

Chapter III

Performance audit relating to Statutory corporation

Kerala State Electricity Board

3. Power distribution activities of Kerala State Electricity Board

Executive Summary

Introduction

A performance audit covering the period 2006-2011 was conducted to assess network planning and execution, implementation of Centrally Sponsored Schemes, sub-transmission and distribution losses, billing and revenue collection efficiency, financial management, tariff fixation and consumer satisfaction and redressal of grievances in Kerala State Electricity Board (KSEB).

KSEB performed well in areas of attainment of objectives of - 100 per cent metering, curtailment of failure of DTRs within norms and lower AT&C Losses. At the same time, there were shortfalls in achievement of ideal HT/LT ratio, implementation of Centrally Sponsored Schemes etc.

Distribution network planning

Against the planned addition of 166 substations during 2006-2011, only 94 substations were actually added. There was no plan to implement a LT less system.

Implementation of Centrally Sponsored Schemes

Implementation of Centrally Sponsored Schemes by KSEB suffered from delays, consequently resulting in loss of Grants of ₹58.08 crore.

Purchase of power

Absence of adequate in-house power generating capacity resulted in purchase of power at expensive rates from outside parties.

Sub-transmission and distribution losses

The AT&C Losses decreased from 21.47 per cent in 2006-07 to 16.09 per cent in

2010-11. The AT&C Losses were more than the target of 15 per cent and 15.31 per cent set by Ministry of Power and Kerala State Electricity Regulatory Commission (KSERC) respectively.

Billing and revenue collection efficiency

The percentage of energy billed to energy available for sale ranged between 99.94 per cent to 99.98 per cent during 2006-2011. Instances of under collection of revenue due to incorrect application of tariff, non-levy of penalty, etc, were noticed during test check of Electrical Divisions. Non-collection of additional security deposit of ₹66.65 crore from consumers leading to increased borrowings for Working Capital needs were noticed.

Dues outstanding had increased from ₹1778.76 crore in 2006-07 to ₹1943.45 crore in 2010-11 of which dues outstanding for more than three years were ₹50.81 crore (2009-10).

Financial management

The Long Term Borrowings of KSEB had come down during 2006-2010. KSEB was able to repay the Loans as its Capacity Addition plans were getting postponed.

Subsidy

As per National Tariff Policy, tariff difference between categories of consumers is governed by a norm of plus or minus 20 per cent of average cost of supply. Neither the tariff proposal submitted by KSEB nor the tariff approved by KSERC conformed to this requirement.

Tariff fixation

KSEB had an amount of ₹3393.86 crore outstanding as Regulatory Asset as on 31 March 2011. As per provisions it has to

be recouped within three years through tariff or written off thereafter which was not complied with.

Consumer satisfaction & redressal of grievances

KSEB has standardised and simplified procedures for effecting service connections besides notification of 75 model sections aimed at improving consumer satisfaction. KSEB has also promulgated Standard of Performance with stipulation for payment of compensation on non-adherence.

Recommendations

The Performance Audit Report contains five recommendations, viz., Capacity addition plans to be prepared in a realistic manner to avoid mismatch and under achievement; Centrally Sponsored Schemes to be implemented effectively to obviate Loss of Grants; KSEB should tie up for purchase of power on long term basis to obviate the need for purchasing expensive short term power; billing and revenue collection mechanism to be further streamlined; and the Tariff adopted to be brought to the norm of +/- 20 per cent of Average Cost of Supply for various categories of consumers.

Introduction

3.1 The distribution system of the power sector constitutes the final link between the power sector and the consumer. The efficiency of the power sector is judged by the consumers on the basis of performance of this segment. It constitutes the weakest part of the sector, which is incurring large Losses. In view of the above, the real challenge of reforms in the power sector lies in efficient management of the distribution system. The National Electricity Policy in this regard *inter alia* emphasises on the adequate transition from financing support to aid restructuring of distribution utilities, efficiency improvements and recovery of cost of services provided to consumers to make power sector sustainable at reasonable and affordable prices besides others.

3.2 Kerala State Electricity Board (KSEB) was a Statutory body constituted under Section 5 of the Electricity Supply Act, 1948. In accordance with the State Power Policy, KSEB was functionally organised (May 2002) into three profit centres, namely Generation, Transmission and Distribution with a Corporate Office for co-ordination. After the enactment of Electricity Act, 2003 KSEB has been functioning as the State Transmission Utility and a Distribution Licensee with effect from 10 December 2004 under section 172 (a) of the Act, *ibid*.

3.3 The Central Government approved the continuation of KSEB as a State Transmission Utility and Licensee. In exercise of powers conferred under Sections 131 and 133 of the Act *ibid*, Government of Kerala (GoK) issued (September 2008) notification vesting functions, properties, interests, rights, obligations and liabilities of KSEB in the State Government, in turn to be re-vested in a corporate entity formed under the provisions of the Companies Act, 1956. A new company by name Kerala State Electricity Board Limited was accordingly incorporated on 14 January 2011.

3.4 The management of KSEB was vested in a Board of Members consisting of the Chairman / Special Officer and seven members (four full time members, two ex-officio members representing the State Government and one non-official member nominated by the State Government). They were Members (Finance),

(Generation), (Transmission), (Distribution) and Secretary to Government (Power Department) and Principal Secretary to Government (Finance Department). The Board of Members was replaced by a Managing Committee headed by a Special Officer since 25 September 2008.

3.5 Energy sales within the state increased from 11331 MU in 2006-07 to 14547.90 MU in 2010-11 i.e., an increase of 28.38 *per cent*. During the corresponding period energy sales outside the State ranged from 76.66 MU (2009-10) to 1346.76 MU (2007-08). As on 31 March 2011, KSEB had distribution network of 303407 CKM¹, 361 sub-stations and 58528 transformers of various categories. KSEB had 1.01 crore customers as on 31 March 2011 and had a Turnover of ₹5695.42 crore (including other income) in 2010-11, which was equal to 39.06 *per cent* and 2.15 *per cent* of the Turnover of State PSUs and State Gross Domestic Product, respectively. Its employee strength was 29885 as on 31 March 2011.

3.6 National Electricity Policy (NEP) aims to bring out reforms in the Power Distribution sector with focus on system upgradation, controlling and reduction of Transmission and Distribution (T & D) Losses and power thefts and making the sector commercially viable besides financing strategy to generate adequate resources. It further aims to bring out conservation strategy to optimise utilisation of electricity with focus on demand side management and load management. In view of the above, a performance audit was conducted on the Power Distribution activities of KSEB to ascertain whether they were able to adhere to the aims and objectives stated in the NEP and National Electricity Plan and how far the distribution reforms have been achieved.

3.7 A performance audit on generation of electricity activity of KSEB was included in the Report of the Comptroller and Auditor General of India-No.4 (Commercial), Government of Kerala for the year ended 31 March 2010.

Scope and Methodology of Audit

3.8 The present performance audit conducted during January 2011 to June 2011 covers the performance of KSEB's distribution activity during the period from 2006-07 to 2010-11. The performance audit mainly deals with network planning and execution, implementation of Centrally Sponsored Schemes, operational efficiency, billing and collection efficiency, financial management, consumer satisfaction, energy conservation and monitoring. The audit examination involved scrutiny of records at the Head Office and 18² out of 65 electrical divisions, all the three Offices of Chief Engineers, two³ out of three

¹ Circuit kilometer (CKM) is the route kilometers determined by measuring the length in terms of kilometers of the actual path followed by the transmission utility.

² Adoor, Alathur, Balussery, Chengannur, Cherthala, Chittoor, Kalpetta, Kannur, Kodungalloor, Kollam, Kunnankulam, Mananthavadi, Nilambur, Pala, Pallom, Pathanamthitta, Payyannur and Vaikom.

³ Kundara and Kallai.

regional stores, and four⁴ out of five Transformer Maintenance Repair Divisions, all selected based on random sampling⁵.

3.9 The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining audit objectives to top management, scrutiny of records at Head Office and selected units, interaction with the auditee personnel, analysis of data with reference to audit criteria, raising of audit queries, discussion of audit findings with the Management and issue of draft Performance Audit Report to the Management for comments.

Audit Objectives

3.10 The objectives of the performance audit were to assess:

- whether aims and objectives of the National Electricity Policy/Plan were adhered to and distribution reforms achieved;
- adequacy and effectiveness of network planning and its execution;
- efficiency and effectiveness in implementation of Centrally Sponsored Schemes such as Restructured Accelerated Power Development and Reforms Programme (R-APDRP) and Rajiv Gandhi Grameen Vidyuthikaran Yojana (RGGVY);
- operational efficiency in meeting the power demand of the consumers in the State;
- efficiency of billing and collection of revenue from consumers;
- whether financial management was effective and surplus funds, if any, were judiciously invested;
- whether a system was in place to assess consumer satisfaction and redressal of grievances;
- that energy conservation measures were undertaken; and
- that a monitoring system was in place and the same was utilised in review of overall working of KSEB.

Audit Criteria

3.11 The audit criteria adopted for assessing the achievement of the audit objectives were:

- provisions of Electricity Act 2003;

⁴ Thirumala, Shoranur, Pallom and Angamaly.

⁵ Probability proportional to size without replacement.

- National Electricity Plan, Annual Investment Plans and norms concerning distribution network of KSEB and planning criteria fixed by Kerala State Electricity Regulatory Commission (KSERC);
- terms and conditions contained in the documents relating to Centrally Sponsored Schemes;
- standard procedures for award of contract with reference to principles of economy, efficiency and effectiveness;
- norms prescribed by various agencies with regard to operational activities;
- norms of technical and non-technical Losses; and
- guidelines/ instructions/ directions of State Government / KSERC

Financial Position and Working Results

3.12 The financial position of KSEB for the five years ending 2010-11 was as given below:

(₹ in crore)					
Particulars	2006-07	2007-08	2008-09	2009-10	2010-11*
Paid up Capital	1553.00	1553.00	1553.00	1553.00	1553.00
Reserves & Surplus (including Capital Grants and Committed Reserves but excluding Depreciation Reserve)	3536.12	4055.28	4683.58	5427.19	6184.63
Secured loans	72.92	59.06	237.39	160.46	317.64
Unsecured loans	2498.52	1856.72	1100.37	1409.48	1066.50
Current Liabilities & provisions	3349.90	3753.29	4235.22	4764.66	5782.71
Total	11010.46	11277.35	11809.56	13314.79	14904.48
Gross Block	8216.85	8684.56	9249.12	10192.17	11210.90
Less: Depreciation	3070.27	3489.36	3924.10	4375.33	4848.75
Net Fixed Assets	5146.58	5195.20	5325.02	5816.84	6362.15
Capital works-in- progress	1184.48	1090.49	1171.12	1017.86	974.10
Investments	16.49	16.49	25.80	19.50	19.50
Current Assets, Loans and Advances	2871.71	3501.52	3065.50	3005.12	2900.94
Regulatory Asset ⁶	142.23	233.52	982.69	2210.20	3393.86
Deferred costs and intangible assets	46.67	37.83	37.13	42.97	51.63
Net subsidy to be written off	1602.30	1202.30	1202.30	1202.30	1202.30
Total	11010.46	11277.35	11809.56	13314.79	14904.48
Debt : Equity	0.78:1	0.46:1	0.33:1	0.45:1	0.45:1
Net Worth#	3297.92	4134.63	4014.46	3524.72	3089.84

* Figures for 2010-11 are provisional.

Net worth represents equity plus reserves minus (Deferred costs & intangible assets plus Net subsidy to be written off plus Regulatory Asset).

⁶ The expenditure over income after accounting for prescribed rate of return on equity as notified by Central Electricity Regulatory Commission is treated as Regulatory Asset.

3.13 It could be seen from the above table that the Regulatory Asset of KSEB had increased over the years and the Debt-Equity ratio showed fluctuating trend and stood at 0.45:1 in 2010-11 compared to 0.78:1 in 2006-07. The Net Worth of KSEB increased in 2007-08 in comparison to 2006-07 but decreased from 2008-09 onwards. The decline was due to increase in Regulatory Asset. Failure to utilise Regulatory Asset at the time of Tariff Fixation and to timely revise of tariff led to deterioration in financial position.

3.14 The particulars of cost of electricity *vis-à-vis* revenue realisation per unit therefrom were as indicated below:

(₹ in crore)						
Sl. No.	Description	2006-07	2007-08	2008-09	2009-10	2010-11
1	Income					
(i)	Revenue from Sale of Power	4286.13	4934.05	5097.49	4950.60	5403.76
(ii)	Revenue subsidy & grants	54.16
(ii)	Other income	130.03	201.79	252.33	233.26	237.50
	Total Income	4416.16	5135.84	5349.82	5183.86	5695.42
2	Distribution (in MUs)					
(i)	Total power sold	15844.95	16722.31	16069.43	17389.47	17869.75
	Less: Sub-transmission Losses outside State	370.10	310.40	312.57	357.53	401.73
	Power available for Sale	15474.85	16411.91	15756.86	17031.94	17468.02
(ii)	Less: Transmission & Distribution Losses	3096.96	3015.3	2879.21	3006.95	2789.88
	Net power sold	12377.89	13396.61	12877.65	14024.99	14678.14
3	Expenditure on Distribution of Electricity					
(a)	Fixed Cost					
(i)	Employees Cost	898.09	904.87	1255.19	1451.53	1712.80
(ii)	Administrative and General expenses	135.10	125.35	135.45	166.95	174.56
(iii)	Depreciation	409.98	419.09	434.74	451.22	473.43
(iv)	Interest and Finance charges	429.34	352.77	339.60	263.56	280.91
	Total fixed cost	1872.51	1802.08	2164.98	2333.26	2641.70
(b)	Variable cost					
(i)	Purchase of Power	1741.14	2297.04	3832.18	3748.87	3958.98
(ii)	Electricity Duty	198.40	215.72	227.69	258.26	290.12
(iii)	Repairs & Maintenance	110.99	116.26	138.79	173.16	231.85
	Total variable cost	2050.53	2629.02	4198.66	4180.29	4480.95
(c)	Total cost 3(a) + (b)	3923.04	4431.10	6363.64	6513.55	7122.65
4	Realisation (₹ per unit)	3.46	3.68	3.96	3.53	3.72 ⁷
5	Fixed cost (₹ per unit)	1.51	1.35	1.68	1.66	1.80
6	Variable cost (₹ per unit)	1.66	1.96	3.26	2.98	3.05
7	Total cost per unit (in ₹) (5+6)	3.17	3.31	4.94	4.64	4.85

⁷ Including revenue subsidy.

Sl. No.	Description	2006-07	2007-08	2008-09	2009-10	2010-11
8	Contribution (4-6) (₹ per unit)	1.80	1.72	0.70	0.55	0.67
9	Profit (+)/Loss(-) per unit (in ₹) (4-7)	0.29	0.37	-0.98	-1.11	-1.13

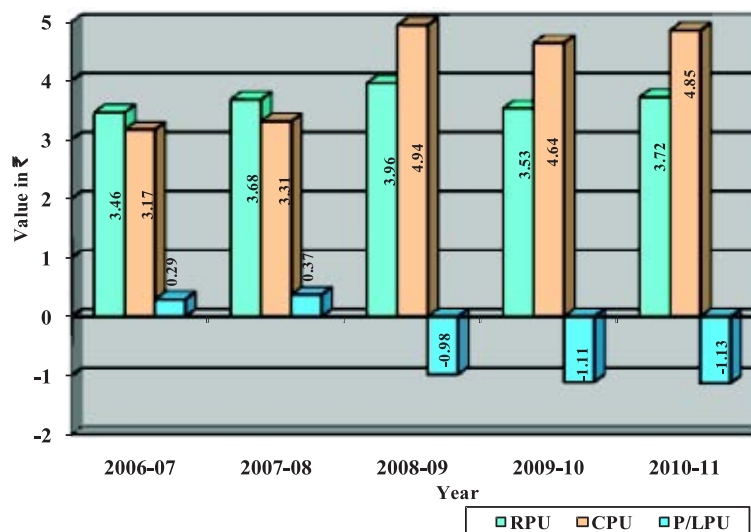
3.15 The realisation per unit saw a fluctuating trend and reached ₹3.72 in 2010-11 down from ₹3.96 of 2008-09 but improvement from ₹3.53 of 2009-10. The cost per unit of operation increased from ₹3.17 in 2006-07 to ₹4.94 in 2008-09 and decreased to ₹4.85 in 2010-11. The Contribution per unit had declined from ₹1.80 in 2006-07 to a low of ₹0.55 in 2009-10 but improved to ₹0.67 in 2010-11.

3.16 It was also evident from the above table that purchase of power and employee cost represented 55.58 and 24.05 *per cent* of the total cost in 2010-11. Revenue from sale of power represented 94.88 *per cent* of the total revenue in 2010-11.

3.17 We observed that revenue from sale of power had increased gradually from ₹4286.13 crore in 2006-07 to ₹5403.76 crore in 2010-11 except for a marginal slide in 2009-10. This was due to withdrawal, in 2009-10, of special tariff for excess consumption above the quota fixed for each consumer and withdrawal of thermal surcharge permitted (2008-09), by Kerala State Electricity Regulatory Commission (KSERC). During 2008-09 there was a huge increase of 43.61 *per cent* in the total cost as the employee cost jumped by 38.71 *per cent* following wage revision and the cost of purchase of power increased by 66.83 *per cent*.

Recovery of cost of operations

3.18 KSEB was not able to recover its cost of operations from the years 2008-09 onwards. Realisation Per Unit (RPU), Cost Per Unit (CPU) and Profit/Loss Per Unit (P/LPU) earned by KSEB during the last five years ending 2010-11 were as shown in the graph below:



3.19 It could be seen from the table relating to financial position that there remained a Regulatory Asset of ₹142.23 crore in 2006-07 which increased to ₹3393.86 crore in 2010-11 (even after including revenue Subsidies & Grants). The steep increase in Regulatory Asset needs immediate attention of the State Government for necessary remedial action. Our analysis revealed that the main reason for deficit was purchase of power at increasingly higher price and there being no increase in sale price of power.

Audit Findings

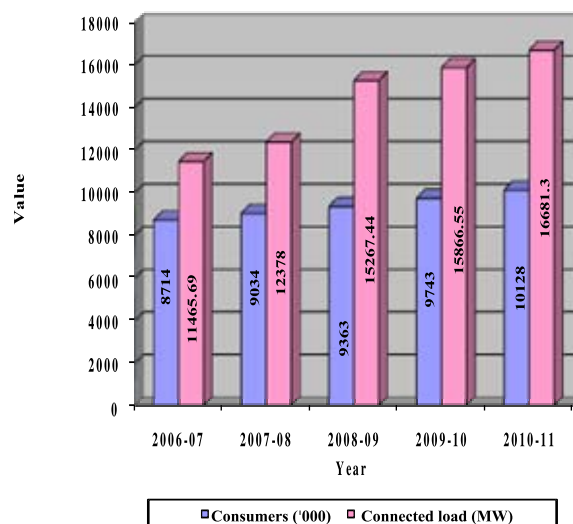
3.20 We explained the audit objectives, criteria and scope of performance audit to the Management of KSEB during an Entry Conference (March 2011). Audit findings were reported to the Management and the State Government (July 2011) and were discussed in an Exit Conference (September 2011). The Exit Conference was attended by Member (Finance) and Member (Distribution) of KSEB and the Additional Secretary, Power Department. While KSEB replied to audit findings (September 2011), Government replies were awaited (November 2011). The views expressed by the management have been considered while finalising this Performance Audit Report. The audit findings are discussed in subsequent paragraphs.

Distribution Network Planning

3.21 KSEB is required to prepare long term/ annual plan for creation of infrastructural facilities for efficient distribution of electricity so as to cover maximum population in the State. Besides the upkeep of the existing network,

additions in distribution network are planned keeping in view the demand/connected load, anticipated new connections and growth in demand based on Electric Power Survey conducted by Central Electricity Authority. Considering physical parameters, capital investment plans are submitted to the State Government/KSERC. The major components of the outlay include normal development and system improvement besides rural electrification and strengthening of IT enabled systems.

3.22 The number of consumers and connected load during audit period were as given below in bar chart.



3.23 While the system improvement and rural electrification schemes have been dealt with separately under subsequent paragraphs, the particulars of distribution network planned *vis-a-vis* achievement there against in the State as a whole are depicted in *Annexure 12*.

HT / LT ratio

3.24 High voltage distribution system is an effective method of reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. The Government of India (GoI) had also stressed (February 2001) the need to adopt LT less system of distribution through replacement of existing LT lines by HT lines to reduce the distribution Losses. The KSERC had also accepted the proposal to make the system LT Less and bring it to the ideal ratio of 1:1. Though the HT / LT ratio of KSEB improved from 1:6.29 in 2006-07 to 1:5.38 in 2010-11 as shown in *Annexure 12*, the same was way behind the ideal ratio of 1:1. KSEB had not formulated any action plan to achieve the ideal ratio. The increase in LT lines was 38007 kms while the increase in HT lines was 12905 kms during audit period.

**HT/ LT ratio was
1:5.38 against ideal
level of 1:1.**

Management admitted (September 2011) that there was scope for improvement in the ratio even though the ideal ratio of 1:1 would not be achievable in the State due to high density of population.

Inadequate Transformation Capacity

3.25 The ideal ratio of transformation capacity to connected load is considered as 1:1. The table below gives the details of transformation capacity at 110/66/33/11 KV sub-stations and connected load of the consumers in the State during the period 2006-07 to 2010-11.

<i>(in MVA)</i>		
Year	Transformation Capacity	Connected Load
2006-07	4853.30	12739.65
2007-08	5017.17	13753.33
2008-09	5239.70	16963.82
2009-10	5661.20	17629.50
2010-11	5763.70	18534.78

It could be seen that there was gap in transformation capacity but KSEB replied (September 2011) that as per its assessment, the existing transformation capacity was sufficient given that domestic consumers constituted 80 *per cent* of the total consumers and the all time maximum demand recorded in the State was 3119 MW only against the present total connected load of 16681.30 MW (18534.78 MVA).

Sub-station

3.26 Sub-station (SS) is a part of an electrical generation, transmission and distribution system. Sub-stations transform voltage from high to low and *vice versa* or perform any of several other important functions. A distribution sub-station transfers power from the transmission system to the distribution system of an area. The distribution sub-station reduces voltage to a value suitable for local distribution. Increase in connected load can be catered to by construction of new SS or enhancement of existing SS.

The planned and actual additions in sub-stations during five years from 2006-07 to 2010-11 were as given in **Annexure 12**. The percentage of achievement was 20.55, 26.03, 21.43, 36.25 and 15.29 for the years 2006-07 to 2010-11 reflecting unrealistic planning by KSEB.

It could be seen that as against the planned addition of 166 SS during 2006-07 to 2010-11, only 94 SS were actually added. The connected load of 11465.69 MW in 2006-07 increased to 16681.30 MW in 2010-11. The transformer capacity increased from 5033.35⁸ MVA to 7158.51 MVA during the same period.

Management replied (September 2011) that over targeting in network and sub-station planning was deliberately resorted to counter extraneous causes of slippage like court interventions and public interest. The reply was not acceptable

Addition of sub-stations was only 94 as against 166 planned.

⁸ At the beginning of 2006-07.

and we felt that absence of proper survey and defective Detailed Project Reports (DPR) coupled with poor execution of projects had led to the non-achievement of targets.

Implementation of Centrally Sponsored Schemes

Rural Electrification

3.27 The National Electricity Policy states that the key objective of development of the power sector is to supply electricity to all areas including rural areas for which the GoI and the State Governments would jointly endeavour to achieve this objective. Accordingly, the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) was launched in April 2005, which aimed at providing access to electricity for all households in five years for which the GoI provides 90 *per cent* capital subsidy.

3.28 Besides, the GoI notified the Rural Electrification Policy (REP) in August 2006. The REP *inter-alia* aimed at providing access to electricity to all households by 2009 and Minimum Lifeline Consumption of one unit per household per day as a merit good by the year 2012. The other rural electrification schemes viz., Accelerated Electrification of one lakh villages and one crore households, Minimum Needs Programme were merged into RGGVY. The features of the erstwhile ‘Kutir Jyoti Programme’ were also suitably integrated into this scheme.

3.29 As on 31 March 2006, all the 1467 villages in the State (as per 2001 Census) were electrified (100 *per cent*) as per the definition⁹ of Ministry of Power (MoP).

RGGVY launched (April 2005) by GoI envisaged electricity supply to all rural households in a five year period. The Scheme contemplated creation of necessary infrastructure through:

- Rural Electricity Distribution Backbone (REDB) – provision of at least one 33/11 KV or 66/11 KV sub-station of adequate capacity in each block;
- Village Electrification Infrastructure (VEI) – electrification of every village with a distribution transformer in each habitation;
- Decentralised Distributed Generation (DDG) and supply- DDG system in villages where the grid connectivity is not feasible or cost effective; and
- Below Poverty Line Households to get electricity connection free of charge and revenue sustainability of electricity supply to be ensured through franchisees who could be Non-Governmental Organisations, Users’ Associations, Co-operatives or Individual Entrepreneurs with association of Panchayati Raj Institutions.

⁹ If the number of households electrified were at least 10 *per cent* of the total number of households in the village, the village would be declared as electrified.

Rural Electrification Corporation Limited (REC) was the nodal agency for the implementation of the programme in the State. The programme was to be implemented in the State in two phases covering seven districts each. The following deficiencies were noticed in the preparation of Project Report:

- As per 2001 census, the number of un-electrified rural households in the 14 districts of the State was 17.04 lakh. KSEB submitted (May 2005) proposal for electrification of 4.68 lakh¹⁰ rural households only (including 2.09 lakh Below Poverty Line (BPL) households) through construction of seven Nos 66/11 KV sub-stations and 18 Nos 33/11 KV sub-stations at a cost of ₹438.36 crore.
- The number of un-electrified BPL households in the seven districts under first phase¹¹ was 2.04 lakh. Out of these, only 1.22 lakh BPL households were included in the Scheme, indicating absence of proper planning and action plan which resulted in exclusion of 0.82 lakh BPL households in the Scheme.

KSEB was sanctioned (June 2005) an amount of ₹221.75 crore by REC for the first phase covering seven districts. A tripartite agreement was executed (July 2005) between KSEB, GoK and REC and turnkey tenders were invited (January 2006) for implementation of the Scheme. The tender found no bidders and district-wise turnkey tenders were invited. The lowest rates received ranged from 76 *per cent* to 88 *per cent* above Probable Amount of Contract (PAC). KSEB therefore requested GoI / REC to permit them to execute the works on local contract basis after providing the materials departmentally, except for the district of Idukki.

A quadripartite agreement was signed (February 2007) between KSEB, GoK, REC and NTPC Electricity Supply Company Ltd (NESCL) by which NESCL agreed to provide consultancy for implementation of projects in remaining six districts covered under first phase of the project. REC sanctioned (March 2010) ₹114.57 crore on the basis of the DPR prepared by NESCL. Sanction for DPR by REC was delayed due to:

- Information furnished (in respect of 66/11 KV substation, 66 KV DC line, extension of 11 KV feeder etc) by KSEB which was necessary to prepare DPRs being not in conformity with RGGVY guidelines;
- The schedule of completion of activities (PERT chart) being not provided in the submitted DPRs;

KSEB awarded (January 2007) the work of Idukki district to ICSA India Ltd., Hyderabad on turnkey basis for ₹17.65 crore (i.e., 19.45 *per cent* above PAC of ₹14.78 crore). Letter of Award (LoA) was issued (January 2007) and the entire work was to be completed by 18 months from the date of LoA. The scheme for Idukki district was completed in June 2010. The total expenditure incurred

¹⁰ Thiruvananthapuram-34727, Kollam-27569, Pathanamthitta-53131, Alappuzha-54348, Kottayam-10946, Idukki-23799, Ernakulam-23005, Thrissur-32202, Palakkad-35881, Malappuram-38167, Kozhikode-50674, Kannur-18831, Wayanad-38404, Kasargode-26162.

¹¹ Idukki, Kannur, Kasargod, Kozhikode, Malappuram, Palakkad and Wayanad.

(2007-2011) by KSEB in respect of Idukki district was reimbursed (March 2007 to January 2010) by REC.

We noticed in respect of execution of work of Idukki district that:

KSEB after awarding the work (January 2007) prepared a revised DPR by increasing the quantities of work (approved by REC in January 2009) with estimated cost of ₹19.95 crore. The actual quantity executed with respect to quantity as per work order and DPR and quantity eligible for rate revision as at June 2010 were as shown below:

Sl. No	Details	Unit	Quantity				
			As per work order	As per revised DPR	Actual execution	Excess executed	Eligible for rate revision
1	No. of Villages	No.	38	39	37	--	-
2	No. of Karas	No.	81	100	83	2	-
3	Erection of 11KV lines	Km.	504.44	350.90	249.94	--	Nil
4	Erection of 25 KVA transformer	No.	351	308	275	--	Nil
5	Erection of Three Phase LT line	Km.	34.28	62.14	63.51	29.23	12.08
6	Erection of DTR meters	No.	351	308	275	--	Nil
7	Erection of Single Phase LT line	Km.	126.97	258.35	368.68	241.71	178.225
8	BPL service connection effected	No.	17834	16097	17238	---	-

As per clause 9.1 of the Special Conditions of Contract (SCC) read with Clause 24.1 of the General Conditions of Contract (GCC) of KSEB, variation in quantities were to be limited to 50 *per cent* for individual items and total variation in all items under the contract shall be limited to 20 *per cent* of contract price. For quantity variation of individual items beyond 50 *per cent*, the matter shall be referred to competent authority of implementing agency.

KSEB allowed rate revision in respect of the following works resulting in excess payments amounting to ₹83.30 lakh in contravention of Clause 24.1 of GCC and 9.1 of SCC, as shown below:

Sl. No	Details of work	Quantity			Old rate	RR	Excess rate	Excess paid
		Paid at revised rate (RR)	Eligible for RR	Excess paid				
1	TP LT line (km)	29.23	12.08	17.15	1.70933	2.5886	0.87927	15.07
2	SP LT line (km)	241.71	178.22	63.49	1.21719	1.82515	0.60796	38.60
3	25 KVA Transformer (No)	55	-	55	0.82779	1.36396	0.53617	29.49
4	DTR meters (No.)	55	-	55	0.08719	0.08979	0.0026	0.14
Total								83.30

RGGVY scheme (2005) could not be implemented in seven districts.

The works were awarded (August 2010 to January 2011) on turnkey basis in respect of six districts (total PAC ₹98.35 crore). The first installment received (October 2010) was ₹20.84 crore which included loan portion of ₹2.12 crore.

Revised DPRs for implementation of RGGVY in the seven districts under the second phase were submitted only in September 2010 to REC and sanction was awaited (November 2011).

We observed that:

- Even though five years had elapsed since the commencement of the Scheme, the sanction for the works in seven districts to be covered in phase II had not been obtained.
- Development of franchisee system was precondition (MoP, GoI order March 2005) for release of second installment of fund by REC. The matter of implementation of franchisee system in KSEB required major policy decision at higher level. No decision had been taken on the issue so far (November 2011) which would result in further delay of the already sanctioned projects and non-attainment of the objectives of the Scheme.

Thus, ineffective project implementation defeated the very objective of the Scheme of providing electricity connection to 4.51 lakh¹² targeted rural households including 1.92 lakh¹³ BPL households in the 14 districts.

Management while accepting (September 2011) the observations in respect of works of Idukki district explained that the failure in conducting accurate survey to ascertain the actual requirement led to initial underassessment of quantity of work to be executed. The Management did not reply to the observations regarding the delay in implementation of the Scheme in other districts.

Restructured Accelerated Power Development and Reforms Programme

3.30 GoI introduced (February 2000) the Accelerated Power Development Reforms Programme (APDRP) scheme through State Governments for strengthening the distribution and sub-transmission network in the country so as to reduce the AT&C Losses and impart better service to the consumers. The Scheme had two components; incentive component and investment component.

3.31 The incentive component of the Scheme was meant for incentivising up to 50 per cent of the actual cash loss reduction that would be achieved by SEBs / Utilities for the 10th Five Year Plan period.

Investment component of the Scheme involves replacement of mechanical meters with static meters, installation of feeder meters, LT capacitors, sub-station repairs and maintenance, DTR repairs and maintenance, billing centre, data logging, call

¹² 4.68 lakh rural households in 14 districts targeted for providing electricity connection under the Scheme, as reduced by 0.17 lakh BPL households in Idukki district who were provided electricity connection under the Scheme so far.

¹³ 2.09 lakh BPL households targeted minus 0.17 lakh BPL households actually electrified.

centre, boarder meter, re-conductoring of LT 11 KV and LT lines, installation of new DTRs. Under investment component, 25 *per cent* project cost would be grant and the balance was to be arranged by SEBs. As per the guidelines, the Scheme was to be completed between two to three years from the date of sanction.

A total of 52 schemes was sanctioned by MOP for the State during the period 2002 to 2005 for a total project cost of ₹858.50 crore.

- KSEB could complete only 38 schemes within the timeframe of 36 months when the Scheme was closed by MOP on 31 March 2009. In respect of remaining 14 schemes (three city and 11 town schemes sanctioned for ₹438.88 crore), works to the extent of ₹232.32 crore remained incomplete.

Thus, the opportunity to get grant of ₹58.08 crore (25 *per cent* of incomplete project cost of ₹232.32 crore) was lost and had to execute the balance work with own funds treating it as normal development work.

In respect of the three incomplete city schemes, KSEB had anticipated substantial line loss reduction due to automation and strengthening of distribution system. Due to the schemes remaining incomplete the envisaged annual benefit to the extent of 29.43 MUs of power worth ₹7.36 crore could not be achieved.

Management replied (September 2011) that the delay in execution of work was attributable to:

- delay in commencement of work by contractor;
- non-submission of work schedule within the time frame;
- delay in survey of work; and
- delay in getting sanctions/permissions from the local authorities.

It was further stated that though there was fund loss, the objective of the Scheme was achieved as all physical parameters were achieved and the delay was due to various hurdles faced during execution of the Scheme.

The contentions of KSEB for delay in execution were inherent in such schemes and were controllable. Thus, despite the Scheme parameters being achieved KSEB had to forego not only grants of ₹58.08 crore but also the envisaged annual benefit to the extent of ₹7.36 crore by way of reduction in line losses due to non-commissioning of the three city schemes.

Laying of 11 KV XLPE¹⁴ Underground cable

3.32 With a view to providing quality power with minimum losses, project for laying of 11 KV XLPE underground (UG) cable within the town limits of Kasaragode and Kanhangad under APDRP Circle scheme was taken up. In order to get approval from Power-Telecom Co-ordination Committee (PTCC) which was mandatory for energisation of the UG cables, KSEB was to adhere to PTCC standard of minimum vertical and horizontal clearance of 0.60 meters between telecom and power cables. KSEB could not adhere to this requirement due to

¹⁴ Cross Linked Polyethylene Insulated Power Cable.

Due to time overrun works to the extent of ₹232.32 crore could not be executed under APDRP with consequential loss of grant of ₹58.08 crore

UG cables laid at a cost of ₹1.73 crore were not energized.

supervisory lapses in execution of the contract work. PTCC denied (December 2007) permission for energisation of UG cables laid (July 2006) in these towns at a cost of ₹1.73¹⁵ crore. The objective of the works remained unachieved since July 2006 and we are of the opinion that the investment had gone waste.

Restructured APDRP Scheme

3.33 In order to carry on the reforms further, the GOI launched (July 2008) the Restructured APDRP (R-APDRP) as a Central Sector Scheme for XI Plan. The R-APDRP scheme comprises Part A and B. Part A aimed to establish IT enabled system for achieving reliable and verifiable baseline data system in all towns besides installation of SCADA¹⁶/ Distribution Management System. For this, 100 *per cent* loan was provided which was convertible into grant on completion and verification of the same by Third Party independent evaluating agencies. Part B of the scheme dealt with strengthening of regular sub-transmission & distribution system and upgradation projects.

Delay in implementation of R-APDRP Scheme

Execution of works under Restructured APDRP was lagging behind schedule.

3.34 Part A of the project was to be completed within three years of sanction. GOI approved DPRs (worth ₹214.39 crore) of Part A for 43 town schemes and sanctioned (November 2009) 100 *per cent* Loan of ₹214.39 crore. GOI released (January 2010) fund of ₹64.31 crore for Part A of the project. Out of this, only ₹1.24 crore and ₹4.19 crore were utilised during 2009-10 and 2010-11 respectively leaving an unspent balance of ₹58.88 crore.

For Part A of the Scheme, a work order for ₹189.94 crore to KDN Korea for supplying an IT enabled system was issued (September 2010). GOK directed (December 2010) cancellation of the process expressing reservation over the tender process and is under litigation.

KSEB submitted (March 2010) DPRs of Part B for 40 town schemes to the Nodal agency - Power Finance Corporation Ltd for sanction and the same was approved (11 schemes in June 2010, 21 in August 2010 and eight in December 2010). DPRs for the balance three schemes were submitted in October 2010 of which two schemes were sanctioned in February 2011 and one is pending sanction. The project cost approved for Part B was ₹872.17 crore. GoI in sanctioning Loan of ₹218.04 crore (25 *per cent*) released (January 2010) ₹75.51 crore and ₹55.32 crore in 2011-12. The balance was yet to be received. The implementation of Part B of the Scheme was in initial stages and KSEB could spend only ₹18 crore.

Strengthening of sub-transmission and distribution system

3.35 The focus in this part was on reduction of Aggregate Technical & Commercial (AT&C) Losses on sustainable basis. Twenty five *per cent* of this Scheme Cost was to be provided as Loan and up to 50 *per cent* of the Loan was

¹⁵ Kasargode ₹79.31 lakh and Kanhangad ₹93.99 lakh.

¹⁶ Supervisory Control And Data Acquisition – It generally refers to industrial control systems: computer systems that monitor and control industrial infrastructure, or facility-based processes.

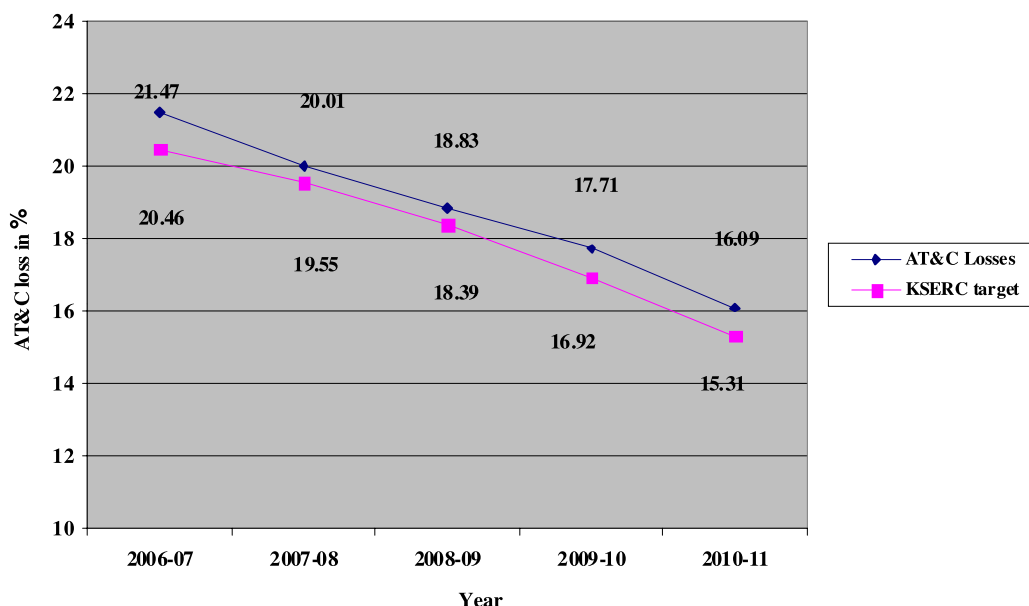
convertible to Grant depending on the utility maintaining AT&C Loss level at 15 per cent for five years.

Aggregate Technical & Commercial Losses

There was progressive reduction in AT&C losses.

3.36 One of the prime objectives of R-APDRP scheme was to strengthen the distribution system with the focus on reduction of AT & C Losses on sustainable basis.

The graph below depicts the AT & C Losses of KSEB during 2006-07 to 2010-11.



Though there had been a steady improvement in AT&C Loss reduction, the percentage of actual energy loss was high when compared to the KSERC target. KSEB should strive to achieve the target fixed by KSERC.

Consumer metering

3.37 Cent per cent metering had been achieved prior to 2006-07 itself.

Operational Efficiency

3.38 The operational performance of an electrical utility is judged on the basis of availability of adequate power at reasonable rates for distribution, adequacy and reliability of distribution network, minimising line losses, detection of theft of electricity, etc. These aspects have been discussed below.

Purchase of Power

3.39 The demand for energy has been increasing year after year in the State due to economic development. Assessment of future demand and requirement of

power is calculated on the basis of past consumption trends, present requirement, load growth trends and AT & C Losses and its trend.

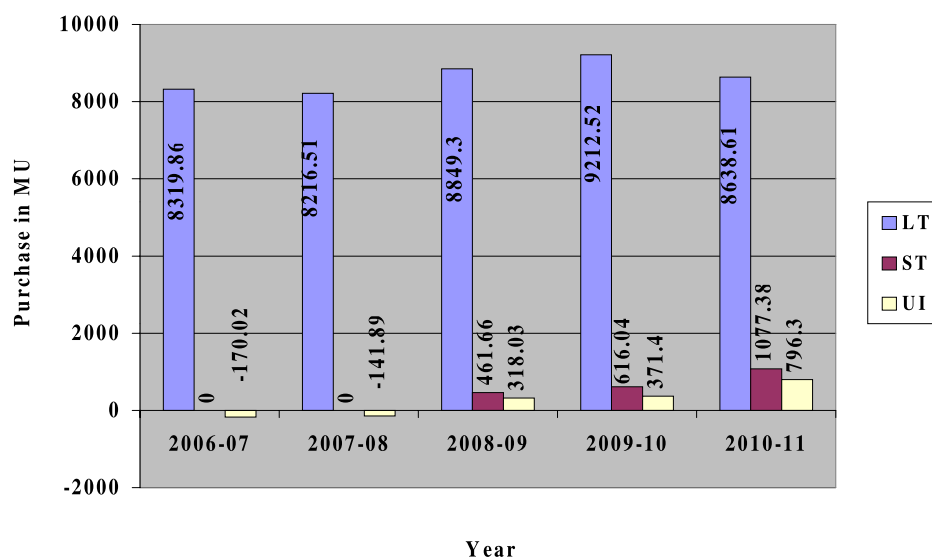
The details of demand of power assessed for the State based on the 17th Electric Power Survey (EPS), demand for power approved by KSERC and power purchased during the period 2006-07 to 2010-11 in respect of the State as a whole were as under:

(in Million Units)

Year	Demand assessed in EPS	Demand approved by KSERC	Power generation and purchase	Surplus/ (Deficit)	Surplus/ (Deficit) against KSERC's approval
(1)	(2)	(3)	(4)	(5) = (4 - 2)	(6) = (4 - 3)
2006-07	13786	13652	14428	642	776
2007-08	15315	15315	15065	(250)	(250)
2008-09	16266	16156	15293	(973)	(863)
2009-10	16913	16665	16978	65	313
2010-11	17821	17461	17337	(484)	(124)

It may be seen from the above table that the power requirement was in excess of the assessment as approved by KSERC during 2006-07 and 2009-10. There was shortfall in the years 2007-08, 2008-09 and 2010-11.

For the above purchases, KSEB entered into long term (LT) and short term (ST) power purchase agreements with various agencies, viz., State Generation Units, Central PSUs, IPPs, etc., besides unscheduled interchange (UI) purchases on need basis. The break up of the total power purchased into LT, ST and UI was as follows:-



It could be seen from the above that there was no short term purchase during 2006-07 and 2007-08. Thereafter the short term purchase increased every year (33.44 *per cent* during 2009-10 and 74.89 *per cent* during 2010-11 compared to previous years) whereas there was drop in long term purchase in the years 2007-08 and 2010-11.

The source-wise purchase of power during audit period was as given in **Annexure 13**.

3.40 KSEB was not able to meet the power requirements of the consumers in the State from its own generating units. It made purchases from Central pool - NTPC - a GoI PSU and private sources.

Cost per unit of power both under short term and long term purchase was increasing from 2009-10 onwards. While cost of short term purchase increased from ₹4.50 in 2009-10 to ₹4.66 in 2010-11, increase in cost of long term purchase was from ₹3.12 in 2009-10 to ₹3.34 in 2010-11.

The purchase of power from outside parties had to be seen in view of the fact that its own Capacity Expansion plans during the period 2006-2011 were not fructifying as separately discussed in Para 3.52 below.

This indicated the need for capacity addition/ augmentation of own generation or the need to enter into LT purchase contract to avoid expensive ST purchases.

Sub-transmission & Distribution Losses

3.41 The distribution system is an important and essential link between the power generation source and the ultimate consumer of electricity. Efficient functioning of the system requires that there are minimum losses in sub-transmission and distribution of power. While energy is carried from the generation source to the consumer, some energy is lost in the network. The losses at 33KV stage are termed as sub-transmission losses while those at 11 KV and below are termed as distribution losses. These are based on the difference between energy received (paid for) by the distribution utility and energy billed to consumers. The percentage of losses to available power indicates the effectiveness of distribution system. The losses occur mainly on two counts, *i.e.*, technical and commercial. Technical losses occur due to inherent character of equipment used for transmitting and distributing power and resistance in conductors through which the energy is carried from one place to another. On the other hand, commercial losses occur due to theft of energy, defective meters and drawal of unmetered supply, etc.

The table below indicated the energy losses of KSEB for the five years up to 2010-11:

(In Million Units)						
Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Generation and purchase	14427.97	15065.11	15293.51	16978.04	17337.78
2.	Sale within State ¹⁷	11331	12049.85	12414.32	13971.09	14547.90
3.	Energy losses (1 – 2)	3096.97	3015.26	2879.19	3006.95	2789.88
4.	Percentage of energy losses (<i>per cent</i>) {(3 / 1) x 100}	21.47	20.01	18.83	17.71 ¹⁸	16.09
5.	Percentage of losses allowed by KSERC (<i>per cent</i>)	20.46	19.55	18.39	16.92	15.31
6.	Excess losses (in MUs)	145.69	69.30	67.29	134.13	135.23
7.	Average realisation rate per unit (in ₹)	3.46	3.68	3.96	3.53	3.72 ¹⁹
8.	Value of excess losses (₹ in crore) (6 x 7)	50.41	25.50	26.65	47.35	50.31

It would be seen from the above table that losses had come down progressively and ranged between 21.47 *per cent* and 16.09 *per cent* during the five years ending 31 March 2011 but was more than the targets of 15 *per cent* and 15.31 *per cent* set by MoP and KSERC respectively for achievement by 2010-11.

The importance of reducing losses could be gauged from the fact that every *per cent* decrease in energy loss would add an additional revenue of ₹64.50 crore to KSEB at current average realisation rates.

AT&C Losses during 2006-2010 exceeded the norm fixed by KSERC with financial impact of ₹200.22 crore.

¹⁷ This represents the energy available for sale within the state after deducting all the losses and sale outside the state.

¹⁸ Truing up is pending before Kerala State Electricity Regulatory Commission.

¹⁹ including revenue subsidy

Management replied (September 2011) that the target fixed for reduction of AT&C Loss by 2011-12 in KSEB was 15.89 *per cent*. The reply is not correct as the target set for AT&C Losses by MOP was 15 *per cent* by the year 2010-11.

Performance of Distribution Transformers

3.42 KSERC had fixed the norm of failure of Distribution Transformers (DTRs) (five *per cent* for urban and 12 *per cent* for rural areas) in its Tariff Orders. The details of norms fixed, actual DTRs failed and the expenditure incurred on their repairs were as shown below:

Sl.No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Existing DTRs at the close of the year(in Number)	39848	42924	47036	52724	58528
2.	DTR failures (in Number)	1728	1634	1310	1429	1207
3.	Percentage of failures	4.34	3.81	2.79	2.71	2.06
4.	Norm allowed by SERC (in percentage) (Urban/Rural)	5 /12	5 /12	5 /12	5 /12	5 /12
5.	Excess failure percentage over norms	Nil	Nil	Nil	Nil	Nil
6.	Expenditure on repair of failed DTRs (₹ in crore)	1.72	1.24	1.28	1.17	1.31

DTR failure was within the norms fixed by KSERC.

It could be seen from the above table that the percentage of failure was within the norms and showed a decreasing trend. Cause-wise analysis of failure of DTRs revealed that failure due to over loading ranged between 9.10 *per cent* to 18.70 *per cent* during the period under audit.

Detailed analysis of four²⁰ selected Transformer Maintenance and Repair divisions revealed that failure on account of LT line short, poor oil condition, loose connection, less Insulation Resistance (IR) value, lightning, internal short circuit and less oil level contributed between 81.30 *per cent* to 90.90 *per cent* of the total failures (other than manufacturing defects) during the audit period, which were controllable.

Procurement of conventional Distribution Transformers.

3.43 Government of India made (July 2009) purchase of energy efficient star rated DTRs mandatory with effect from January 2010. The minimum recommended star rating was three. Use of three star rated DTRs, compared to the conventional type DTR, envisaged an annual energy saving of 1808.06 units for a 100 KVA DTR and 3347.196 units for a 160 KVA DTR.

We noticed that KSEB purchased 1600 conventional 100 KVA DTRs and 50 numbers 160 KVA DTRs between May and July 2010 which translated into aggregate annual loss of 3.06 MUs of Power. Reckoning the average life of

Procurement of conventional DTRs in place of star rated DTRs would result in loss of energy of 76.5 MUs having revenue impact of ₹28.46 crore.

²⁰ Thirumala, Pallam, Angamaly, Shornur

star rated DTRs as 25 years, the potential loss of energy would be as much as 76.5 MUs worth ₹28.46 crore²¹.

Management stated (September 2011) that purchase of conventional transformers was resorted to for effecting timely service connections and for carrying out the targeted works as per annual plan which otherwise would have been delayed. They further stated that the loss worked out in Audit was based on assumptions and not on actual system loss measurement. The reply was not tenable as notification making use of star rated transformers, by Bureau of Energy Efficiency was mandatory with effect from January 2010 and the purchase orders for procurement of star rated DTRs were issued only in July 2010. The loss was worked out on the basis of envisaged savings in energy if star rated transformers were installed.

Capacitor Banks

3.44 As at the beginning of 2006-07 the KSEB had an installed capacity of capacitor banks to the extent of 1405 MVAR. During audit period, 2006-07 to 2010-11, no new capacitor banks were added which could have improved the voltage profile and reduced dissipation of energy to a great extent. Thus, the opportunity of reducing loss of energy was lost.

Incidence of theft

3.45 Commercial losses are caused due to theft of energy by tampering of meters by the consumers and unauthorised tapping /hooking by the non-consumers. As per section 135 of Electricity Act 2003, theft of energy is an offence punishable under the Act. As per Section 126 (5) of the Electricity Act 2003 the penalty to be levied for unauthorised use of electricity is to be determined for the entire period for which theft is established or twelve months prior to the date of detection of theft, if the actual period could not be ascertained. This would require checking of electrical installations at consumers premises at least once in a year.

Performance of Raid Team

3.46 In order to minimise the cases of pilferage/loss of energy and to save KSEB from sustaining heavy financial losses on this account, Section 163 of Electricity Act 2003, provides that the licensee may enter the premises of a consumer for inspection and testing the apparatus. There were 13 Anti-Power Theft Squads (APTS) as at the end of March 2011 in KSEB. This Vigilance team headed by an Officer of the rank of Inspector General of Police at its headquarters was entrusted with the task of conducting raids/ checking the premises of the consumers with the assistance of Assistant Engineers and other departmental officers of KSEB. Executive Engineers of the divisions concerned were required to prepare work plan to conduct raids by identifying such consumers/areas where

²¹ At the rate of ₹3.72 per unit, having a net present value of ₹1.23 crore (discounted at 12 per cent per annum) and adjusted for the excess expenditure in purchase of star rated DTRs.

large scale theft was suspected. Following was the position of raids conducted during audit period:

Sl No	Year	Consumers as on 31 March	Target	Consumers checked	Theft Cases	Assessed amount	Realised amount	Unrealised amount
Number						(₹ in crore)		
1	2006-07	8713870	9600	16221	1895	12.73	11.04	1.69
2	2007-08	9033756	13200	18606	1144	16.93	10.49	6.44
3	2008-09	9363461	13200	15792	504	29.57	18.96	10.61
4	2009-10	9743476	15600	17936	369	30.63	20.47	10.16
5	2010-11	10127946	15600	21413	355	13.83	10.94	2.89

As per Section 126 of the Electricity Act, 2003, in the event of detection of unauthorised connected load, consumers shall be penalised at twice the normal tariff for twelve months prior to the date of detection. For theft, the penalty fixed varied between three to six times the financial gain on account of such theft of electricity.

We noticed that:

- Each team had a target of 100 raids per month. The percentage of checking of consumers was on an average 0.20. The percentage of checking in terms of number of consumers had decreased from 3.52 in 2008-09 to 2.17 in 2010-11 in respect of EHT/HT consumers. In respect of industrial, commercial, agricultural and domestic category of consumers the percentage of checking was 5.31, 0.57, 0.16 and 0.09 respectively as at the end of 2010-11.
- Given the low frequency of checking, the time gap between one check and subsequent check could be more than one year. The penalty system as thus formulated did not act as a deterrent due to low frequency of checking.
- Out of unrealised amount of ₹31.79 crore, 113 cases involving ₹3.75 crore were in litigation as at the end of March 2011.

Management replied (September 2011) that apart from the APTS inspection, consumers' premises were also inspected by Section squads and by sub-engineers and meter readers. Management reply was however silent on the follow up action taken by KSEB in respect of the cases detected.

Billing Efficiency

3.47 The broad categories of consumers of KSEB included low tension²², high tension and extra high tension, railway traction and bulk supply. While the low

²² Low tension are further segregated into domestic, industrial, commercial and agriculture.

tension consumers were billed bi-monthly by electrical sections, other consumers were billed monthly by Special Officer, Revenue of KSEB.

The efficiency in billing of energy depended on whether:

- all the consumers who were to be charged had been billed; and
- the billing was correctly done.

Performance of KSEB in this regard was as below:

(in MUs)						
Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Energy available for sale	12377.89	13396.61	12877.65	14024.99	14678.14
2.	Free Supply ²³	7.18	7.73	6.04	4.30	2.91
3.	Energy billed	12370.71	13388.88	12871.61	14020.69	14675.23
4	Assessed sale as percentage of inside the state sales	NA	NA	NA	NA	NA

3.48 It would be seen from the above that energy billed during the audit period ranged between 99.94 *per cent* to 99.98 *per cent* of the total energy available for sale while free supply was in the range of 0.06 *per cent* to 0.02 *per cent*. Electricity supplied (28.16 MU) to non-paying group resulted in expenditure of ₹11.23 crore (calculated at Average Cost of Supply (ACOS)) during the audit period. However, no proposal was made by KSEB for claiming this amount as subsidy from State Government. The number of beneficiaries who availed free supply of power decreased from 45510 in 2006-07 to 29033 in 2010-11. We noticed the following deficiencies in billing in the audit period:

- In respect of 235 consumers under 15 electrical divisions, during meter faulty period, billing was done reckoning incorrect average consumption resulting in short billing of ₹28.87 lakh.
- Short collection of fixed charge of ₹5.64 lakh from Low Tension consumers in 12 Electrical Divisions.
- Non-collection of penalty (20 *per cent* of fixed and energy charges), having a revenue impact of ₹37.86 lakh, for non-installation of specified capacitors in respect of 109 consumers under 12 Electrical Divisions.
- In respect of 122 consumers under 17 electrical divisions, erroneous application of tariff resulted in under realisation of revenue to the extent of ₹1.83 crore. Further, in respect of 58 consumers, single phase tariff was levied instead of three phase tariff, resulting in short collection of revenue of ₹11.67 lakh.

In respect of 252 cases of unauthorised load detected under 15 divisions by APTS wing of KSEB, non-collection of penalty was to the extent of ₹1.65 crore.

Instances of short billing of revenue to the extent of ₹5.56 crore due to incorrect application of tariff, non-levy of penalty etc. were noticed during test check.

²³ Domestic consumers, having connected load upto 500 watts and monthly consumption upto 20 units.

- As per the CEA norm, power factor for granting incentive/charging penalty has been fixed at 0.95. In violation of this, KSEB was granting incentive / charging penalty reckoning power factor at 0.90.
- As per section 152 of Electricity Act, 2003, criminal proceedings for theft of electricity can be avoided by paying penalty. It was noticed that ₹11.37 lakh was short collected on this account from 19 consumers. Criminal proceedings were not initiated in any case so as to serve as a deterrent to others.
- Three consumers having connected load more than 100 KVA were billed under LT category instead of HT category resulting in revenue short collection of ₹25.05 lakh.
- Penalty (50 per cent of tariff) of ₹1.27 lakh for non-segregation of light load from power load was not collected from 16 LT industrial consumers.
- Short collection of ₹2.89 lakh as meter rent in respect of 161 consumers under seven Divisions.
- Non-collection of minimum guaranteed amount of ₹9.51 lakh from 15 LT industrial consumers.
- Unauthorised extension of electricity connection was wrongly classified as unauthorised additional load resulting in short recovery of penalty of ₹52.28 lakh from 28 consumers in four Electrical Divisions.
- Failure to bill consumption and additional street light points resulted in revenue short collection of ₹19.79 lakh.
- Non-billing of electricity duty and consequent short collection of ₹1.99 lakh was noticed in respect of 28 consumers under two Divisions.

Management assured (September 2011) that remedial action will be taken.

Under-charging/ non levy of Initial/ Additional Security Deposits

3.49 As per Regulation 13 of Kerala Electricity Supply Code 2005, KSEB was empowered to collect security deposit equivalent to two/ three months' electricity bill from consumers having monthly/ bi-monthly billing cycle. Security deposit remitted at the time of power connection was to be reviewed every year and additional deposit collected if the security deposit fell short of the required amount. The additional security deposit was to be paid by the consumer within 30 days of the notice. In case, the consumer failed to deposit the additional security, the supply of the defaulting consumers was to be disconnected.

There was failure to have an implementation mechanism to review the increase in load consumption and indicate the additional deposit payable in the consumers' bills.

There was shortfall in collection of security deposit to the tune of ₹66.65 crore.

A test check of records of 18 Electrical Divisions revealed that KSEB had not collected additional security deposit of ₹66.65 crore from 1598 consumers as of March 2010 in compliance with the above provisions.

Management admitted (September 2011) delay in collection of additional security deposit.

Revenue collection Efficiency

3.50 Revenue from sale of energy was the main source of income of KSEB. Therefore, prompt collection of revenue assumes significance. The salient features of the collection mechanism being followed were as follows:

- Payments of energy bills by cash, cheques or by demand draft.
- Revenue billed in respect of HT services is collected by Special Officer (Revenue).
- In respect of LT services, electricity bills are generally collected by the cashiers except in some areas where collection work is entrusted to certain private collection agencies.
- HT consumers are required to pay current charges within 15 days and LT consumers within seven days from the date of the bills, failing which the consumers are liable for payment of additional charges of 18 *per cent* per annum on the amount of the bill for the period of delay.

The table below indicates the balance outstanding at the beginning of the year, revenue assessed during the year, revenue collected and the balance outstanding at the end of the year for the last five years ending 2010-11.

(₹ in crore)						
Sl No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1	Balance outstanding at the beginning of the year	1605.93	1778.76	1964.46	1728.97	1806.02
2	Revenue assessed/billed during the year	4286.13	4934.05	5097.48	4950.60	5403.76
3	Total amount due for realisation (1+2)	5892.06	6712.81	7061.94	6679.57	7209.78
4	Amount realised during the year	4107.51	4743.09	5285.89	4864.81	5230.24
5	Amount written off during the year	5.79	5.26	47.08	8.74	36.09
6	Balance outstanding at the end of the year	1778.76	1964.46	1728.97	1806.02	1943.45
7	Percentage of amount realised to total dues (4/3)	69.71	70.66	74.85	72.83	72.54
8	Arrears in terms of No. of months assessment (Sl.no 6/ Sl. no.2 X 12 months)	4.98	4.78	4.07	4.38	4.32

We observed that:

- The balance outstanding had increased to ₹1943.45 crore in 2010-11. The arrears in terms of number of months' assessment which was 4.98 in 2006-07 though had decreased to 4.32 in 2010-11. Age-wise analysis of the above outstanding dues as on 31 March 2010 as shown in the Demand

Collection and Balances (DCB) for the quarter ending 31 March 2010 further indicated that:

Dues outstanding for more than three years was ₹550.81 crore.

- Dues of ₹52.99 lakh pertained to the period upto 1990-91.
- Dues outstanding for more than three years amounted to ₹550.81 crore (2009-10) (30.58 *per cent* of the total dues) consisting of dues from LT and HT categories (₹100.40 crore).
- As per provisions of Kerala Electricity Supply Code 2005, in case electricity dues are not deposited by consumers within due date, supply shall be disconnected temporarily. Electricity supply to 91 consumers, having arrears (December 1984 to May 2011) of more than rupees one lakh each, was not disconnected as per the above provision. Failure to enforce the deterrent provisions precipitated default in payment resulting in accumulation of arrears of ₹95.41 crore (July 2011).

Management stated (September 2011) that since 2006-07 the ratio of sundry debtors for sale of power to total sales had reduced from 41.50 *per cent* to 25.71 *per cent* (excluding receivables from Government) during 2009-10 by improving collection mechanism and added that remedial measures would be taken in remaining observations.

Financial Management

3.51 Efficient fund management serves as a tool for decision making, for optimum realisation of available resources and borrowings at favourable terms at appropriate time. The fund management activity includes revenue collection, billing, borrowings, grants, transfer of funds, interest recovery/payments, restructuring of loans, security deposits, bank reconciliations and other related transactions. While the revenue and billing have been dealt in the preceding paragraphs, other areas are discussed below.

Cash inflow and outflow

3.52 The following table depicts the details of cash inflow and outflow for the three years ending 31 March 2010.

(₹ in crore)				
Sl. No.	Particulars	2007-08	2008-09	2009-10
	Cash Inflow			
1	Net Profit/(Loss)	217.42	217.42	240.71
2	Add: adjustments	636.51	-1063.60	-2536.86
3	Operating activities	948.78	1452.23	2327.08
4	Investing activities	186.47	422.56	449.77
5	Financing activities	309.13
	Total	1989.18	1028.61	789.83

Sl. No.	Particulars	2007-08	2008-09	2009-10
	Cash Outflow			
6	Operating activities	123.51	22.81	178.12
7	Investing activities	364.88	653.81	789.33
8	Financing activities	641.8	756.36	0.00
	Total	1130.19	1432.98	967.45
	Net increase/decrease in cash and cash equivalent	858.99	-404.37	-177.62
	Add: Opening cash balance	724.19	1583.18	1178.81
	Closing cash balance	1583.18	1178.81	1001.19

It could be observed from the cash flow statement that there was negative growth in cash and cash equivalent as at the end of 2009-10. The repayment of long term loans of ₹2235.57 crore and capital expenditure of ₹1798.71 crore incurred for generation projects, transmission lines, sub stations and creation of village electrification infrastructure were the main reasons for such negative changes in cash flow.

We noticed the following important cases which had a bearing on the finances:

- The long term borrowings of KSEB decreased from ₹3335.93²⁴ crore in 2006-07 to ₹1409.48 crore in 2009-10 as a result of repayment of borrowings of ₹2235.58 crore. The repayment was possible not because KSEB generated sufficient cash surplus on its own but on the contrary through inability to incur capital expenditure of ₹1678.43 crore during 2006-2010 in the generation and distribution sectors. Curtailment of capital expenditure had its effect on shortfall in capacity addition, high LT/HT ratio, non-installation of vital capital equipments, insufficient transmission capacity etc., as discussed in preceding paragraphs. Most of the generation projects were postponed due to poor planning, the renovation and modernisation were also delayed, which had been discussed in Paragraph 3.25 of Audit Report (Commercial) No.4- Government of Kerala for the year ended 31 March 2010.

This shortfall in capacity addition had its fallout in the form of purchase of power from outside parties as already discussed in Paragraph 3.40.

Management stated (September 2011) that repayment of loans was ensured through surplus cash generated and utilisation of non-cash flow expenditure. KSEB had incurred capital expenditure of ₹514.47 crore, ₹364.37 crore, ₹644.50 crore and ₹875.54 crore during 2006-07, 2007-08, 2008-09 and 2009-10 respectively. They further added that capital expenditure during 2008-09 was higher than previous year. The reply was not acceptable since audit observation was on actual shortfall in capital expenditure *vis-a-vis* planned expenditure. Actual capital expenditure as a

²⁴ At the beginning of 2006-07.

percentage of planned expenditure during 2006-07 to 2008-09 was only 69, 32 and 52 respectively which was due to non-implementation of the planned schemes.

- They procured 3.34 lakh three phase LT meters during the period November 2008 to May 2011 at a cost of ₹77 crore in 8 tranches for replacement of existing faulty meters and for giving new connections. But instead of purchasing the basic meters, added the specifications of the meter being able to give the ‘time of the day’ (ToD) consumption readings facility also based on the recommendations of their Technical Core Group.

We noticed (September 2009) during an examination of the proposal and purchases that the differential ToD tariff was not contemplated for the LT consumers²⁵ of KSEB either in 2008 or now (November 2011). Thus, the purchase of equipment (from November 2008) which was beyond the needs, cost KSEB an extra expenditure of ₹41.03²⁶ crore.

We also noticed that KSEB, to arrive at the quantity to be purchased, did not have a procedure to ascertain the stock in hand of meters at various Divisions/Sections. The requirement was assessed based on stock at Transformers Maintenance and Repair (TMR) divisions only which was a case of poor planning. We apprehend that much of this purchase was unnecessary besides being beyond the needs of KSEB.

Management stated (February 2010) that decision of KSEB to procure three phase LCD meters with ToD facility was a practical approach for introducing technologically advanced meters suitable for implementing ToD tariff required in future. The reply was not tenable as no approved tariff applicable to all LT consumers existed and KSEB had not even studied the revenue implication of ToD tariff. Advance procurement did not have advantage; on the contrary there was a risk of technological obsolescence and not getting the benefit of declining price trend of electronic metering equipments.

- For the implementation of Bachat Lamp Yojana²⁷ (BLY) in the State, KSEB sanctioned (2010) a loan of ₹51.50 crore to Energy Management Centre²⁸ (EMC). The loan was to be repaid with 13.50 *per cent* interest. Repayment of loan was critically dependent on the capacity of EMC to earn carbon credit under Clean Development Mechanism (CDM) and sell the same.

²⁵ Except for LT IV Industrial, LT VII (A) and (C) commercial consumers with connected load of 20 KW and above and ToD tariff for LT Industrial consumers having contract demand of 27 KW and above.

²⁶ Comparison made in Audit with meters having LCD display, tamper proof features and downloading facilities through Common Meter Reading Instrument. DGS&D Basic price-₹830 (September 2008), ₹775 (November 2009) and ₹774 (October 2010). 165000 meters @ ₹1280 (2110-830)= ₹21.12 crore & 169000 meters @ ₹1178 (1953-775)= ₹19.91 crore.

²⁷ A scheme introduced by the Bureau of Energy Efficiency under the Ministry of Power aimed at selling CFLs at subsidised rates to domestic consumers in order to reduce peak hour power consumption in the country. The difference in prices was to be met from carbon credit under the Clean Development Mechanism.

²⁸ As Distribution utilities were not allowed to propose projects under BLY, KSEB implemented the scheme through Energy Management Centre (EMC), an autonomous body of Government of Kerala.

For any agency to be eligible for carbon credits, registration with UNFCCC²⁹ was mandatory. Though the BLY scheme was closed in August 2010, the same was registered by EMC with UNFCCC only in May 2011.

Management replied (September 2011) that repayment of loan was dependent on sale of carbon credit by EMC. The EMC could not recover any amount so far (November 2011) through sale of carbon credit rendering the recovery of loan advanced to EMC doubtful.

- As discussed in Paragraph 3.49, KSEB did not collect additional security deposit amounting to ₹66.65 crore from the consumers. Meanwhile, their working capital borrowing had increased from ₹72.91 crore in 2006-07 to ₹160.45 crore in 2009-10. Collection of the additional security deposit would have lessened this external borrowing to a considerable extent with annual interest savings of ₹1.33 crore.

They granted favour to EHT consumers and HT³⁰ consumers also by allowing them to remit 50 *per cent* of additional security deposit by way of bank guarantee instead of cash. This itself deprived KSEB of working capital to the tune of ₹83.56 crore with potential interest savings of ₹1.67³¹ crore.

Management replied (September 2011) that mode of collection of security deposit was in accordance with the provisions of Kerala Electricity Supply Code, 2005, approved by KSERC. The reply was not acceptable since the provisions as proposed to KSERC by KSEB were not framed to safeguard its own financial interest.

- As discussed in Paragraph 3.31, the incentive component of the APDRP scheme was meant for incentivising up to 50 *per cent* of the actual cash loss reduction that would be achieved by SEBs / Utilities for the 10th Five Year Plan period. We noticed that KSEB claimed ₹3082.08 crore as incentive for the period 2001-02 to 2008-09. The claim received was ₹64.94 crore (against the claim of ₹168.03 crore) for the years 2001-2003 and ₹82.99 crore (against the claim of ₹467.14 crore) for the year 2004-05. Decision in the matter was awaited (November 2011).

Subsidy Support and Cross Subsidisation

Subsidy Support

3.53 During the performance audit period against the subsidy claim (2009-2011) of ₹670.55 crore, only ₹99.97 crore was actually paid by the State Government.

²⁹ United Nations Framework Convention on Carbon Credit.

³⁰ In case of HT consumers 50 *per cent* of additional security deposits exceeding ₹5 lakh.

³¹ Based on the borrowing rate of 8 *per cent* less 6 *per cent* interest payable on security deposit.

Cross subsidisation

3.54 Section 61 of Electricity Act 2003 stipulates that the tariff should progressively reflect the average cost of supply (ACOS) of electricity and also reduce cross subsidy in a phased manner as specified by the Commission. National Tariff Policy envisaged that the tariff of all categories of consumers should range within plus or minus 20 *per cent* of the ACOS by the year 2010-11. The tariff proposals submitted by KSEB did not adhere to this.

The position as regards cross subsidies in various major sectors was as depicted in the table below:

Particulars	2006-07		2007-08		2008-09		2009-10		2010-11	
Average cost of supply (ACOS) in paise	317.00		331.00		494.00		464.00		485.00	
Average Revenue from										
	Paise per unit	Percent age of ACOS	Paise per unit	Percent age of ACOS	Paise per unit	Percent age of ACOS	Paise per unit	Percent age of ACOS	Paise per unit	Percent age of ACOS
Domestic	166.96	52.67	172.1	51.99	191.71	38.81	191.46	41.26	198.32	40.89
Commercial	660.68	208.42	668.2	201.87	743.65	150.54	702.39	151.38	722.86	149.04
Industrial	414.73	130.83	414.75	125.30	459.81	93.08	426.41	91.90	437.17	90.14
Agricultural	102.32	32.28	105.45	31.86	135.35	27.40	109.9	23.69	115.11	23.73
Public Lighting	187.16	59.04	190.15	57.45	200.31	40.55	191.64	41.30	211.82	43.67
HT & EHT	394.14	124.33	401.24	121.22	479.77	97.12	414.47	89.33	424.58	87.54
Railway Traction	334.73	105.59	359.04	108.47	475.84	96.32	397.87	85.75	412.16	84.98
Bulk supply	276.35	87.18	286.65	86.60	455.72	92.25	347.05	74.80	364.77	75.21

Average realisation as a percentage of average cost of supply did not conform to the norm of plus or minus 20 per cent.

3.55 As seen from the table the tariff fixed for various categories of consumers was not restricted to the band of plus or minus 20 *per cent* of the ACOS.

- As per section 65 of Electricity Act 2003, the State Government is obliged to pay subsidy if it desires to grant subsidy to any consumer/ classes of consumers in the tariff determined by State Commission. Had tariff been fixed in accordance with the above requirement, restricting the variation in tariff to the band of plus or minus 20 *per cent* of the ACOS, subsidy payable by the Government as worked out by us would have been ₹5130.98 crore in respect of domestic, agricultural consumers and public lighting.
- The subsidy claimed from State Government was only ₹670.55 crore. The shortfall in recovery of subsidy from State Government was partly cross subsidised by industrial and commercial consumers to the extent of

₹1590.01 crore. There still existed a shortfall to the extent of ₹2870.42 crore (*Annexure 14*) over the audit period.

- Average realisation based on approved tariff was far below the ACOS in respect of domestic, agricultural consumers and public lighting whereas the average realisation in respect of commercial was far in excess of ACOS.
- As per the National Tariff Policy, KSERC was to lay out a road map for phasing out the cross subsidisation. However, no regulation on reduction of cross subsidy has been promulgated by the Commission so far.

Management did not offer their comments with regard to the above observations.

Tariff Fixation

3.56 The Central Electricity Regulatory Commission (CERC) has stipulated that the Tariff should be fixed so as to recover Return on Equity on Pre-Tax basis at the base rate of 15.50 *per cent*. The shortfall in revenue that would have fetched 15.50 *per cent* return is referred to as Regulatory Asset. The facility of Regulatory Asset is to be utilised only as an exception and subject to the following conditions:

- the circumstances should be clearly defined through regulations and should only include natural causes or *force majeure* conditions. Under usual business conditions, the opening balances of uncovered gap must be covered through transition financing arrangement or capital restructuring;
- carrying cost of Regulatory Asset should be allowed to the utilities;
- recovery of Regulatory Asset should be time bound and within a period not exceeding three years at the most and preferably within control period;
- the use of the facility of Regulatory Asset should not be repetitive;
- in cases where Regulatory Asset is proposed to be adopted, it should be ensured that the Return on Equity should not become unreasonably low in any year so that the capability of the licensee to borrow is not adversely affected.

KSEB had an amount of ₹3393.86 crore³² outstanding as Regulatory Asset as on 31 March 2011. As per the National Tariff Policy, Regulatory Asset was to be recovered within three years through Tariff revision or written off thereafter. We observed failure to comply with this provision during the audit period.

Filing of ARR & ERC petition

3.57 In accordance with KSERC Tariff Regulations 2003, KSEB has to file before the Commission its Aggregate Revenue Requirement (ARR) and the Expected Revenue from Charges (ERC) four months before the commencement of each financial year. KSEB was to state the manner of bridging the revenue gap between ARR and ERC. Tariff revision is permitted if the revenue gap could not be met otherwise and in such cases Tariff Revision Petition was to be filed along

³² Increased from ₹142.23 crore in 2006-07.

with ARR& ERC petition. The Commission is to provisionally admit the revenue gap subject to final rectification at the time of truing up petition to be submitted along with next year's ARR & ERC petition.

In accordance with the mandatory provision, KSEB filed ARR & ERC petition for all the years up to 2010-11. Against the aggregate revenue shortfall of ₹1487.58 crore proposed by KSEB in the ARR for the three years up to 2008-09³³, the Commission had approved a revenue surplus of ₹1945.16 crore. The actual revenue gap for these years as per finalised Accounts upto 2008-09 amounted to ₹982.69 crore. The KSERC disallowed major expenditure under Purchase Cost, which was controllable factor and Depreciation, due to non-adherence to the directions of the Commission.

We noticed that there was delay in filing of ARR & ERC for periods ranging from 12 to 24 days. However, there was no tariff revision.

Management did not offer their comments to these issues.

Energy Audit

3.58 A mechanism for comprehensive Energy Audit was to be put in place with the objective of identifying the areas of energy losses and taking steps to reduce the same through system improvements besides accurately accounting for the units purchased/ sold and losses at each level. The main objectives of energy audit were as follows:

- better and more accurate monitoring of the consumption of electricity by consumers;
- elimination of wastages;
- reduction of downtime of equipment;
- massive savings in operational costs and increase in revenue, etc.

Energy audit helps to identify the areas of energy losses from a particular DTR. With a view to identify DTR-wise distribution losses installation of meters of DTRs is imperative.

Scrutiny of records revealed that:

- KSEB had not identified areas of energy losses so far.
- There were 52724 DTRs in operation (March 2010) of which 36781 DTRs were not metered.
- Energy Audit Reports were not generated in respect of even the metered DTRs resulting in non-achievement of the objective of identifying energy losses.
- Compared to the AT&C Losses allowed by KSERC, the excess loss worked to 551.64 MUs having financial implication of ₹200.22 crore.

³³ Truing up orders for 2009-10 and 2010-11 were pending.

- Management replied (September 2011) that the loss for the three years 2006-2009 as per the truing up orders of KSERC was 359 MU valued at ₹80.38 crore. The fact, however, remains that KSEB could not achieve the target initially fixed by the Regulator.
- KSERC issued directions to KSEB (April 2009) that plan of energy audit shall be filed within two months from the date of order. This had not been complied with (November 2011).

Energy Conservation

Energy Conservation

3.59 Government of India enacted the Energy Conservation Act, 2001 which provided the legal framework, institutional arrangement and a regulatory mechanism at the Central and State level to embark upon energy efficiency drive in the Country.

Initiatives of KSEB in this regard were as summarised below:

- In tune with the Central Act, KSEB organised campaigns for popularising energy conservation measures through visual and print media. A leading Malayalam daily in association with Energy Management Centre (EMC is the State level designated agency for implementing the Act) had conducted an intensive energy saving campaign by inserting advertisement with celebrity endorsements and tips to save electricity.
- Under the Bachat Lamp Yojana, KSEB through EMC purchased 1.44 crore energy efficient compact fluorescent lamps (CFL) for distribution to 75 lakh houses after replacing the same number of incandescent lamps. Distribution of CFL lamps aimed at an annual energy saving of 410 MW of power in Kerala. Inappropriate staggered delivery resulted in a huge stock of 16.02 lakh CFLs remaining undistributed (September 2011).

Management stated (September 2011) that the delivery schedule was fixed with a view to distribute all the CFLs within a span of three to four months. The reply was not tenable as the purchase was done during February to June 2010. KSEB should have staggered quantity to be delivered to each Circle over a number of lots with the quantity in each lot to be supplied subsequently depending on the consumption of quantities in the lots already supplied.

Consumer Satisfaction

3.60 One of the key elements of the Power Sector Reforms was to protect the interest of the consumers and to ensure better quality of service to them. The consumers can face problems relating to supply of power such as non-availability of the distribution system for the release of new connections or extension of connected load, frequent tripping on the lines and/ or transformers and improper metering and billing.

3.61 KSEB was required to introduce consumer friendly actions like introduction of computerised billing, online bill payment, establishment of customer care centres, etc. to enhance the satisfaction of consumer.

KSEB had initiated a slew of measures to improve consumer satisfaction. They included:

- Standardisation and simplification of procedures for effecting service connection, ownership change, provision of multiple connections to same premises and fixing of time frame (48 hours) for giving service connections.
- Complete computerisation of billing and revenue collection of LT, HT and EHT consumers.
- Notification of 75 Section Offices as model sections with effect from 1 June 2009. The model sections have 100 *per cent* static meters, zero faulty meters, installation of border/ DTR meters at section boundaries and DTRs, display of citizen charters, opening of counters with facilities for registration of applications and complaints.

Redressal of grievances

3.62 In accordance with the provisions of Section 57 of Electricity Act 2003, KSERC issued (May 2006) Standards of Performance (SoP) for power distribution utilities. The SoP prescribed the time limit for rendering services to the consumers and compensation payable for not adhering to the same. The nature of services mentioned in the SoP *inter alia* included line breakdowns, distribution transformer failures, period of load shedding/ scheduled outages, voltage variations, meter complaints, installation of new meters/ connections or shifting thereof, etc. SoP was operational from 1 April 2009 in respect of KSEB. KSERC permitted KSEB to treat the first year of implementation of the Regulations (April 2009 to March 2010) as trial period and exempted from payment of compensation for any deviation during the trial period.

KSERC also formulated KSERC (Consumer Grievance Redressal Forum and Electricity Ombudsman) Regulations 2011 in pursuance of the Act *ibid* specifying the mode and time frame for redressal of consumers' grievances.

KSEB replied that Executive Engineers were designated (September 2010) as Nodal officers for effective implementation of SoP regulations. Reports from these Officers were scrutinised at Head Office level and corrective measures taken.

Monitoring by top management

3.63 KSEB had evolved regular monitoring systems through which top management was informed of the operational and financial performances in broad parameters. Distribution activities of KSEB were reviewed in monthly meetings at

Circle level and Chief Engineers' level attended by KSEB's Technical Member for distribution. Strategy for each month was evolved in these meetings with reference to annual programme. Similar monitoring systems were also discussed upon at KSEB level and collective decisions were taken in consideration of recommendations of field offices.

Conclusions

- KSEB could not achieve capacity addition plans including the recommended LT Less system in the distribution sector. As against the addition of 166 sub-stations planned over the audit period, only 94 sub-stations were actually added.
- Implementation of Centrally Sponsored Schemes viz. RGGVY and Restructured APDRP were not completed in time and cost terms. This resulted in non-provision of electricity to targeted rural households within the stipulated time period and also led to loss of grant of ₹58.08 crore.
- KSEB had inadequate in-house generating capacity which resulted in purchase of short term power at expensive rates from outside parties during the audit period.
- Billing efficiency was as high as 99 *per cent*. Instances of under realisation of revenue due to incorrect application of tariff, non-levy of penalty etc. were noticed.
- KSEB had not collected additional security deposit from consumers which would have lessened borrowings for working capital needs.
- Tariff adopted by KSEB did not conform to the norms of plus or minus 20 *per cent* of the average cost of supply.

Recommendations

- Network Capacity addition plans including implementing the LT Less system should be prepared in a realistic manner to avoid mismatch and under achievement.
- Centrally Sponsored Schemes should be implemented effectively in order to obviate Loss of Grants and denial of intended benefits to target groups.
- KSEB should enter into long term power purchase contracts to obviate the need for purchasing short term power at expensive rates.

- **Billing and revenue collection mechanism should be further streamlined to avoid instances of short collection of revenue.**
- **The Tariff adopted should be brought to the norm of plus or minus 20 *per cent* of the Average Cost of Supply for various categories of consumers.**