidies towards cost of capital assets	2953.91	3203.91	3453.91
	Grand total of sources of funds (A+B+C)	8389.67	9069.26	10585.74
	Application of Funds:			
	A) Fixed assets			
	a) Gross fixed assets	10192.17	11044.57	12052.76
	b) Less accumulated depreciation	4375.33	4881.37	5429.74
W	c) Net Fixed assets((a)-(b))	5816.84	6163.21	6623.02
X	d) Capital works in progress	1017.86	1219.78	1247.58
	e) Assets not in use	0.00	0.00	0.00
	f) Deferred costs	42.00	42.00	42.00
	g) Intangible assets	0.96	0.96	0.96
	h) Investments	19.50	19.50	19.50
	Total (c) +(d)+(e)+(f)+(g)+(h)	6897.16	7445.45	7933.06
	B) Subsidy receivable from Government	533.06	533.06	533.06
	Net Subsidy Netted to be writtenoff.	1202.30	1202.30	1202.30
	Regulatory Asset	2210.20	3809.29	6017.60
	C) Net Current Assets			
	(1) Current assets, loans and advances			
	a) Inventories*	400.00	410.00	325.00
Y	b) Receivables against SOP	483.65	495.00	510.00
	c) Cash & bank balances	1001.19	701.24	652.35
	d) Loans and advances	94.35	96.50	99.15
	e) Sundry receivables	492.88	562.35	578.14
	Total (C-1)	2472.07	2265.09	2164.64
	(2) Current liabilities & provisions			
	a) S D from Consumers	1204.09	1330.14	1455.28
	b) Borrowings for working capital	160.46	252.10	400.00
	c) Payments due on Cap. liabilities	0.00	0.00	0.00
	d) Other current liabilities	3560.57	4603.69	5409.64
	Total (C) (2)	4925.12	6185.93	7264.92
	Net Current Assets (C(1)) - (C(2))	-2453.05	-3920.84	-5100.28
	Grand Total of Application of funds (A)+(B)+(C)	8389.67	9069.26	10585.74

Data Form - D			
Cash Flow Statement for the Year			
Rs in crore			
Particulars	2009-10 (Actual)	2010-11 (Revised)	2011-12 (Estimate)
I. Net Funds from Operations			
1.a. Net Funds from Earnings :	-986.80	-1358.37	-1962.67
Less : Income Tax Payment during the year	0.00	0.00	0.00
Total of (a)	-986.80	-1358.37	-1962.67
b. Add: Debits to rev. account not requiring cash Flow:			
i) Depreciation	451.22	506.04	548.39
ii) Amortisation of Deferred costs	0.00	0.00	0.00
iii) Amortisation of Intangible Assets	0.00	0.00	0.00
iv) Investment Allowance Reserve	0.00	0.00	0.00
v) Others - Subsidies Receivable	0.00	0.00	0.00
Total of (b)	451.22	506.04	548.39
c. Less : Credits to revenue Account not involving cash receipts			
i) Depreciation	0.00	0.00	0.00
ii) Subsidies receivables	533.06	0.00	0.00
iii) Revenue gap/Regulatory asset	1227.51	1599.09	2203.39
Total of (c)	1760.57	1599.09	2203.39
Net Funds from Earnings (a)+(b)-(c)	-2296.15	-2451.43	-3617.67
2. Contributions, Grants & Subsidies to cost of Capital Assets	449.77	250.00	250.00
3. Security Deposit from consumers	134.34	126.05	125.14
4. Proceeds from disposal of fixed Assets	0.00	0.00	0.00
5.Total Funds from Operations (1+2+3+4)	-1712.04	-2075.38	-3242.53
6. Net Increase/(Decrease) in working Capital			
(a) Increase/(Decrease) in Current Assets			
i) Inventories	77.79	10.00	-85.00
ii) Receivables against sale of power	-456.01	11.35	15.00
iii) Loans and Advances	23.40	2.15	2.65
iv) Sundry receivables	-60.98	69.47	15.77
v) Subsidy receivables	0.00	0.00	0.00
Total of (a)	-415.80	92.97	-51.58
(b) Increase/(Decrease) in Current liabilities			
i) Borrowings for working Capital	-76.93	91.63	147.90
ii) Other current liabilities	395.10	1043.12	1660.31
iii) Others (Increase in Reserve + payment due on cap.liab)	53.14	80.00	80.00
Total of (b)	371.31	1214.75	1888.21
Net Increase/(Decrease) in working Capital (a)- (b)	-787.11	-1121.78	-1939.79
7. Net Funds from operations before subsidies and Grants (5-6)	-924.93	-953.60	-1302.74
8. Receipts from revenue subsidies and Grants	1227.51	1599.09	2203.39
Total Net Funds from operations including subsidies & Grants (7+8)	302.58	645.49	900.65
II. Net increase/ decrease in Capital liabilities			
a). Fresh borrowings			
i) State Loans	0.00	0.00	0.00
ii) Foreign currency Loans / Credits	0.13	0.00	0.00
iii) Other borrowings	991.86	1775.00	1036.00
Total of (a)	991.99	1775.00	1036.00
b) Repayments :			
i) State Loans	0.00	0.00	0.00
ii) Foreign currency Loans / Credits	24.98	0.00	0.00
iii) Other borrowings	657.88	1666.13	90.24
Total of (b)	682.86	1666.13	90.24
Net Increase/(Decrease) in Capital liabilities (a) - (b)	309.13	108.87	945.76
III. Increase/(Decrease) in equity Capital	0.00	0.00	0.00
IV. Total Funds available for Capital Expenditure (I+II+III)	611.71	754.36	1846.41
V Funds utilised on Capital Expenditure			
a) On projects	869.71	1054.32	1895.28
b) Advance to Suppliers & Contractors	-79.92	0.00	0.00
c) Intangible Assets	0.28	0.00	0.00
d) Deferred Cost	5.56	0.00	0.00
Total of V (a+b+c+d)	795.63	1054.32	1895.28
VI. Net Increase/(Decrease) in investments	-6.30	0.00	0.00
VII. Net Increase / (Decrease) in cash / bank balance (IV - V- VI)	-177.62	-299.95	-48.89
VIII. Add opening cash & Bank balance	1178.81	1001.19	701.24
IX. Closing Cash & Bank balance (VII+VIII)	1001.19	701.24	652.35

DATA FORM - E
Revenue Requirement and Gap Statement

Rs. in Crore

EXPENSES	2009-10 (Actual)	2010-11 (Revised Estimate)	2011-12 (Estimated)
Generation of Power	364.35	282.63	396.57
Purchase of power	3384.52	3761.95	4031.80
Repairs and Maintenance	173.16	205.97	243.75
Salaries and Wages (Basic + DA)	753.11	890.43	1053.43
Overtime	0.18	0.20	0.24
EL encashment	56.03	60.00	64.00
Other Allowances/Bonus/Benefits	36.82	39.15	42.28
Terminal benefits	604.31	672.96	750.67
Rents, Rates and Taxes	4.30	4.69	5.39
Insurance	0.40	0.44	0.48
Legal charges	2.80	3.16	3.61
Audit fees	2.30	3.00	3.00
ED u/s 3 (i) of KED Act	80.79	84.37	89.78
Other Administration & General expenses (other items)	76.37	85.62	94.80
Depreciation and related debits	451.22	506.04	548.39
Interest and Finance charges	263.57	317.49	385.05
Less: Expenses Capitalised	85.35	100.33	116.32
Less: Interest and Finance charges capitalised	22.45	23.24	33.87
Other debits	71.56	10.95	12.00
Taxes	0.00	0.00	0.00
Prior period credits/(charges)	-48.81	0.00	1.60
Dividend	0.00	0.00	0.00
Dividend tax	0.00	0.00	0.00
Appropriation to contingency reserve	0.00	0.00	0.00
Total Expenses	6170.66	6805.49	7575.05
Required Return (Sec 59)	240.71	240.71	240.72
Aggregate Revenue Requirement	6411.37	7046.20	7815.77
Non-tariff Income	436.69	400.16	390.36
Net Revenue Requirement	5974.68	6646.04	7425.41
Revenue			
(a) at Normal tariff for sale within the State	4747.17	4858.47	5217.10
(b) Revenue from sale outside the State		188.48	
Revenue Gap	1227.51	1599.09	2208.31

Data Form-F1
Cost of Generation and Power Purchase for the Year 2009-10

Source	Energy Produced /Purchased	Auxiliary Consumption	External Loss	Aux consumption/ External Loss	Net Energy Input to KSEB T&D system	Fixed Cost	Incentive, Tax, etc.	Total Variable cost	Total Cost
	MU	MU	MU	%	MU	Rs. Cr	Rs. Cr	Rs. Cr	Rs. Cr
KSEB Internal									
Hydel	6646.27	33.23		0.50%	6613.04				
Wind -Kanjikode	1.84	0.00		0.00%	1.84	0.00	0.00		
BDPP	232.84	9.07		3.90%	223.77	0.00	0.00	142.03	142.03
KDPP	359.48	8.78		2.44%	350.70	0.00	0.00	222.32	222.32
Sub total	7240.43	51.08			7189.35			364.35	364.35
Power purchase									
(a) CGS									
Thalcher - II	3177.63		156.66	4.93%	3020.97	184.91	118.37	348.31	651.59
NLC- Exp-stage-1	401.76		19.33	4.81%	382.43	38.19	0.06	45.80	84.05
NLC-II- Stage-1	383.85		18.82	4.90%	365.03	12.65	0.41	46.45	59.51
NLC-II- Stage-2	596.63		29.20	4.89%	567.43	21.13	0.43	72.19	93.75
RSPTS Stage I & II	2402.24		117.86	4.91%	2284.38	90.37	25.06	342.58	458.01
MAPS	87.71		4.25	4.85%	83.46	16.69	0.30	0.00	16.99
KAIGA Stg I	236.01		11.41	4.83%	224.60	71.02	0.89	0.00	71.91
UI	371.40				371.40			92.62	92.62
IPPs									
RGCCPP	1153.90				1153.90	96.45		748.57	845.02
BSES	576.70				576.70	88.41		369.19	457.60
KPCL	75.06				75.06	9.80		51.93	61.73
Wind	66.48				66.48			20.87	20.87
Ullumkal	16.73				16.73			3.35	3.35
MP steel	37.16				37.16			8.65	8.65
Traders	617.01				617.01				265.89
PGCIL									
Eastern Region					0.00	0.00		0.00	0.00
Southern Region					0.00	179.33	2.36	0.00	181.69
Kayamkulam					0.00	11.29	0.00	0.00	11.29
Sub total power purchase	10200.27					820.24	147.87	2150.51	3384.52
Total	17440.70	51.08	357.53		10103.79	820.24	147.87	2514.86	3748.87

Data form- F2
Cost of Generation and Power Purchase for the Year 2010-11

Source	Energy Produced /Purchased	Auxiliary Consumption	External Loss	Aux consumption n/ External Loss	Net Energy Input to KSEB T&D system	Fixed Cost	Incentive, Tax, etc.	Variable cost /Unit	Total Variable cost	Total Cost
	MU	MU	MU	%	MU	Rs. Cr	Rs. Cr	Rs/kWh	Rs. Cr	Rs. Cr
KSEB Internal										
Hydel	7087.74	35.44		0.50%	7052.30					
Wind -Kanjikode	3.00	0.00		0.00%	3.00	0.00	0.00			
BDPP	116.50	2.91		2.50%	113.59	0.00	0.00	7.37	85.86	85.86
KDPP	274.05	6.85		2.50%	267.20	0.00	0.00	7.18	196.77	196.77
Sub total	7481.29	45.20			7436.09				282.63	282.63
Power purchase										
(a) CGS										
Thalcher - II	3084.58		156.70	5.08%	2927.89	206.89	22.03	1.68	516.68	745.60
NLC- Exp-stage-1	368.97		18.74	5.08%	350.23	38.85	2.37	1.70	62.72	103.95
NLC-II- Stage-1	382.83		19.45	5.08%	363.38	12.77	8.13	1.21	46.32	67.22
NLC-II- Stage-2	549.26		27.90	5.08%	521.36	19.61		1.21	66.46	86.07
RSPTS Stage I & II	2322.64		117.99	5.08%	2204.65	87.97	41.90	1.59	369.30	499.17
MAPS	97.75		4.97	5.08%	92.78	19.16	0.99		0.00	20.15
KAIGA Stg I	239.03		12.14	5.08%	226.89	72.66	1.74		0.00	74.40
KAIGA Stg II	25.50		1.30	5.08%	24.20	7.75			0.00	7.75
UI	535.63				535.63			1.58	84.63	84.63
IPPs										
RGCCPP	1056.91				1056.91	93.38	0.40	7.17	757.80	851.58
BSES	121.01				121.01	87.72		7.20	87.13	174.85
KPCL	57.32				57.32	7.64		7.80	44.71	52.35
Wind	61.57				61.57			3.14	19.33	19.33
Ullumkal	26.77				26.77			2.00	5.35	5.35
MP steel	38.32				38.32			2.31	8.85	8.85
Traders	1527.70				1527.70			5.00	763.85	763.85
PGCIL										
Eastern Region					0.00	0.00	0.04		0.00	0.00
Southern Region					0.00	169.69	15.77		0.00	185.46
Kayamkulam					0.00	11.36	0.00		0.00	11.36
Sub total power purchase	10495.80					835.47	93.36		2833.15	3761.95
Total	17977.09	45.20	359.18		10861.33	835.47	93.36		3115.78	4044.58

Data form- F3										
Cost of Generation and Power Purchase for the Year 2011-12										
Source	Energy Produced /Purchased	Auxiliary Consumption	External Loss	Aux consumption/ External	Net Energy Input to KSEB T&D system	Fixed Cost	Incentive, Tax, etc.	Variable cost /Unit	Total Variable cost	Total Cost
	MU	MU	MU	%	MU	Rs. Cr	Rs. Cr	Rs/kWh	Rs. Cr	Rs. Cr
KSEB Internal										
Hydel	7055.65	35.28		0.50%	7020.37					
Wind -Kanjikode	3.00	0.00		0.00%	3.00					
BDPP	182.50	4.56		2.50%	177.94	0.00		7.37	134.50	134.50
KDPP	365.00	9.13		2.50%	355.88	0.00		7.18	262.07	262.07
Sub total	7606.15	48.97			7557.18				396.57	396.57
Power purchase										
(a) CGS										
Thalcher - II	3027.25		153.78	5.08%	2873.46	203.05	30.20	1.68	508.58	741.82
NLC- Exp-stage-1	372.92		18.94	5.08%	353.98	39.27	2.28	1.70	63.40	104.95
NLC-II- Stage-1	372.52		18.92	5.08%	353.60	12.43	6.38	1.21	45.07	63.88
NLC-II- Stage-2	531.96		27.02	5.08%	504.93	18.99		1.21	64.37	83.36
RSPTS Stage I & II	2229.90		113.28	5.08%	2116.62	84.46	42.37	1.59	354.55	481.38
MAPS	124.28		6.31	5.08%	117.96	24.36	0.68		0.00	25.04
KAIGA Stg I	224.79		11.42	5.08%	213.37	68.34	2.31		0.00	70.65
KAIGA Stg II	206.84		10.51	5.08%	196.33	62.88			0.00	62.88
NLC - II Exp	441.50		22.43	5.08%	419.08	46.80		1.70	75.06	121.86
Simhadri Exp	516.16		26.22	5.08%	489.94	51.62		1.68	86.72	138.33
Kudamkulam	705.51		35.84	5.08%	669.67	229.29				229.29
Valluvar	94.07		4.78	5.08%	89.30	9.41		2.00	18.81	28.22
					8398.24					
IPPs										
RGCCPP	1002.94				1002.94	93.38	0.66	7.17	719.11	813.15
BSES	0.00				0.00	87.72		7.20	0.00	87.72
KPCL	135.96				135.96	7.64		7.80	106.05	113.69
Wind	61.57				61.57			3.14	19.33	19.33
Ullumkal	34.00				34.00			2.00	6.80	6.80
MP steel	40.80				40.80			2.31	9.42	9.42
Irukkikkanam SHP	7.88				7.88			2.70	2.13	2.13
Traders	1295.96				1295.96			4.50	583.18	583.18
PGCIL										
Eastern Region					0.00	0.00			0.00	0.00
Southern Region					0.00	217.27	16.09		0.00	233.36
Kayamkulam					0.00	11.36			0.00	11.36
Sub total power purchase	11426.81					1268.254	100.96		2662.5785	4031.80
Total	19032.95	48.9657476	449.46308		18534.5	1268.254	100.96		3059.151	4428.38

Form G & Z
CATEGORYWISE PROJECTED REVENUE: 2011-12

Category	Billed Demand in MW/MVA	Billed Energy in MU	Present Rate: Rs/Unit	Revenue (Rs.in Crore)
LT				
LT-I (a)				
0-40		3369.86	1.15	387.53
41-80		1904.30	1.90	361.82
81-120		1028.58	2.40	246.86
121-150		390.57	3.00	117.17
151-200		317.68	3.65	115.95
201-300		222.45	4.30	95.65
301-500		136.23	5.30	72.20
Above 500		77.98	5.45	42.50
		7447.63		1439.68
LT-I (b)				
0-40		0.43	1.55	0.07
41-80		0.30	2.40	0.07
81-120		0.17	2.80	0.05
121-150		0.06	3.45	0.02
151-200		0.04	4.05	0.02
201-300		0.03	5.05	0.01
Above 300		0.21	6.30	0.13
		1.24		0.37
LT-II Colony		7.13	5.65	4.03
Sub Total		7456.00	1.94	1444.08
LT-IV Industry	1550.00	1118.84	4	447.32
Demand Charges			45.00	83.70
Energy Charges			3.25	363.62
LT-V Agricultural	925.00	260.00	0.91	23.56
Demand Charges			6.00	6.66
Energy Charges			0.65	16.90
LT-VI Non-Domestic:		576.35	6.82	392.90
LT-VI (a)	202.71	166.92		82.77
Demand Charges			40.00	9.73
Upto 500 Units		101.93	3.85	39.24
Above 500 Units		64.99	5.20	33.79
LT-VI (b)	319.46	263.06		163.36
Demand Charges		0.00	55.00	21.08
Upto 500 Units		92.36	4.50	41.56
Above 500 Units		170.70	5.90	100.71
LT-VI (c)	174.51	143.70		146.54
Demand Charges		0.00	170.00	35.60
Upto 500 Units		59.16	6.75	39.93
Above 500 Units		84.54	8.40	71.01

CATEGORYWISE PROJECTED REVENUE: 2011-12

LT-VI (d)	3.26	2.68		0.23
Demand Charges			0.00	
Upto 100 Units		1.81	0.85	0.15
Above 100 Units		0.87	0.85	0.07
LT-VII Commercial		1527.65	7.17	1095.79
LT-VII (a)	1167.13	961.07		808.65
Demand Charges		0.00		
Single Phase	466.85	0.00	50.00	28.01
Three Phase	700.28	0.00	100.00	84.03
Upto 100 Units		133.07	5.45	72.52
Upto 200 Units		108.96	6.05	65.92
Upto 300 Units		95.08	6.75	64.18
Upto 500 Units		110.72	7.30	80.83
Above 500 Units		513.24	8.05	413.16
LT-VII (b)	577.05	475.17		220.72
Demand Charges			30.00	20.77
Upto 100 Units		248.13	3.30	81.88
Above 100 Units		227.04	5.20	118.06
LT-VII (c)	190.90	91.40		66.42
Demand Charges			80.00	18.33
Upto 1000 Units		38.89	4.40	17.11
Above 1000 Units		52.51	5.90	30.98
Commercial (incl. Non-Dom)	2635.00	2104.00	7.1	1488.7
Public Lighting		307.00	1.92	58.83
HT-I Industrial	450.45	1572.00	3.99	626.68
Demand Charges			270.00	142.68
Energy Charges(excluding power intensive)		1190.58	3.00	356.10
Energy Charges for power intensive		381.42	3.50	127.89
HT-II	49.35	119.18	4.20	50.10
Demand Charges			300.00	14.14
Energy Charges			3.00	35.97
HT IIB	0.24	0.12		0.07
Demand Charges			175.00	0.05
Energy Charges			1.75	0.02
HT-III	10.00	8.36	3.24	2.71
Demand Charges			165.00	1.63
Energy Charges			1.30	1.08
HT-IV	264.88	822.00	5.05	415.25
Demand Charges			350.00	105.63
Energy Charges			3.70	309.61
HT Total	774.92	2521.66	4.34	1094.80
EXTRA HIGH TENSION				

CATEGORYWISE PROJECTED REVENUE: 2011-12

EHT-I	82.47	370.67	3.58	132.73
Demand Charges			260.00	24.53
Energy Charges(excluding power intensive)		344.84	2.90	99.55
Energy Charges for power intensive		25.83	3.40	8.65
EHT-II	166.26	825.00	3.39	279.75
Demand Charges			245.00	41.04
Energy Charges(excluding power intensive)		795.66	2.90	229.01
Energy Charges for power intensive		29.34	3.40	9.71
EHT Total	248.73	1195.67	3.45	412.48
Railway Traction	63.24	169.98	3.99	67.89
Demand Charges			245.00	18.59
Energy Charges			2.90	49.29
Bulk supply	105.99	463.00	3.88	179.44
Grid-11KV	20.81	98.00	3.97	38.89
Demand Charges			270.00	6.74
Energy Charges			3.28	32.14
Grid-66KV	9.40	38.00	3.93	14.94
Demand Charges			260.00	2.93
Energy Charges			3.16	12.01
Grid-110KV	75.79	327.00	3.84	125.61
Demand Charges			245.00	22.28
Energy Charges			3.16	103.33
Total		15596.15	3.35	5217.10
NPG	0.00	4.00		
Grand Total		15600.15		5217.10

Data Form H				
Revenue Subsidies and Grants				
Rs. in crore				
Sl. No.	Item	2009-10 (Actual)	2010-11 (Revised)	2011-12
1	Subsidies	0.00	0.00	0.00
2	Grants for R&D Expenses	0.00	0.00	0.00
3	Grants for Survey & Investigation	0.00	0.00	0.00
4	Revenue gap/Regulatory asset	1227.51	1933.82	3208.64
	Grand Total	1227.51	1933.82	3208.64

Data Form - I
Non Tariff Income

SI No	Particulars	2009-10	2010-11			2011-12
		Provisional	ARR	KSERC	Revised	Total
		(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
1	Meter Rent/Service Line Rental	148.22	152.00	417.13	152.00	160.00
2	Miscellaneous Charges (UCM, Service connection fee, Fee for maintenance of Public lighting, Testing fee, Reconnection fee, Penalty charges, Minimum Guarantee charges, Charges for Service connection minimum, Meter Box charges, Power allocation charges etc.	55.21	70.00		50.00	50.00
3	Grant in aid for Research Projects	0.00	0.00		0.00	0.00
4	Interest on Staff Loans and Advances	0.53	0.25		0.38	0.30
5	Income from Investments	0.45	0.00		0.00	0.00
6	Interest on Advances to suppliers/ Contractors	4.15	1.30		3.15	3.00
7	Interest from Banks	105.55	88.58		84.63	64.06
8	Rebate Received	65.70	60.00		60.00	60.00
9	Income from Trading	19.79	10.00		15.00	15.00
10	Income from staff welfare Activities	0.00	0.00		0.00	0.00
11	Miscellaneous Receipts	37.09	35.00		35.00	38.00
	Grand Total	436.69	417.13	417.13	400.16	390.36

DATA FORM - J							
REPAIRS AND MAINTENANCE COST							
		2009-10	2010-11		2011-12		Rs in crore
Sl. No.	Particulars	Provisional	ARR	Revised	Consumption of stores, fuel etc	Other Expenses	Total
1	Plant & Machinery	52.93	47.63	63.52	32.77	43.44	76.22
2	Buildings	4.41	4.92	4.85	1.48	3.90	5.38
3	Other Civil works	5.34	6.25	5.87	1.55	4.97	6.52
4	Hydraulic works	2.01	2.12	2.21	0.18	2.26	2.44
5	Lines,Cable networks	101.53	107.49	121.84	62.86	81.64	144.50
6	Vehicles	5.50	6.01	6.05	0.48	6.30	6.78
7	Furniture & fixtures	0.50	0.28	0.55	0.04	0.57	0.61
8	Office equipment	0.94	0.62	1.08	0.11	1.19	1.30
	Total	173.16	175.32	205.97	99.47	144.28	243.75

Data Form K
Details of Employee Cost

					Rs in Crore
Sl.No.	Particulars	2009-10	2010-11		2011-12
		Actual	ARR	Estimated	Anticipated / Budgeted
1	Salaries	452.19	493.69	480.68	507.54
2	Overtime/Holiday Wages	0.18	0.12	0.20	0.24
3	DA	300.92	410.19	409.75	545.89
4	Other Allowances	27.87	32.00	29.50	32.00
5	Bonus	4.95	4.50	5.20	5.45
6	Sub Total of 1 to 5	786.11	940.50	925.33	1091.12
7	Medical Expenses Reimbursement	3.60	4.50	3.85	4.15
8	Earned Leave Encashment	56.03	70.00	58.80	62.75
9	Payment under Workmen's Compensation	0.29	0.54	0.45	0.50
10	Leave Salary & Pension Contribution paid by the Board to other Departments	0.11	0.20	0.15	0.18
12	Sub Total of 7 to 11	60.03	75.24	63.25	67.58
13	Staff Welfare Expenses	1.08	1.00	1.20	1.25
14	Terminal Benefits	604.31	673.68	672.96	750.67
15	Sub Total of 13 to 14	605.39	674.68	674.16	751.92
16	Grand Total	1451.53	1690.42	1662.74	1910.62

Data Form- L

EMPLOYEE COSTS - ADDITIONAL

Sl. No.	Category of employees	Working Strength as on 31-03-2010
1	Chairman of Board/ CMD of Company	1
2	Members of Board/Members of Board of Directors	3
3	Chief Engineers or equivalent	15
4	Superintending Engineers/ Deputy Chief Engineers or equivalent	71
5	Executive Engineers or equivalent	262
6	Asst. Exe. Engineers or equivalent	744
7	Asst. Engineers or equivalent	1829
8	All non-technical staff - officers	1122
9	All other technical staff	18642
10	All non-technical staff - non Officers	5358
	Total	28043

DATA FORM - M
ADMINISTRATION & GENERAL CHARGES

Rs in crores.

Sl. No.	Particulars	2009-10	2010-11		2011-12
		Actual	ARR	Estimated	Total
1	Rents, rates and taxes	4.30	4.66	4.69	5.39
2	Insurance	0.40	0.85	0.44	0.48
3	Telephone/telex charges, etc.	3.73	4.72	4.29	4.80
4	Internet and related charges	0.01	0.07	0.02	0.03
5	Legal charges	2.80	2.24	3.16	3.61
6	Audit fees	2.30	3.00	3.00	3.00
7	Consultancy charges	0.62	1.33	0.70	0.82
8	Other Professional charges	0.24	0.62	0.27	0.33
9	Conveyance and vehicle hire charges	17.11	17.55	18.99	21.84
10	Sub Total (Total of 1to 9)	31.51	35.04	35.56	40.30
11	OTHER EXPENSES				
	a) Fees and subscriptions	0.56	0.53	0.62	0.71
	b) Printing & stationary	8.49	9.18	9.51	10.46
	c) Advertisements	6.40	11.00	7.36	8.46
	d) Contributions/donations	0.54	0.48	0.58	0.61
	e) Electricity charges	4.91	4.09	5.16	5.36
	f) Water charges	0.22	0.35	0.24	0.27
	g) Entertainment	0.22	0.32	0.24	0.28
	h) Training expenses	1.87	1.21	2.06	2.37
	i) Miscellaneous expenses	13.95	9.25	16.04	17.11
12	TOTAL OF OTHER EXPENSES	37.16	36.41	41.81	45.63
13	Freight	14.61	9.24	16.07	17.50
14	Other purchase related expenses	2.89	4.95	3.47	3.85
	Total	17.50	14.19	19.54	21.35
15	Ele. Duty u/s 3(l), KED Act	80.79	85.41	84.37	89.78
	GRAND TOTAL	166.96	171.05	181.28	197.06

Data Form N
DEPRECIATION

Rs in Crore

Details of Assets	2009-10 (Provisional)	2010-11 (Revised)		2011-12 (Estimate)	
	Accumulated Depreciation at the end of the year	Depreciation for the year	Accumulated Depreciation at the end of the year	Depreciation for the year	Accumulated Depreciation at the end of the year
Land & Rights	0.00	0.00	0.00	0.00	0.00
Buildings	176.89	17.92	194.81	19.42	214.23
Hydraulic Works	252.75	51.45	304.20	55.75	359.95
Other Civil Works	60.19	10.87	71.06	11.78	82.83
Plant & Machinery	1821.17	198.94	2020.11	215.61	2235.73
Cable Network etc	2022.93	222.05	2244.98	240.62	2485.60
Vehicles	11.00	1.29	12.29	1.40	13.69
Furniture and Fixtures	10.79	0.95	11.74	1.03	12.77
Office Equipments	19.61	2.57	22.18	2.79	24.97
Total	4375.33	506.04	4881.37	548.39	5429.75

Data Form O
LOANS AND DEBENTURES AND INTEREST CHARGES (2011-12)

Rs. in crore

Sl. No.	Particulars	Rate of Interest in %	Balance at the beginning of the year	Amount Received during the year	Amount Redeemed during the year	Balance out standing at the end of the year	Interest for the year
II	Loans from others secured						
	KSE Bond	11.50 - 13.00	10.45	0.00	10.45	0.00	0.93
	REC	7.00 - 11.75	181.04	0.00	20.00	161.04	20.73
	LIC	9.00	16.00	0.00	2.00	14.00	1.51
	PFC	6.00 - 9.00	5.79	0.00	5.79	0.00	0.30
	Subtotal		213.28	0.00	38.24	175.04	23.47
III	Loans from others unsecured						
	LIC	9.00	34.39	0.00	12.01	22.38	3.24
	REC	7.00 - 11.75	176.36	0.00	39.97	136.39	17.56
	KPFC	6.25 - 12.25	0.02	0.00	0.02	0.00	0.00
	PFC-R-APDRP	11.50	64.31	0.00	0.00	64.31	7.40
	Subtotal		275.08	0.00	52.00	223.08	28.20
	Additional borrowing 11-12	10.50	1030.00	1036.00	0.00	2066.00	162.54
	Total		1518.36	1036.00	90.24	2464.12	214.21

Data Form Q
Details of Expenses Capitalised

Rs in crore

Sl. No.	Particulars	2009-10 (Actual)	2010-11 (Revised)	2011-12 (Estimate)
1	Interest & Finance Charges Capitalised	22.46	23.24	33.87
	Other Expenses capitalised			
	i. Employee Cost	79.84	95.96	111.37
	ii. A&G Expense	5.51	4.37	4.95
2	iii. Operation & Maintenance	0.00	0.00	0.00
	iv. Depreciation	0.00	0.00	0.00
	v. Others if any	0.00	0.00	0.00
	Total of (2)	85.35	100.33	116.32
	Grand Total	107.81	123.57	150.19

DATA FORM- R
OTHER DEBITS

Rs. in crore

Sl. No.	Particulars	Previous Year	Current Year	Ensuing year
		2009-10 (Actual)	2010-11 (Revised)	2011-12 (Estimate)
1	Research and Development Expenses	1.11	1.25	1.50
2	Provision for Bad and Doubtful debts	8.75	6.70	7.50
3	Miscellaneous Losses and write-offs	9.88	3.00	3.00
4	Material cost variance	51.82	0.00	0.00
	Total	71.56	10.95	12.00

Data Form -T
Prior Period Charges

Rs. in crore

Particulars	Previous year (09-10) Actual	Current year (10-11)			2011-12
		ARR	SERC	Revised	
I Income relating to previous Year					Not calimed in the ARR, but the actual may be approve during the Truing Up process
1. Receipt from consumers	13.04	65.00			
2 . Excess provision for Depreciation in prior period	0.00	0.00			
3. Interest income for prior periods	0.00	0.00			
4. Other excess provision	0.77	1.00			
5. Other income relating to prior period	114.68	55.00			
Total	128.49	121.00			
II Expenditure relating to previous years					
1. Short provision of power purchase	76.17	100.00			
2.Fuel related expenses relating to prior period	0.00	1.60			
3. Operating expenses relating to prior period	0.51	5.00			
4. Employee cost relating to prior period	0.00	0.00			
5. Depreciation under provided in prior period	0.00	0.00			
6. Interest & Finance charges	0.06	1.00			
7.Other charges relating to prev.Years	2.94	15.00			
Total	79.68	122.60			
Net prior period credit/charges	48.81	-1.60			

Data Form U
CONTRIBUTIONS, GRANTS AND SUBSIDIES TOWARDS COST OF CAPITAL ASSETS

		Rs. in crore								
Sl. No	Particulars	2009-10			2010-11			2011-12		
		Balance at the beginning of the year	Additions during the year	Balance at the end of the year	Balance at the beginning of the year	Additions during the year	Balance at the end of the year	Balance at the beginning of the year	Additions during the year	Balance at the end of the year
1	Consumers' contribution	1881.76	304.11	2185.87	2185.87	220.00	2405.87	2405.87	225.00	2630.87
2	Subsidies towards cost of capital assets	9.17	9.38	18.55	18.55	0.00	18.55	18.55	0.00	18.55
3	Grant towards cost of capital assets	410.35	27.60	437.95	437.95	30.00	467.95	467.95	25.00	492.95
4	Others	202.85	108.69	311.54	311.54	0.00	311.54	311.54	0.00	311.54
	Grand Total	2504.13	449.78	2953.91	2953.91	250.00	3203.91	3203.91	250.00	3453.91

Data Form V							
Gross Fixed Assets							
	Rs. in crore						
Details of Assets	2009-10	2010-11			2011-12		
	Balance at the end of the year	Balance at the beginning of the year	Additions during the year	Balance at the end of the year	Balance at the beginning of the year	Additions during the year	Balance at the end of the year
Land & Rights	306.27	306.27	25.61	331.88	331.88	30.30	362.18
Buildings	536.50	536.50	44.87	581.37	581.37	53.07	634.44
Hydraulic Works	974.37	974.37	81.49	1055.86	1055.86	96.38	1152.24
Other Civil Works	325.36	325.36	27.21	352.57	352.57	32.18	384.75
Plant & Machinery	3767.85	3767.85	315.73	4083.58	4083.58	372.81	4456.39
Cable Network etc	4205.45	4205.45	351.71	4557.16	4557.16	416.65	4973.81
Vehicles	13.57	13.57	1.13	14.70	14.70	1.34	16.05
Furniture and Fixtures	15.04	15.04	1.26	16.30	16.30	1.49	17.79
Office Equipments	40.62	40.62	3.40	44.02	44.02	3.96	47.99
Assets not belongs to the Board	7.14	7.14	0.00	7.14	7.14	0.00	7.14
Total	10192.17	10192.17	852.40	11044.57	11044.57	1008.20	12052.76

Data Form W

Net Fixed Assets

Rs. in crore										
Details of Assets	Rate of depreciation	2009-10	2010-11			2011-12				
		Balance of written down cost of assets at the end of the year	Balance of written down cost of assets at the beginning of the year	Net Addition of assets during the year	Net depreciation for the year	Balance of written down cost of assets at the end of the year	Balance of written down cost of assets at the beginning of the year	Net Addition of assets during the year	Net depreciation for the year	Balance of written down cost of assets at the end of the year
Land & Rights	0.00	306.27	306.27	25.61	0.00	331.88	331.88	30.30	0.00	362.18
Buildings	3.34	359.61	359.61	44.87	17.92	386.56	386.56	53.07	19.42	420.21
Hydraulic Works	5.28	721.61	721.61	81.49	51.45	751.65	751.65	96.38	55.75	792.29
Other Civil Works	3.34	265.17	265.17	27.21	10.87	281.51	281.51	32.18	11.78	301.92
Plant & Machinery	5.28	1946.68	1946.68	315.72	198.94	2063.45	2063.45	372.81	215.61	2220.65
Cable Network etc	5.28	2182.52	2182.52	351.71	222.05	2312.19	2312.19	416.66	240.62	2488.23
Vehicles	9.50	2.57	2.57	1.13	1.29	2.42	2.42	1.34	1.40	2.36
Furniture and Fixtures	6.33	4.25	4.25	1.26	0.95	4.56	4.56	1.49	1.03	5.01
Office Equipments	6.33	21.02	21.02	3.40	2.57	21.85	21.85	3.97	2.79	23.03
Assets not belongs to the Board	0.00	7.14	7.14	0.00		7.14	7.14	0.00		7.14
Total		5816.84	5816.84	852.40	506.04	6163.21	6163.21	1008.20	548.39	6623.02

Data Form X					
WORKS IN PROGRESS (Capital Expenditure)					
Rs. in crore					
Sl. No.	Description	Previous Year (09-10)	Current Year (2010-11)		Ensuing year (11-12)
			ARR	Revised	
	Opening Balance	1171.12	623.27	1017.86	1219.78
1	Capital Expenditure	761.91	877.82	930.75	885.81
2	Interest and Finance charges capitalised	22.45	23.24	23.24	33.87
3	Other expenses capitalised	85.35	94.10	100.33	116.32
4	Total Capital Expenditure for the year (1 + 2 + 3)	869.71	995.16	1054.32	1036.00
	Less: Decrease in advances for capital supplies/works	79.92	0.00	0.00	0
	Total	1960.91	1618.43	2072.18	2255.78
5	Less Expenditure capitalised (Transferred to gross asset)	943.05	865.79	852.40	1008.20
7	Closing Balance (4 – 5)	1017.86	752.64	1219.78	1247.58

Data Form- Y					
RECEIVABLE ANALYSIS-CONSUMER CATEGORY WISE (Provisional)					
A/c No	Catrgory	Receivables Opening Balance Previous Year (2008-09)	Demand for previous Year (2009-10)	Collection for Previous Year (2009-10)	Closing Balance Receivables for Previous Year (2009-10)
23101	Domestic	0.97	1254.98	1252.90	3.05
23102	Commercial	54.95	1259.39	1278.46	35.88
23103	Public Lighting	6.57	58.06	52.04	12.59
23104	Irrigation & Dewatering	18.91	28.24	30.12	17.03
23105	Public Water Works	384.30	119.15	449.92*	53.53
23107	Industrial L T	42.40	410.75	421.61	31.54
23108	Railway Traction	1.75	65.65	65.32	2.08
23109	Bulk Supply	0.30	143.33	135.60	8.03
23110	Miscellaneous	4.24	0.00	0.59	3.65
23111	Industrial (H. T)	137.22	931.19	939.03	129.38
23112	Industrial(E. H. T)	506.55	409.13	386.52	529.16
23115	NVVN/Other Traders	-1.73	13.89	12.16	0.00
23.6	Inter state	7.49	41.65	19.21	29.93
	IEX/PXIL	0.00	11.76	11.76	0.00
	Total	1163.92	4747.17	5055.24	855.85