

CHAPTER – II

2. Performance Audit relating to Government Company

Performance Audit of Chhattisgarh State Power Transmission Company Limited

Executive Summary

Introduction

In Chhattisgarh, transmission of power up to 31 December 2008 was carried out by the erstwhile Chhattisgarh State Electricity Board (Board). Consequent upon unbundling of the Board w.e.f 1 January 2009, the same is now carried out by the Chhattisgarh State Power Transmission Company Limited (Company). As on 31 March 2012, the Company had transmission network of 8375.77 circuit kilometers (Ckm) and 71 Extra High Tension Substations (EHT SSs) with installed capacity of 10234.50 Mega Volt Ampere (MVA). Profit after tax for the year 2011-12 and capital employed as on 31 March 2012 were ₹ 137.22 crore and ₹ 2225.94 crore respectively. It had employed 1937 employees as on 31 March 2012 against the sanctioned strength of 3418.

Planning and Development

Against the targeted construction of 35 EHT SSs and laying of 3657 Ckm of EHT lines, the Company constructed 16 EHT SSs and 2020.08 Ckm of EHT lines during the period 2007-08 to 2011-12 (achievement of 45.71 per cent and 55.24 per cent respectively). The transformation capacity added was 3299 MVA for the five-year period ending 2011-12 as against the targeted addition of 4419 MVA (achievement of 74.65 per cent).

Project Management

The Company did not follow the recommendations of the Task Force Committee and projects were awarded without undertaking various preparatory activities such as surveys, design and testing, processing of forest and other statutory clearances, tendering activities etc. in advance/ parallel to project appraisal and approval phase. Notwithstanding the elaborate guidelines given by the Task Force for timely completion of the projects, there

were abnormal delays in execution of major projects on evacuation system as there was time overrun ranging between three and 38 months. In respect of ongoing projects also time overrun was upto 77 months. Consequently funds of ₹ 246.16 crore remained blocked without yielding any benefits and the Company was deprived of envisaged benefits.

Performance of transmission system

The performance of the Company mainly depends on efficient maintenance of its EHT transmission network for supply of quality power with minimum interruptions. The five SSs of 220 kilo Volt (kV) and 18 SSs of 132 kV had only one transformer each against the requirement of two as prescribed in the Chhattisgarh State Electricity Grid Code, 2007. Further, eight out of 15 SSs of 220 kV were not having Bus Bar Protection Panel (BBPP) to maintain system stability during Grid disturbances and to provide faster clearance of faults on 220 kV buses. There was decreasing trend in transmission losses as per Chhattisgarh State Electricity Regulatory Commission (CSERC) norms but it exceeded the Central Electricity Authority norms of four per cent in all the five years. However, from the year 2009-10 onwards it was within the norms fixed by CSERC.

Grid Management

31 out of 55 SSs of 132 kV were not connected to State Load Despatch Centre (SLDC) through Remote Terminal Units (RTUs) which are essential for monitoring the efficiency of the transmission system and the loads during emergency in load dispatch centre as per the Grid norms. The frequency violation of the Grid resulted in increase in receipt of type A/B/C messages in the year 2011-12. The Company's disaster management system was inadequate to meet unforeseen contingencies.

Energy Accounting and Audit

Energy accounting and audit is necessary to assess and reduce the transmission losses. The transmission losses are calculated based on meter readings obtained at boundary metering points. The Company had not conducted any Energy Audit during the period from 2007-08 to 2011-12. Against the requirement of installation of 0.2 class accuracy meters at all the 156 interface boundary metering points, only 29 interface boundary metering points were complying with this requirement as on 31 March 2012.

Financial Management

One of the major objectives of the National Electricity Policy, 2005 was to ensure financial turn around and commercial viability of Power Sector. The Debt-Equity ratio of the Company increased from 0.45:1 to 1.24:1 during the period 2009-12 mainly due to increase in borrowings from ₹298.02 crore to ₹999.07 crore because of financing of new projects. Percentage of Return on Capital Employed increased from 3.22 (2009-10) to 8.08 (2011-12) due to increase in Return on Capital Employed indicating improvement in operational performance.

The Company did not levy and recover delayed payment surcharge of ₹23.41 crore from Chhattisgarh State Power Distribution Company Limited. There was delay of 88 to 308 days in filing tariff petition by the Company resulting in loss of interest of ₹16.28 crore.

Material Management

The Company had not formulated any procurement policy and inventory control mechanism for economical procurement and efficient control over inventory. Further, the Company had neither made any ABC analysis nor fixed any maximum/minimum level or reorder level of inventory. As a result, on 31 March 2012, the Company had non moving/surplus inventory of ₹9.97 crore.

Monitoring and Control

The Company neither maintained nor consolidated year-wise performance of the SSs and lines for evaluation of annual performance. The Company's Internal Audit system was outsourced which focused only on establishment matters rather than on the core activities of the Company i.e.

stores verification, measurement books and tender procedures, etc. The Company had not constituted an Audit Committee in accordance with Section 292 A of the Companies Act, 1956.

Conclusion and Recommendations

The Company failed to achieve the targeted addition of EHT Substations and laying of EHT lines. There were abnormal delays in execution of major projects on evacuation system due to deficient planning and project management as there was time overrun ranging between three and 38 months. Eight out of 15 SSs of 220 kV were not having BBPP. From the year 2009-10 onwards, the transmission losses were within the norms fixed by CSERC. Further, 31 out of 55 SSs of 132 kV were not connected to SLDC through RTUs and receipt of type A/B/C messages had also increased during the year 2011-12. There was delay of 88 to 308 days in filing tariff petition by the Company resulting in loss of interest of ₹16.28 crore.

The Audit recommendations include introduction of an effective monitoring system to ensure that all the required approval are obtained before commencement of the projects, adherence to the standards/ norms fixed in Grid Code, installation of adequate number of BBPPs to protect the EHT SSs and lines, maintenance of SLDC as per Grid Code, provision of adequate equipments for safety of EHT SSs, filing of tariff petition with CSERC in time, framing of inventory policy and constitution of Audit Committee as per the provision of the Companies Act, 1956.

Introduction

2.1 With a view to supply reliable and quality power to all by 2012, the Government of India (GoI) prepared the National Electricity Policy (NEP) in February 2005. The NEP laid emphasis on the requirement for adequate and timely investment in the transmission system besides efficient and coordinated action to develop a robust and integrated power system for the country. It also recognised the need for development of National and State Grids with the coordination of Central/ State Transmission Utilities. In Chhattisgarh, transmission of power up to 31 December 2008 was carried out by the erstwhile Chhattisgarh State Electricity Board (Board) which was formed on 15 November 2000 as the successor of Madhya Pradesh Electricity Board after formation of Chhattisgarh State. Consequent upon unbundling of the Board from 1 January 2009, the transmission of power in Chhattisgarh is carried out by the Chhattisgarh State Power Transmission Company Limited (Company) which was incorporated on 19 May 2003 under the Companies Act, 1956 as a fully owned Government Company under the administrative control of the Department of Energy, Government of Chhattisgarh.

Organisational setup

2.2 The Management of the Company is vested with the Board of Directors (BoD) comprising of four members¹. The day-to-day operations are carried out by the Managing Director who is the Chief Executive of the Company with the assistance of Chief Engineer (Commercial & Planning), Chief Engineer (Transmission), Chief Engineer (EHT:C&M)², Chief Engineer (T&C)³, Chief Engineer (Civil), Chief Engineer (SLDC)⁴, General Manager (Finance) and Deputy General Manager (Human Resources). The organisational chart is indicated in *Annexure – 2.1*.

Transmission network

2.3 During the year 2007-08, 13581.37 Million Units (MUs) of energy was transmitted, which increased to 17551.33 MUs in 2011-12, i.e. an increase of 29.23 per cent during the period 2007-12. The Company constructed 16 Extra High Tension sub-stations (EHT SSs) of 1223 Mega Volt Ampere (MVA) capacity and 29 lines of 1260.492 Circuit kilo meter (Ckm) during the period 2007-12. As on 31 March 2012, the Company had a transmission network of 8375.77 Ckm and 71 EHT SSs with installed capacity of 10234.50 MVA and was capable of annually transmitting 26738.59 MUs at 220 kV.

Financial Position and Manpower

2.4 The turnover of the Company was ₹ 758.20 crore in 2011-12, which

¹ Chief Secretary, Principal Secretary (Finance), Secretary (Energy) all from Government of Chhattisgarh and Managing Director

² Chief Engineer (Extra High Tension: Construction and Maintenance)

³ Chief Engineer (Testing and Communication)

⁴ Chief Engineer (State Load Despatch Centre)

was equal to 0.56 *per cent* of the State Gross Domestic Product⁵. As per the provisional accounts for the year 2011-12, the profit after tax for the year 2011-12 and capital employed as on 31 March 2012 were ₹ 137.22 crore and ₹ 2225.94 crore respectively. The Company had employed 1937 employees as on 31 March 2012 as against the sanctioned strength of 3418.

Scope and Methodology of Audit

2.5 The Performance Audit was conducted during February 2012 to June 2012 covering the performance of the erstwhile Board/ Company during the period 2007-08 to 2011-12. Audit examination involved scrutiny of records of different wings at the Head Office and State Load Despatch Centre (SLDC) at Raipur, seven⁶ out of eight⁷ Circles headed by Superintending Engineers and 16 out of 30 Divisions headed by Executive Engineers.

The criteria adopted for selection of EHT SSs and lines were as under:

Criteria	No. of EHT SSs/ No. of lines (Capacity/length)	No. of EHT SSs/ lines selected (Capacity/length)	Coverage (per cent)
New EHT SSs commissioned during the period 2007-08 to 2011-12 (220 kV)	4 (640 MVA)	4 (640 MVA)	100
New EHT SSs commissioned during the period 2007-08 to 2011-12 (132 kV)	12 (583 MVA)	9 (363 MVA)	75
New lines constructed and energised during the period 2007-08 to 2011-12 (220 kV)	12 (809.202 Ckm)	10 (753.602 Ckm)	83
New lines constructed and energised during the period 2007-08 to 2011-12 (132 kV)	17 (451.290 Ckm)	14 (444.730 Ckm)	82
Operation & Maintenance of EHT SSs	71	53	75

The methodology adopted for attaining audit objectives with reference to audit criteria consisted of explaining audit objectives to top management, scrutiny of records at the Head Office and the 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 the draft Performance Audit Report to the Management/ Government for comments.

2.6 We explained the audit objectives to the Company during an Entry Conference held on 24 February 2012. Subsequently, the audit findings were

⁵ ₹ 135536.34 crore

⁶ T&C Circle Bhilai, T&C Circle Raipur, T&C Circle Bilaspur, C&M Circle Bhilai, C&M Circle Bilaspur, Civil-Transmission Circle, Raipur and 400 KV Construction Circle, Raipur

⁷ T&C Circle Bhilai, T&C Circle Raipur, T&C Circle Bilaspur, C&M Circle Bhilai, C&M Circle Bilaspur, Civil-Transmission Circle, Raipur, Civil-Transmission Circle, Bilaspur and 400 kV Construction Circle, Raipur

reported to the Company and the State Government in July 2012. The State Government replied to the audit findings in November 2012. However, the Exit Conference to discuss the audit findings with the State Government could not be held due to lack of response from the Government. The views expressed by them have been considered while finalising this Performance Audit. The audit findings are discussed in the subsequent paragraphs.

Audit Objectives

2.7 The objectives of the performance audit were to assess whether:

- the transmission system was developed and commissioned in an economical, efficient and effective manner;
- operation and maintenance of transmission system was carried out in an economical, efficient and effective manner;
- a Disaster Management System was set up to safeguard its operations against unforeseen disruptions;
- efficient and effective energy conservation measures were undertaken in line with the NEP and and Energy Audit System established;
- there was an effective and efficient Financial Management System with emphasis on timely raising and collection of bills and filing of Aggregate Revenue Requirement (ARR) for tariff revision;
- there was an efficient, economic and effective system of procurement of material and an inventory control mechanism was set up;
- there was an effective system of stock management and disposal of obsolete stores; and
- an efficient and effective monitoring system and internal control framework was in place.

Audit Criteria

2.8 The audit criteria adopted for assessing the achievement of the audit objectives were drawn from the following sources:

- Provisions of the National Electricity Plan/ Policy;
- Business Plan and Project Reports of the Company;
- Standard procedures for award of contracts with reference to principles of economy, efficiency, effectiveness, equity and ethics;
- Manual on Transmission Planning Criteria (MTPC) issued by the Ministry of Power (MoP) in June 1994;

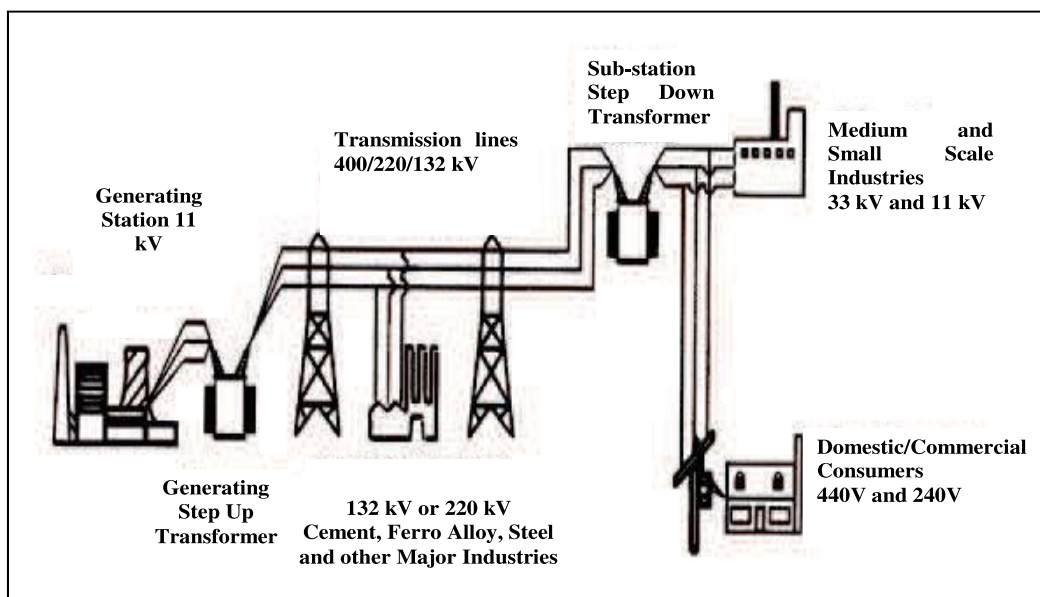
- ARR filed with Chhattisgarh State Electricity Regulatory Commission (CSERC) for tariff fixation;
- Chhattisgarh State Electricity Grid Code – 2007 issued by CSERC;
- Directions from State Government / MoP;
- Norms/Guidelines issued by CSERC/ Central Electricity Authority (CEA);
- Report of the Committee for Updating the Best Practices in Transmission system in the Country (January 2002) for maintenance of lines by the Board;
- Report of the Task Force on transmission projects constituted by the Ministry of Power in July 2005;
- Reports of Regional Power Committee (RPC)/ Regional Load Dispatch Centre (RLDC); and
- Circulars, Manuals and MIS reports of the Company.

Brief description of transmission process

2.9 Transmission of electricity is defined as bulk transfer of power over long distances at high voltages, generally at 132 kV and above. Electric power generated at relatively low voltages in power plants is stepped up to high voltage power before it is transmitted to reduce the loss in transmission and to increase efficiency in the Grid. EHT SSs are facilities within the high voltage electric system used for stepping up/ stepping down voltages from one level to another, connecting electric systems and switching equipment in and out of the system. The step up transmission SSs at the generating stations use transformers to increase the voltages for transmission over long distances.

Transmission lines carry high voltage electric power. The step down transmission SSs thereafter decreases voltages to sub transmission voltage levels for distribution to consumers. The distribution system includes lines, poles, transformers and other equipments needed to deliver electricity at specific voltages.

Electrical energy cannot be stored; hence generation must be matched to need. Therefore, every transmission system requires a sophisticated system of control called Grid management to ensure balancing of power generation closely with demand. A pictorial representation of the transmission process is as follows:



Audit Findings

Planning and Development

National Electricity Plan

2.10 The Central Transmission Utility (CTU) and State Transmission Utilities (STUs) have the key responsibility of network planning and development based on the NEP in coordination with all concerned agencies. At the end of the Tenth Plan (March 2007), the transmission system in the country at 765/HVDC/400/230/220/kV stood at 1.98 lakh Ckm of transmission lines which was planned to increase to 2.93 lakh Ckm by end of Eleventh Plan i.e. March 2012. The NEP assessed the total inter-regional transmission capacity at the end of 2006-07 as 14100 MW and further planned to add 23600 MW in Eleventh Plan bringing the total inter-regional capacity to 37700 MW.

Transmission network and its growth

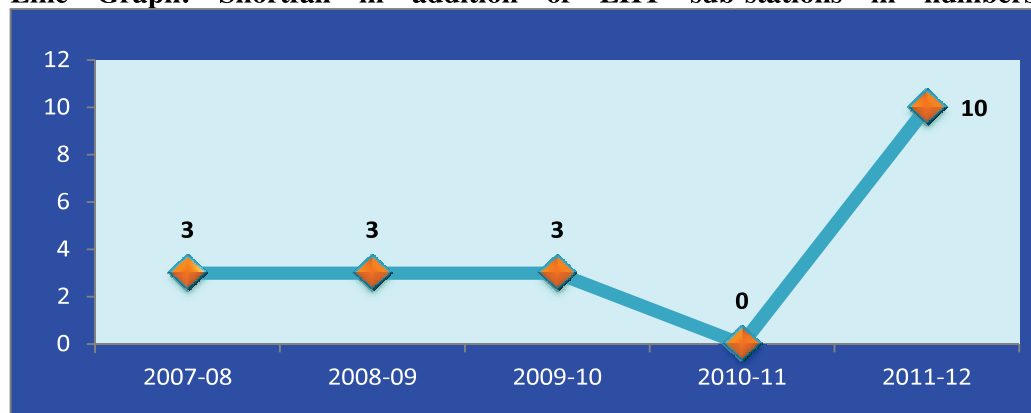
2.11 The Company's transmission network at the beginning of 2007-08 consisted of 55 EHT SSs with a transformation capacity of 6935.50 MVA and 6355.69 Ckm of EHT transmission lines. The transmission network as on 31 March 2012 consisted of 71 EHT SSs with a transformation capacity of 10234.50 MVA and 8375.77 Ckm of EHT transmission lines.

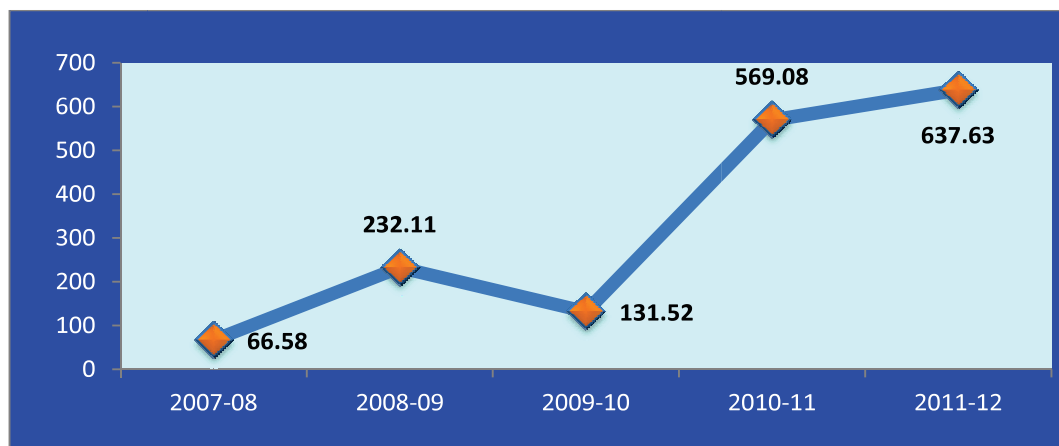
The details of the transmission capacity of the erstwhile Board/ Company at EHT level during 2007-08 to 2011-12 is given in the following table:

Sl. No.	Description	2007-08	2008-09	2009-10	2010-11	2011-12	Total
A. Sub-stations (Numbers)							
1	At the beginning of the year	55	59	61	65	68	-
2	Additions planned for the year	7	5	7	3	13	35
3	Added during the year	4	2	4	3	3	16
4	Total sub stations at the end of the year (1+3)	59	61	65	68	71	-
5	Shortfall in additions (2-3)	3	3	3	0	10	19
B. Transformers capacity (MVA)							
1	Capacity at the beginning of the year	6935.50	7395.50	7875.50	8651.50	9305.50	-
2	Additions/ augmentation planned for the year	500.00	600.00	1000.00	774.00	1545.00	4419.00
3	Capacity added during the year	460.00	480.00	776.00	654.00	929.00	3299.00
4	Capacity at the end of the year (1+3)	7395.50	7875.50	8651.50	9305.50	10234.50	-
5	Shortfall (excess) in additions/ augmentation (2-3)	40.00	120.00	224.00	120.00	616.00	1120.00
C. Transmission lines (Ckm)							
1	At the beginning of the year	6355.69	6789.11	7057.00	7425.48	7756.40	-
2	Additions planned for the year	500.00	500.00	500.00	900.00	1257.00	3657.00
3	Added during the year	433.42	267.89	368.48	330.92	619.37	2020.08
4	Total lines at the end of the year (1+3)	6789.11	7057.00	7425.48	7756.40	8375.77	-
5	Shortfall in additions (2-3)	66.58	232.11	131.52	569.08	637.63	1636.92

(Source: Compiled from the records of the Company)

Line Graph: Shortfall in addition of EHT sub-stations in numbers



Line Graph: Shortfall in addition of lines in Circuit kilometres

Against the targeted construction of 35 EHT SSs and laying of 3657 Ckm of EHT lines, the Company constructed 16 EHT SSs and 2020.08 Ckm of EHT lines during the five-year period (achievement of 45.71 *per cent* and 55.24 *per cent* respectively). The transformation capacity added was 3299 MVA for the five-year period ending 2011-12 as against the targeted addition of 4419 MVA (achievement of 74.65 *per cent*). The main reasons for shortfall in addition were due to delays in getting approval for land acquisition and forest clearance.

The particulars of voltage wise capacity additions planned, actual additions, shortfall in capacity, etc., during the period 2007-2012 are given in **Annexure - 2.2**.

Project Management of Transmission System

2.12 A transmission project involves various activities from concept to commissioning. Major activities in a transmission project are (i) Project formulation, appraisal and approval phase and (ii) Project execution phase. For reduction in project implementation period, the Ministry of Power (MoP), Government of India constituted (February 2005) a Task Force on transmission projects with a view to:

- analyse the critical elements in transmission project implementation,
- implementation from the best practices of CTU and STUs, and
- suggest a model transmission project schedule for 24 months' duration.

The Task Force suggested and recommended (July 2005) the following remedial actions to accelerate the completion of transmission systems;

- Undertake various preparatory activities such as surveys, design and testing, processing for forest and other statutory clearances, tendering activities etc. in advance/parallel to project appraisal and approval phase and go ahead with construction activities once transmission line project sanction/approval is received;

- Break-down the transmission projects into clearly defined packages such that the packages can be procured and implemented requiring least coordination and interfacing and at same time it attracts competition facilitating cost effective procurement; and
- Standardise designs of tower fabrication so that 6-12 months can be saved in project execution.

2.13 The Company failed to undertake various preparatory activities such as surveys, design and testing, processing of forest and other statutory clearances, tendering activities etc. in advance/ parallel to project appraisal and approval phase as recommended by the Task Force Committee. Notwithstanding the elaborate guidelines given by the Task Force Committee for timely completion of the projects, the Company failed to execute several EHT SSs and Lines during 2007-12 as detailed in the following table:

Capacity in kV	Total numbers Constructed		Numbers test checked by Audit		Delay in construction (Numbers)		Time overrun (range in months)	
	EHT SSs	Lines	EHT SSs	Lines	EHT SSs	Lines	EHT SSs	Lines
220	04	12	04	10	04	09	07- 34	06-38
132	12	17	09	14	09	07	04-20	03-27
Total	16	29	13	24	13	16	04-34	03-38

(Source: Compiled from the records of the Company)

The main reasons attributed for delay were delays in acquisition of land, non-handing over of site to the contractors, Right of Way (RoW) problems and failure to obtain clearances from Ministry of Environment & Forest, Government of India (MoEF) and the Railways. The instances of delay in completion of projects which had a significant impact on the objective of increasing the transmission network are as follows:

Name of the project (Date of approval)	Value of work awarded & date of award	Scheduled date of completion (Actual date of completion/ status)	Time overrun (in months)	Reasons for delay	Loss due to delay
220 kV EHT SS Vishrampur (December 2003)	₹ 19.66 crore June 2005, ₹ 30.10 crore August 2009	June 2006 (Cancelled ⁸) November 2010 (WIP ⁹)	77 (from the first work order)	Award of works without acquiring required land and obtaining forest clearance.	Non-achievement of anticipated benefit of 63639 LUs ¹⁰ (₹ 91.89 crore ¹¹) besides blocking

⁸ Order was cancelled due to non-acquisition of land

⁹ Work-in-progress

¹⁰ Lakh Units

¹¹ As per DPR anticipated benefit of ₹14.32 crore per annum (₹ 14.32 crore X 77 months/12)

220 kV Korba – Vishrampur line (December 2003)	₹ 40.48 crore December 2004	August 2006 (WIP)	75		of funds of ₹ 81.13 crore.
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The Government stated (November 2012) that the delay in construction of EHT SS was due to delay in acquiring land and obtaining forest clearance which was beyond the control of the Company. However, benefits of the reduced line loss and improved voltage regulation will be availed from the date of commissioning of the project. The fact remains that the Company had awarded the work without acquiring the required land and obtaining necessary clearances as per recommendations of the Task Force Committee.

132 kV EHT SS Patan (March 2008)	₹ 8.64 crore August 2009	June 2010 (May 2012)	22	1. Poor monitoring and non-synchronisation of various activities etc.	Non-achievement of anticipated benefit of 3384 LUs (₹ 103.16 crore ¹³)
132 kV Doma-Patan line (August 2008)	₹ 0.64 crore November 2009 ¹² ₹ 1.19 crore April 2011	December 2010 (contract cancelled midway due to non-completion of the work by the contractor) November 2011 (as per re-award) (May 2012)	16	2. Abandonment of work by original contractor and consequent re-tendering of work	

The Government stated (November 2012) that the work of EHT SS was delayed mainly due to delay in completion of transmission line on account of unforeseen problems, diversion of 40 MVA transformer from Patan EHT SS to Doma EHT SS while under transit due to non-completion of 132 kV DCSS Doma-Patan line and RoW problems, etc. However, the fact remains that the Company did not comply with the recommendations made by the Task Force Committee while executing the work.

132 kV EHT SS Magarlod (April 2008)	₹ 8.91 crore September 2009	June 2010 (WIP)	30	RoW problem as well as lack of proper monitoring and supervision by the Company	Non-achievement of anticipated benefit of 4864 LUs (₹ 148.10 crore ¹⁴), besides blocking of funds of ₹ 6.19 crore
132 kV Kurud-Rajim line to EHT SS Magarlod (April 2008)	₹ 0.62 crore February 2010	December 2010 (WIP)	23		

The Government stated (November 2012) that the work was delayed for the reasons beyond the control of the Company because the route of the line was passing through fertile paddy fields and the area was yielding double crop. Therefore, for most of the time the area was not approachable due to crops. It was further stated that the farmers and owners of the land were also protesting due to damage to their crops as well as to land due to construction activities. However, the fact remains that the constraints cited were known to the Company at the planning stage itself which could have been addressed through proper planning.

¹² Order was terminated due to non-execution of work within scheduled period

¹³ As per DPR anticipated benefit of ₹ 56.27 crore per annum (₹ 56.27 crore X 22 months/12).

¹⁴ As per DPR anticipated benefit of ₹ 59.24 crore per annum (₹ 59.24 crore X 30months/12)

132 kV EHT SS Balrampur (July 2004)	₹ 6.84 crore July 2005 ₹ 0.17 crore May 2009 (Re-award on labour contract basis)	December 2006 (cancelled) March 2012 (WIP)	7 (from the date of first work order)	Award of works without acquiring required land, cancellation of work order, re- award of the contract and delay in handing over of site (30 months) due to non- completion of civil works.	Blocking of funds of ₹ 34.09 crore.
132 kV DCSS Vishrampur-Balrampur line (July 2004)	₹ 25.34 crore March 2005	June 2006 (WIP)	77	Award of works without acquiring forest clearance	

The Government stated (November 2012) that the delay in construction of EHT SS was due to delay in allotment of selected land and delay in obtaining forest clearance for construction of line. The fact remains that both the orders were issued without acquiring the requisite land and obtaining forest clearance which clearly indicates improper planning and non-compliance of the recommendations made by the Task Force Committee.

220 kV DCDS ¹⁵ line Chhuri to Mopka (August 2007)	₹ 43.29 crore June 2009 subsequently (January 2012) revised to ₹ 59.12 crore	February 2011 (WIP)	22	Award of work without conducting proper survey and obtaining forest clearance and consequent revision in length of line	Avoidable increase in cost by ₹ 15.83 crore besides blocking of funds of ₹ 33.59 crore.
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The Government stated (November 2012) that increase in cost was due to increase in length of line, type of soil encountered during construction requiring higher concrete, involvement of heavier towers to cross over existing transmission lines and diversion carried out to maintain statutory clearances. The reply itself indicates that the survey was not conducted properly as per the recommendations made by the Task Force Committee.

220 kV DCDS Raigarh- Saraipali line (June 2009)	₹ 35.15 crore November 2009 subsequently (January 2012) revised to ₹ 45.10 crore	May 2011 (WIP)	18	Award of work without conducting proper check survey ¹⁶ and the Company's failure in identifying the existence of a Wild Life Sanctuary in the route of the line.	Increase in cost by ₹ 9.95 crore besides blocking of funds of ₹ 48.85 crore.
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The Government stated (November 2012) that the existence of the wildlife sanctuary could not be discovered during the route survey because there was no boundary of the wildlife sanctuary marked in the topo sheet and also due to absence of demarcation which are normally provided for identification of forest boundary at site. Accordingly, the route was decided taking into account non involvement of forest area. The reply is not convincing as the work was awarded after conducting joint check survey by the Company's officials with the contractor which indicates that route survey was not conducted properly.

(Source: Compiled from the records of the Company)

¹⁵ Double Circuit Double Strengthening Line

¹⁶ Check Survey is conducted to locate and peg mark the tower positions on ground conforming to the approved profile and tower schedule.

Idling of EHT SSs/ lines due to non-synchronisation of construction activities:

Name of the project (Date of approval)	Value of work awarded and date of award	Scheduled date of completion (Actual date of completion/ status)	Date of energising (Delay in months)	Reasons for idling	Loss due to delay
220 kV EHT SS Mahasamund (September 2006)	₹ 23.21 crore July 2005 (on turnkey basis)	November 2006 (March 2007)	November 2007 (7)	Execution of work without ensuring completion of 220 kV Suhela EHT SS resulted in idling of EHT SS for seven months	Non-achievement of anticipated benefit of 5250 LUs (₹ 7.37 crore ¹⁷)
While accepting the audit observation, the Government stated (November 2012) that the EHT SS was to be energised through 220 kV DCDS line from 220 kV Suhela EHT SS, which was under construction. However, 220 kV Mahasamund EHT SS was energised after completion of 220 kV Suhela-Korba (East) line by making an interim arrangement by connecting 220 kV Korba-Bemetara-Mahasamund line on 26 November 2007. The reply confirms that the Company failed to execute the work without ensuring parallel execution of work of Suhela EHT SS.					
Second circuiting of 132 kV Kurud- Rajim line (March 2010)	₹ 0.10 crore October 2010 (on labour contract basis)	June 2011 (June 2011)	yet to be energised (17 months upto November 2012)	Placing of work order for second circuiting without synchronising with construction work of 132 kV feeder Bay at 132/33 kV EHT SS Rajim, resulted in idling of the second circuiting Kurud-Rajim line	Blocking of funds of ₹ 1.14 crore.
While accepting the fact the Government stated (November 2012) that one number bay at Rajim EHT SS was required for independent energising of second circuiting of 132 kV Kurud-Rajim line which was under progress. The reply is not convincing as the second circuiting is necessary for smooth voltage condition and stable power flow in Rajim- Mahasamund area.					
Second circuiting 132 kV Saraipali-Jhalap line (May 2009)	₹ 0.29 crore November 2009 (on labour contract basis)	September 2010 (April 2011)	Yet to be energised (19 months upto November 2012)	Due to the Company's failure in providing 70 kilo Newton disc insulators in time and non-completion of associated feeder Bay.	Blocking of funds of ₹ 2.42 crore
While accepting the audit observation, the Government stated (November 2012) that after completion of associated bay work, the asset would be used. The fact remains that the Company awarded the work without proper planning between different works and failed to provide the required disc insulators in time.					
400/220 kV EHT SS Raita (November 2006)	₹ 125.44 crore July 2009	August 2011 (WIP)	-	2 X 315 MVA Power Transformers and 7 X 50 MVAR Shunt Reactor	Blocking of funds of ₹ 38.75 crore ¹⁸ besides expiry

¹⁷ As per DPR anticipated benefit of ₹ 12.63 crore per annum (₹ 12.63 crore x 7 months/12)¹⁸ 70 per cent released as per terms and conditions of the contract

	(on turnkey basis)			valuing ₹ 55.35 crore were procured in advance from the contractor during March 2010 to June 2010. However, the same was installed between 28 January 2012 and 9 February 2012 but were lying unutilised (November 2012) due to non-completion of line work.	of guarantee period ¹⁹ of these equipments.
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(Source: Compiled from the records of the Company)

Mismatch between Generation Capacity and Transmission facilities

2.14 The National Electricity Plan (NEP) envisaged augmenting transmission capacity taking into account the planning of new generation capacities to avoid mismatch between generation capacity and transmission facilities. The transmission facilities to be provided by the Company to match with the generating Company's generation plans could not be provided in time due to delay in execution of transmission evacuation works, which ultimately resulted in mismatch between generation capacities and transmission facilities and consequent evacuation of the power with the existing and already overloaded transmission lines.

During the Performance Audit period, two units of Dr. Shyama Prasad Mukherji Thermal Power Station (DSPM TPS) were commissioned by the erstwhile Board. However, the Board failed to complete the transmission network matching with the generation plan in case of Unit-I.

The erstwhile Board placed (April 2005) order for construction of 220 kV Double Circuit Double Strengthening (DCDS) feeding transmission line from Korba (East) to Bhatapara on Associated Transrail Structures Limited, Baroda for ₹ 50 crore on turnkey basis. The work was to be completed by December 2006 so as to synchronise with Unit-I of DSPM TPS. However, it was observed that the transmission line was completed on 21 November 2007 with delay of 350 days, whereas the Unit-I of DSPM TPS was already synchronised on 30 March 2007. This resulted in mismatch in completion of work between generation of power from the generating Company (DSPM TPS) and evacuation of the same through the transmission network. Consequently, the Company had to evacuate the power through its existing system by putting more load on it during the period from 30 March 2007 to 21 November 2007.

¹⁹ 30 months from the date of receipt

Idling of 220 kV DCDS line from Jindal Power Project to 220/132 kV EHT SS Raigarh

2.15 The erstwhile Board approved (27 May 2006) the construction of a 220 kV DCDS line from 300 MW Jindal Power Project to 220/132 kV EHT SS Raigarh to draw power from Jindal Power Limited (JPL). The construction of the line was completed in November 2008 at a total cost of ₹ 32.74 crore.

Non utilisation of 220 kV DCDS line worth ₹ 32.74 crore due to non-drawal of power.

We observed that the Company had drawn only 2874.186 MUs of energy from Jindal Power Plant during the period December 2008 to June 2011 against the available capacity of 6782.40 MUs²⁰ of the above line. However, from July 2011 onwards, no power was drawn (except 7.084 MUs²¹ drawn during 10 October 2011 and 11 October 2011) till the date of audit (June 2012) and the line was kept idle resulting in non-utilisation of the line constructed at a total cost of ₹ 32.74 crore.

The Government stated (November 2012) that these lines are being utilised for availing power from JPL by the distribution company as and when required. It was further stated that JPL cannot use this line for sale of power to other parties without permission of the Company.

The reply is not convincing because even without construction of this line, power could have been drawn through other existing lines i.e. 220 kV DCDS Jindal Steel & Power Limited (JSPL) - Raigarh of JSPL and 400 kV DCDS JPL-Raipur of JPL interconnected at PGCIL's line. Further, benefits of capitalisation of line had been availed by the Company in 2010-11 which resulted in shifting of burden to the consumer through tariff though the 220 kV DCDS line was not utilised.

Contract Management

During the period 2007-08 to 2011-12 the contracts awarded or executed by the Company were examined in audit and the following points on non-compliance to tender conditions and Central Vigilance Commission (CVC) guidelines were noticed:

²⁰ For 942 days (i.e. from December 2008 to June 2011) at the rate of 7.2 MUs per day

²¹ $3542000 \text{ units} + 3542000 \text{ units} / 1000000 = 7.084 \text{ MUs}$

2.16 Discrepancies in contract management and passing of undue financial benefits to the contractors:

Name of the project (Date of approval)	Value of work awarded and date of award (₹ / crore)	Scheduled date of Completion (Actual date of completion/ status)	Time overrun (in months)	Undue benefit to the contractors/ avoidable expenditure	Amount
220 kV Korba – Vishrampur line (December 2003)	₹ 40.48 crore December 2004	August 2006 (Work-in- progress)	75	LD was deducted as per provision ²² of the work order due to non- completion of 91 km line under non-forest area in which only 37.67 km was completed. The same was waived and refunded without any justification.	₹ 64.94 lakh ²³
The Government stated (November 2012) that levy of LD was waived and refunded due to delay in arranging forest clearance by the Company which was beyond the scope of the contractor. The reply is not convincing as the contractor failed to complete the work in the available non-forest land for which no forest clearance was required.					
220 kV EHT SS Mahasamund (September 2006)	₹ 23.21 crore July 2005	November 2006 (March 2007)	7	Refund of LD recovered from the contractor by granting time extension	₹ 22.18 lakh
The Government stated (November 2012) that the LD of ₹ 0.22 crore recovered from the contractor was refunded due to extension granted in the contractual period upto 31 March 2007 and indefinite strike by the workers of the contractor's sub-vendor. The reply is not convincing because strike by the workers of the contractor's sub-vendor was an internal matter of the turnkey contractor.					
132 kV Doma-Patan line (August 2008)	₹ 0.64 crore November 2009 ²⁴ ₹ 1.19 crore April 2011 (re-award)	December 2010 (contractor left the work mid-way) November 2011 (May 2012)	16	Non-recovery of risk and cost amount from contractor as per Clause 27 (c) of the work order	₹ 58.73 lakh ²⁵
While accepting the audit observation the Government stated (November 2012) that the Company has sent a notice (August 2012) to the contractor for depositing the additional cost involved in completion of the work through an alternative contractor. However, the same was not deposited by the contractor so far (November 2012).					
132 kV DCSS Vishrampur- Balrampur line (July 2004)	₹ 25.34 crore March 2005	June 2006 (WIP)	77	LD was deducted as per provision ²⁶ of the work order due to non- completion of 94 km line under non-forest area in which only 54.34 km was completed. The same was waived and	₹ 43.14 lakh ²⁷

²² If the contractor fails to complete the project in schedule completion period, penalty of half per cent per week or part thereof, subject to maximum of 5 per cent of the contract price of uncompleted works will be recovered.

²³ For the period prior to obtaining permission from MoEF for diversion of forest land

²⁴ Order was terminated due to non-execution of work within scheduled period

²⁵ [₹ 119.03 lakh - (₹ 63.61 lakh award value - ₹ 14.01 lakh work done)] - ₹ 10.70 lakh forfeited

²⁶ If the contractor fails to complete the project in schedule completion period, penalty of half per cent per week or part thereof, subject to maximum of 5 per cent of the contract price of uncompleted works will be recovered.

²⁷ For the period prior to obtaining permission from MoEF for diversion of forest land.

				refunded without any justification.	
The Government stated (November 2012) that levy of LD was waived and refunded due to delay in arranging forest clearance by the Company which was beyond the scope of the contract. The reply is not convincing as the contractor failed to complete the work in the available non-forest land for which no forest clearance was required.					
220/132 kV EHT SS Chhuri (June 2006)	₹ 44.01 crore April 2011	March 2013	-	The work was taken up on turnkey basis instead of labour contract basis, ignoring the proposal made by the CE (EHT-C&M) of the Company regarding saving of 30 <i>per cent</i> on the ordered value of turnkey contract.	₹ 13.20 crore (i.e. 30 <i>per cent</i> of ₹ 44.01 crore)

(Source: Compiled from the records of the Company)

Extra expenditure on procurement of 145 KB SF6 circuit breakers

2.17 The requirement of equipments for EHT SSs for the year 2007-08 was worked out in November 2006. As per this requirement, 26 SF6 Circuit Breakers (CB) of 145 KV were required. Accordingly, after inviting (May 2007) open tender (TR 07/257), purchase orders for 16 and 10 CBs were issued (12 October 2007) to Areva T&D Limited and Siemens Limited respectively at the rate of ₹ 781636.42 per unit. As per clause 11 of the purchase order, the Company had the right to place an extension order for 100 *per cent* of the original ordered quantity within six months from the date of the original order at the same rates, terms and conditions.

Subsequently in April 2008, fresh requirement of CBs for the year 2008-09 was worked out to 39 of which 26 CBs (equal to 100 *per cent* quantity of the original order) were purchased through extension orders (26 June 2008) against the original order of TR 07/257 at the same rates²⁸. While placing extension order, it was stated that there was no downward trend in the rates of CBs as there was an increase of approximately four *per cent* in the rates during this period as per Indian Electrical & Electronics Manufacturers' Association (IEEMA) price variation formula.

We observed that the time limit of six months for placement of extension order against the original order (TR 07/257) had expired on 11 April 2008. Thus, placement of extension order beyond the permissible period in violation of the purchase order condition was not in order and amounted to extension of undue benefit to the suppliers. Moreover, while issuing the extension order, the Company simply relied on price variation formula of IEEMA and did not analyse the then prevailing market trend to ensure that there was no downward trend in the rates of the CBs. The Management's failure in assessing the rate was also evident from the fact that in the subsequent tender (TR-09/26) finalised in December 2009, rates received for CBs was lower by 31.69 *per cent* than the previous rates contrary to positive price variation of 6.07 *per cent* registered during the period as per IEEMA formula. Interestingly, Siemens on whom the extension order was

²⁸ There was minor variation due to variation in the tax rates.

placed, had also quoted 31.10 *per cent* lower than its previous rate.

Extra expenditure of ₹ 60.84 lakh due to procurement of Circuit Breakers at higher rates through extension orders.

From the above it was clearly evident that there was drastic reduction in the rates of CBs despite registering positive price variation as per IEEMA formula. Thus, instead of placing extension order after expiry of time limit and that too without assessing the then prevailing market rate, had a fresh tender been invited by the Company for procurement of CBs, it could have saved ₹ 60.84 lakh²⁹ incurred extra on procurement of 26 CBs at higher rate through extension order.

The Government stated (November 2012) that due to urgent requirement, extension orders were placed after obtaining consent from the suppliers and approval of the competent authority. Had the fresh tender been invited, it would have taken minimum eight to 10 month's time to receive new CBs which would have delayed the ongoing projects.

The reply is not acceptable because the requirement was fresh requirement of CBs for the year 2008-09, which was evident from the fact that against the extension order, CBs were supplied during September-October 2008 and were drawn for utilisation during December 2008 to March 2009. Even on receipt of fresh requirement of CBs in April 2008 itself, had the Company invited fresh tenders immediately instead of placing extension orders, the material would have been received by September-November 2008, considering 100 days for tender finalisation and three-five months for delivery of material.

Irregular placement of work order

2.18 Open Tender was issued (17 February 2010) by Testing & Communication (T&C) wing of the Company for Operation and Maintenance of its six SSs of 220 kV. In response, four firms had submitted tenders and after techno commercial scrutiny, price bid of all the four bidders were opened. JBS Enterprises, Thane and Kanchan Creation, Indore (Kanchan) were L1 and L2 respectively. As per clause 10 (Section I) of the tender conditions, the work was distributed among L1 and L2 bidder in the ratio of 60:40 and order was placed accordingly as detailed below:

Order for operation & maintenance of 220 KV sub stations for two years	JBS Enterprises	Kanchan Creation
Order No. & date	02-07/Tender/T&C-04/10-11/638 dated 16/06/2010	02-07/Tender/T&C-04/10-11/639 dated 16/06/2010
No. of substations	4 (Bemetara, Suhela, Mahasamund & Thelkadih)	2 (Champa & Siltara)
Order Value (₹)	9053424	4526712

(Source: Data compiled from the records of the Company)

We observed that issue of work order to Kanchan was irregular because the

²⁹ 26 CBs x ₹ 2.34 lakh being rate difference between extension order of TR-07/257 (₹ 7.68 lakh) and TR-09/26 (₹ 5.34 lakh)

Irregular placement of work order worth ₹ 45.27 lakh to an ineligible bidder.

firm did not fulfill the Pre Qualifying Requirement³⁰ (PQR), as the firm was penalised under the Payment of Wages Act, 1936 and the Minimum Wages Act, 1948. However, in spite of noticing this deviation from the PQR, the Company considered the bid of Kanchan by obtaining an undertaking from the firm to the effect that similar violation would not be repeated in future and placed the order. Since Kanchan was not a qualified bidder, placing order on an ineligible bidder was irregular.

The Government stated (November 2012) that since Kanchan was penalised for simple irregularities under labour laws for which difference of wages was also paid by them, the bid of the firm was considered.

The reply is not acceptable because as per the guidelines³¹ of Central Vigilance Commission, once the PQR is finalised the Company should strictly follow the same without any changes and if required, the Company should go for retendering with revised PQR. Placing order on an unqualified bidder is an unethical practice and indicates lack of transparency and good governance in the Company.

Performance of transmission system

2.19 The performance of the Company mainly depends on efficient maintenance of its EHT transmission network for supply of quality power with minimum interruptions. In the course of operation of sub-stations and lines, the supply-demand profile within the constituent sub-systems is identified and system improvement schemes are undertaken to reduce line losses and ensure reliability of power by improving voltage profile. These schemes are for augmentation of existing transformer capacity, installation of additional transformers, laying of additional lines and installation of capacitor banks. The performance of the Company with regard to Operation and Maintenance (O&M) of the system is discussed in the succeeding paragraphs.

Transformation capacity

2.20 The Company, in order to evacuate the power from the generating stations and to meet the load growth in different areas of the State, constructs lines and SSs at different EHT voltages. An EHT SS houses transformers which converts AC voltage and current to a different voltage and current at a very high efficiency. The voltage levels can be stepped up or down to obtain an increase or decrease of AC voltage with minimum loss in the process. The evacuation is normally done at 220 kV SSs. The transformation capacity (220 kV) created vis-à-vis the transformation capacity (peak demand met) at the end of each year by the Company during the five years ending March 2012 are as follows:

³⁰ Clause 3(b) (ii) states that “The contract will not be awarded to any bidder who has been penalised by any Labour Laws Enforcement Authority for non observance of any of the labour laws during the contract period. All the bidders will have to furnish a certificate in this regard as per Annexure –III”

³¹ Preventive Vigilance in Public Procurement : Study based on the Power Sector (2007)

Transformation capacity (in MVA)				
Year	Installed	After leaving 30 per cent towards margin ³²	Peak demand	Excess/ shortage (-)
1	2	3 = (70% of 2)	4	5 = (3-4)
2007-08	3050	2135	2405	-270
2008-09	3370	2359	2896	-537
2009-10	3690	2583	3005	- 422
2010-11	4170	2919	3338	- 419
2011-12	4590	3213	3419	- 206

(Source: Compiled from the records of the Company)

From the above table it could be observed that the overall transmission capacity had fallen short of the requirement every year. This reflects the inadequacy of the transmission network of the Company which ultimately resulted in its inability to transmit the power as per demand.

Sub-stations

Burden on Substation

2.21 The Chhattisgarh State Electricity Grid Code, 2007 notified (December 2006) by CSERC stipulates the permissible maximum capacity for different SSs i.e., 500 MVA for 220 kV and 150 MVA for 132 kV SSs. Further, every SS of capacity 132 kV and above should have at least two transformers and the size and number of transformers in the SS shall be planned in such a way that in the event of outage of any single transformer the remaining transformer(s) could still supply the load.

We observed that the maximum capacity levels of all EHT SSs of 220 kV were within the prescribed limit. However, five³³ SSs of 220 kV and 18³⁴ SSs of 132 kV had only one transformer and out of this, one³⁵ transformer of 220 kV SS and six³⁶ transformers of 132 kV SSs were loaded to 100 per cent or more than 100 per cent of their capacity. As a result, during breakdowns at those SSs, the Company was having no option other than to force shutdown of the SSs which resulted in interruption of power supply and consequent loss of revenue to Chhattisgarh State Power Distribution Company Limited (CSPDCL).

The Government stated (November 2012) that one additional transformer each has been installed at two³⁷ SSs of 220 kV and two³⁸ SSs of 132 kV after March 2012. At the remaining substations, additional transformers would be provided in a phased manner as per the priority wise requirement subject to

³² Recommendation of the Working Group on Power –Eleventh Plan.

³³ Thelkadih, Suhela, Doma, Barsoor and Banari

³⁴ Gunderdehi, Nawagarh, Saja, Dongargaon, Kurud, Balod, Pandariya, Baikunthpur, Silpahari, Chakarbhata, Bagbahara, Tulsi, Mana, Mandirhasaud, Bhanupratappur, Jashpur, Gharghoda and Chaple.

³⁵ Barsoor

³⁶ Gunderdehi, Saja, Pandariya, Baikunthpur, Silpahari and Gharghoda.

³⁷ Barsoor and Thelkadih

³⁸ Chakarbhata and Baramkela

availability of funds.

The Company should take early action to reduce the burden on the remaining 220 kV and 132 kV EHT SSs.

Voltage management

2.22 The licensees using intra-state transmission system should make all possible efforts to ensure that the grid voltage always remains within the prescribed limits. As per the Indian Electricity Grid Code, STUs should maintain voltages ranging between 380-420 kV, 198-245 kV and 122-145 kV in 400 kV, 220 kV and 132 kV lines respectively.

Scrutiny of the 220/132 kV bus voltages in 400/220/132 kV SSs for the period April 2007 to March 2012 revealed that the actual voltages ranged between 386-429 kV, 128-245 kV and 98-147 kV in 400 kV, 220 kV and 132 kV lines respectively.

The Government stated (November 2012) that the voltage at 400 kV and 220 kV systems could not be controlled by the Company directly as the same was regulated by power plants and interstate grid operations. It was further stated that the voltage at 132 kV depends on many factors which is constantly monitored by the Company and remedial actions like installation of capacitor banks, new substations, transmission lines and additional transformers are taken up as per business plan and availability of funds.

The reply of the Government in respect of 220 kV is not acceptable because 220 kV system is used by the power plants situated within the state who are controlled by the SLDC of the Company.

The Company may ensure that the minimum and maximum voltages are maintained as per the norms to provide quality power and reduce the transmission losses.

Bus Bar Protection Panel (BBPP)

2.23 Bus bar is used as an application for interconnection of the incoming and outgoing transmission lines and transformers at an electrical SS. BBPP limits the impact of the bus bar faults on the entire power network which prevents unnecessary tripping and is selective to trip only those breakers necessary to clear the bus bar fault. As per Grid norms and Best Practices in Transmission System, BBPP is to be kept in service for all 220 kV SSs to maintain system stability during Grid disturbances and to provide faster clearance of faults on 220 kV buses.

We observed (March 2012) that the Company was having 15 SSs of 220 kV (four single bus bar SSs and 11 double bus bar SSs) as on 31 March 2012. However, Company provided the BBPP at only 10³⁹ SSs and

³⁹ Bhilai, Gurur, Bemetara, Doma, Bhatapara, Paraswani, Barsoor, Thelkadih, Suhela and Banari

Eight out of 15 SSs of 220 kV were not having Bus Bar Protection Panel to maintain system stability during Grid disturbances and to provide faster clearance of faults on 220 kV buses.

in the remaining five⁴⁰ SSs, BBPP was not provided. It was further observed that out of 10 SSs where BBPP was available, only seven⁴¹ were in service and two⁴² were not in working condition as those had become old and obsolete. At one⁴³ SS, though BBPP was installed (December 2006) the same was yet to be commissioned (November 2012). Non installation of BBPP may result in unnecessary tripping of the entire network instead of tripping of only the defective lines.

While accepting the audit observation, the Government stated (November 2012) that provisions for replacement/ installation of balance seven BBPPs are being made in the business plan of the Company and the work would be carried out accordingly. The Government also stated that provision has been made in the tender for providing BBPP at the forthcoming 220 kV SSs.

Maintenance

Performance of Current transformers (CT)

2.24 Current transformers are one of the most important and cost-intensive components of electrical energy supply networks. Thus it is imperative to prolong their life duration while reducing their maintenance expenditure. In order to gather detailed information about the operational conditions of CTs, various kinds of oil analysis like the standard oil Dissolved Gas Analysis (DGA) tests are generally conducted. For CT insulation a combination of an insulating liquid and a solid insulation impregnated therewith are used. For an evaluation of the actual condition of this insulating system usually a DGA test is used, as failures inside the CT lead to a degradation of the liquid insulation in such a way that the compound of the gases enables an identification of the failure cause. The following table indicates the status of failure of transformers during the years 2007-08 to 2011-12:

Year	No. of CTs at the beginning of the year	No. of CTs failed	No. of CTs which failed within the guarantee period	No. of CTs which failed within the normal working life
2007-08	1221	8	0	8
2008-09	1392	14	2	12
2009-10	1428	18	1	17
2010-11	1611	11	1	10
2011-12	1731	19	4	15

(Source: Information furnished by the Company)

From the above it could be seen that out of total 1731 CTs installed at the beginning of the year 2011-12, only 62 CTs (3.58 *per cent*) failed within their normal working life during the last five years upto 2011-12 which indicated that maintenance of CTs was carried out properly by the Company.

⁴⁰ Urla, Siltara, Kotmikala, Mopka and Raigarh

⁴¹ Bhilai, Gurur, Bemetara, Thelkadih, Doma, Supela and Banari SSs

⁴² Barsoor and Bhatapara SS not in working condition since 1996 and 2005 respectively

⁴³ Paraswani SS

Loss of ₹ 1.55 crore due to procurement of new power transformers instead of timely repairing of failed transformers

2.25 For augmenting the power supply, the Company has been regularly purchasing and commissioning power transformers (PT) of different capacities at its various EHT SSs. During the years 2007-08 to 2011-12, the Company had installed 21 new PTs of 40 MVA at various 132 kV SSs at a total cost of ₹ 53.06 crore.

We observed (March 2012) that despite huge requirement of PTs of 40 MVA which were being met through regular procurement, the Company did not take prompt and timely action to repair four failed PTs of 40 MVA lying at its various SSs for a long time as follows:

SN	Substation	Transformer			Repairing details		
		Make	SN	Failed on	NIT No. & Date	Repaired transformer Installed on	Cost of repair (₹ in lakh)
1	Bilaspur	GEC	B28152	29.06.05	07/290	03.09.11	49.00
2	Champa	EMCO	HT-1344/11643	20.07.05	10.12.07	27.02.10	45.31
3	Raigarh	BHEL	2011268	14.04.07	10/61	Under repair	54.60
4	Raipur	BHEL	2007607	05.04.09	07.07.10	Under commissioning	56.13

(Source: Data compiled from information furnished by the Company)

Loss of interest of ₹ 1.55 crore due to procurement of new power transformers instead of repairing of failed transformers.

It may be seen from the above that in all the four cases, NITs for repairing of transformers were issued with delays ranging between 15 and 30 months. As the average cost of repairing of PT was very less (₹ 51.26 lakh) as compared to average cost of new PT (₹ 252.65 lakh) and in a situation when the Company was managing its finances by borrowing funds from outside sources, its decision to procure new transformers in place of repairing the failed one was not in the best interest of the Company. Timely repair of these transformers would have avoided investment on procurement of new transformers and consequent payment of interest of ₹ 1.55 crore⁴⁴ on such investment.

On failure of a transformer, a Committee should have been constituted immediately to ascertain the causes of failure and assess its reparability so that prompt and timely action can be taken to avoid idling of failed transformers.

The Government stated (November 2012) that in compliance with the suggestion of audit, a time bound programme has been formulated which specifies the time limit for each activity to be carried out right from constitution of a committee, inspection, tendering, dismantling, transportation, repair and transportation back to the site for its erection and commissioning.

⁴⁴ (₹ 252.65 lakh – ₹ 51.26 lakh) X 7 years for delay X 11 per cent being minimum rate of interest at which the Company borrowed fund from outside agencies

Working of hot lines divisions/ sub-divisions

2.26 Regular and periodic maintenance of the transmission system is of utmost importance for its un-interrupted operation. Apart from scheduled patrolling of lines, following techniques are prescribed in the Report of the Committee for updating the Best practices of Transmission in the Country (January 2002) for maintenance of lines:

- Hot Line Maintenance
- Hot Line Washing.
- Hot line Puncture Detection of Insulators.
- Preventive Maintenance by using portable earthing hot line tools.
- Vibration Measurement of the line.
- Thermo-scanning.
- Pollution Measurement of the equipment.

The Hot Line Technique (HLT) envisages attending to maintenance works like hot spots, tightening of nut and bolts, damages to the conductor, replacement of insulators etc. of SSs and lines without switching off. This includes thermo scanning of all the lines and SSs towards preventive maintenance. HLT was introduced in India in 1958.

On scrutiny of records relating to hot line maintenance facilities we observed (May 2012) the following:

The Company was not having separate/adequate staff/ division for HLT. Out of the above mentioned seven HLT, only Hot Line Maintenance technique was implemented by the Company. The hot line maintenance work was performed by EHT Maintenance Divisions – Bhilai and Bilaspur having experience mainly for cold line maintenance⁴⁵. Further, the Company has not prepared any manual/ guidelines for hot line maintenance.

The Government stated (November 2012) that hot line works were undertaken by the present hot line staff with the help of cold line staff available in the Maintenance Division Bhilai/ Bilaspur and assured that training of personnel in Hot Line Training Institute, Bangalore is being chalked out for the new recruits. It was also stated that the other suggested technology (except hot line washing which is required in heavily polluted area such as seashore) if needed would be outsourced immediately.

Three thermo vision cameras were provided to Testing and Communication (T&C) wing for thermo scanning of SSs only. Out of these, one camera provided to Bilaspur Circle was not working since 2009. However, no thermo vision camera was provided to the EHT divisions for line maintenance which was the primary requirement for preventive maintenance.

The Government stated (November 2012) that the process for repairing the defective camera has been initiated. The Government further stated that the

⁴⁵ When maintenance work is carried out by taking shut down, it is called cold line maintenance.

thermo vision cameras provided to the T&C circles are also being used by the EHT Line Maintenance Division.

For proper maintenance of EHT SSs and lines, the Company may consider providing thermo vision cameras to all the maintenance divisions.

Transmission losses

2.27 When energy is carried from the generating station to the consumers through the Transmission & Distribution (T&D) network, some energy is lost which is termed as T&D loss. Transmission loss is the difference between energy received from the generating station/Grid and energy sent to power distribution utilities. The details of transmission losses from 2007-08 to 2011-12 are as follows:

Sl No.	Particulars	Unit	Year				
			2007-08	2008-09	2009-10	2010-11	2011-12
1	Power received for transmission	MUs	14328.61	16504.27	16444.32	17512.78	18305.24
2	Net power transmitted	MUs	13581.37	15672.14	15679.52	16740.20	17551.33
3	Actual Transmission loss (1-2)	MUs	747.24	832.13	764.80	772.58	753.91
4		Percentage	5.22	5.04	4.65	4.41	4.12
5	Target Transmission loss as per the CEA norm	Percentage	4.00	4.00	4.00	4.00	4.00
6	Target Transmission loss as per CSERC norms	Percentage	4.03	4.03	4.90	4.67	4.57
7	Transmission loss in excess of CSERC norm [1X(4-6)/100]	MUs	170.51	166.69	Nil	Nil	Nil
8	Realisation per unit	₹	0.13	0.13	0.17	0.17	0.43
9	Total loss (7X8)	₹ in crore	2.21	2.17	Nil	Nil	Nil

(Source: Data compiled from information furnished by the Company)

Transmission loss in excess of the norms fixed by CSERC- ₹ 4.38 crore.

It could be seen from the above that there was decreasing trend for transmission losses as per CSERC norms but it exceeded the CEA norms of four *per cent* in all the five years. From the year 2009-10 onwards it was within the norms fixed by CSERC. The value of transmission loss suffered by the Company in excess of the norms fixed by the CSERC for the years 2007-08 and 2008-09 was 337.20 MUs valued at ₹ 4.38 crore. Though transmission loss was within the norms during the last three years, the Company should make efforts to reduce it further below the CEA norms.

The Government stated (November 2012) that works for construction of new EHT SSs and EHT lines etc. are being taken up continuously to have a reliable and stable transmission system which would further reduce the transmission losses in future.

Grid Management

Maintenance of Grid and performance of SLDC

2.28 Transmission and Grid Management are essential functions for smooth evacuation of power from generating stations to the DISCOMs/consumers.

Grid Management ensures moment-to-moment power balance in the interconnected power system to take care of reliability, security, economy and efficiency of the power system. Grid management in India is carried out in accordance with the standards/directions given in the Grid Code issued by CEA. The National Grid consists of five regions viz., Northern, Eastern, Western, North Eastern and Southern Grids, each of these having a Regional Load Despatch Centre (RLDC), an apex body to ensure integrated operation of the power system in the concerned region. The Chhattisgarh State Load Despatch Centre (SLDC), a constituent of Western Region Load Despatch Centre (WRLDC), Mumbai, ensures integrated operation of power system in the State. The State Government notified December 2000 that the SLDC shall be operated by the erstwhile Board (now Company). The SLDC levies and collect such fees and charges from the generating companies and licensees engaged in intra-state transmission of electricity as specified by the CSERC.

Infrastructure for load monitoring

2.29 Remote Terminal Units/Sub-station Management Systems (RTUs/SMSs) are essential for monitoring the efficiency of the transmission system and the loads during emergency in load dispatch centre as per the Grid norms for all EHT SSs.

**Non installation
of RTUs at 31
SSs of 132 kV.**

We observed that there were one SS of 400 kV, 15 SSs of 220 kV, 55 SSs of 132 kV and 19 generators, out of which all the 400 kV SS, 220 kV SSs and generators were having RTUs for recording and integrating real time data through Supervisory Control and Data Acquisition System (SCADA) at SLDC for efficient Energy Management System. However, only 24 out of 55 SSs of 132 kV (43.64 *per cent*) were provided with RTUs. Online data recording and integration at remaining 31 SSs of 132 kV were not carried out by SLDC.

The Government stated (November 2012) that 31 RTUs have been procured (February 2012 to April 2012) and their installation at 132 kV SSs is in progress.

Grid discipline by frequency management

2.30 As per the Grid Code, the transmission utilities are required to maintain Grid discipline for efficient functioning of the Grid. All the constituent members of the Grid are expected to maintain a system frequency between 49 and 50.5 Hertz (Hz) (49.2 and 50.3 Hz with effect from April 2009). However, due to various reasons such as shortages in generating capacities, high demand, Grid indiscipline in maintaining load generation balance, inadequate load monitoring and management, Grid frequency goes below or above the permitted frequency levels. To enforce Grid discipline, the WRLDC issues (w.e.f. April 2010) three types of violation messages (A, B, C). Message A is issued when the frequency is less than 49.2 Hz and over-drawal is more than 50 MW or 10 *per cent* of schedule, whichever is less. Violation B message is issued when the frequency is less than 49.2 Hz and over-drawal is between 50 and 200 MWs for more than ten minutes or 200 MW for more than five minutes. Message C (serious nature) is issued 15 minutes after the issue of message B when frequency continues to be less than 49.2 Hz and over-drawal

is more than 100 MW or 10 *per cent* of the schedule, whichever is less.

We observed that type A, type B and type C messages received by the Company during 2010-11 were 43, 12 and 2 respectively, which had increased to 142, 103 and 29 respectively during 2011-12. The increase in the number of type A, type B and type C messages indicates inadequate Grid discipline which may lead to levy of penalty by CERC.

The Government stated (November 2012) that every effort would be made to keep the frequency within the permitted levels for strict grid discipline.

Non compliance of Backing Down Instructions

2.31 When the frequency exceeds the ideal limits i.e. in a situation where generation is more and drawal is less (at a frequency above 50 Hz) SLDC takes action by issuing Backing Down Instructions (BDI) to the generators to reduce the generation for ensuring the integrated Grid operations and for achieving maximum economy and efficiency in the operation of the power system in the State. Failure of the generators to follow the SLDC instructions would constitute violation of the Grid code and would entail penalty not exceeding ₹ five lakh. The Company issued 2388 BDIs for 399 MUs for compliance during the period 2007-12 against which 36 generators failed to comply 438 BDIs⁴⁶ for 102.75 MUs. The percentage of non-compliance of backing down in terms of MUs was on the higher side which worked out to 25.75 *per cent*. Non compliance to BDI by generators puts the State transmission grid at risk. To protect the Grid from indisciplined generators, SLDC should have approached CSERC for imposition of maximum penalty on the defaulting generators as per Sections 33 (4) and 33 (5) of the Electricity Act, 2003. However, SLDC did not file any application to CSERC regarding imposition of penalty on 36 defaulting generators for non-compliance of BDIs.

The Government stated (November 2012) that after detailed analysis of 438 BDIs, 428 BDIs were considered as BDI complied and hence those cases were not found fit for reporting to CSERC. However, the remaining 10 cases of non-compliance of BDIs involving penalty of ₹ 50 lakh have now been reported (August 2012) to CSERC as suggested by audit.

The fact remains that the detailed analysis of 438 BDIs were carried out only after the matter was raised by Audit. Thus, to have a transparent mechanism for proper implementations of BDIs, the detailed analysis of each BDI should be carried out simultaneously and the findings recorded in the BDI register itself so that cases of non compliance can be reported to CSERC immediately.

Non-collection of registration fee

2.32 As per clause 24 of CSERC (Fees and Charges of State Load Despatch Centre and Other Related Matter) Regulations, 2010, all intra-state users (excluding bulk consumer and captive users) intending to get connected to the intra-state transmission system or distribution system shall register themselves

⁴⁶ 77 BDIs not complied at all and remaining 361 BDIs partially complied

with the SLDC by filing an application along with the required fee. The applicant has to remit registration fees of ₹ 10 lakh for installed capacity of 50 MW and above or ₹ five lakh for installed capacity below 50 MW. In case of default in payment of registration fees by the existing intra-state users or an intra-state entity or power generating plant SLDC may approach CSERC.

Scrutiny of records revealed that 50 users were connected as on 31 March 2012 with the intra-state transmission system and therefore, SLDC was required to collect ₹ 3.16 crore towards registration fee from these users. However, SLDC could recover ₹ 2.76 crore from 45 users only and the remaining five users⁴⁷ did not remit the registration fees of ₹ 40 lakh. Non-collection of registration fees resulted in violation of intra-state open access regulations.

Non-collection of registration fee of ₹ 25 lakh from three customers connected to intra-State transmission system.

The Government stated (November 2012) that registration fees amounting to ₹ 15 lakh have now been collected from two customers viz JSPL (Transmission Licensee) and Indsil Energy & Electrochemicals Limited. The matter relating to remaining three customers has been reported to CSERC.

The above reply only confirms that the action was taken by the Company after the same was pointed out by audit and ₹ 25 lakh was not yet recovered from the remaining three customers.

Disaster Management

2.33 Disaster Management (DM) aims at mitigating the impact of a major break down on the system and restoring it in the shortest possible time. As per the Report of the Committee for Updating the Best Practices in the transmission system in the Country (January 2002), DM facilities should be set up by all power utilities for immediate restoration of transmission system in the event of a major failure. DM is carried out by deploying Emergency Restoration System, Diesel Generating (DG) sets, vehicles, fire fighting equipments, skilled and specialised manpower.

Disaster Management Centre, National Load Dispatch Centre, New Delhi acts as a Central Control Room in case of disasters. As a part of DM programme mock drills for starting up generating stations during black start⁴⁸ operations were to be carried out by the Company at periodic intervals.

Inadequate facilities for DM

2.34 On scrutiny (May 2012) of records relating to DM facilities available with the Company, we observed the following:

- The Company had not fixed any periodicity for conducting mock drills for starting up generating stations during black start operations. A mock drill

⁴⁷ NTPC SAIL Power Company Limited, Jindal Steel & Power Limited (JSPL) (Transmission licensee), Jindal Steel & Power Limited (Distribution licensee), Indsil Energy & Electrochemicals Limited and Hira Power & Steel Power

⁴⁸ The procedure necessary to recover from a partial or a total black out.

was carried out for the first time in August 2012 at Hasdeo Bango Hydro Power Station only after it was pointed out by audit (May 2012).

- DG sets and synchrosopes⁴⁹ form part of DM facilities at EHT SSs (220 kV) connecting major generating stations. However, DG sets were not available in all the six 220 kV SSs connected to generating stations as on 31 March 2012 while at only two⁵⁰ 220 kV SSs synchrosopes were available.

In reply, the Government stated (November 2012) that a provision would be made in the business plan of the Company to provide DG sets and synchrosopes at the remaining places.

- Further, the Company did not identify vulnerable installations for provision of metal detectors and did not have any plans for handing over the security of the sites to the security forces to meet any crisis arising out of terrorist attacks, sabotage and bomb threats.

In reply, the Government stated (November 2012) that vulnerable installations have been identified for providing CCTV cameras.

Inadequate safety measures at Substations and Switchyards

2.35 CEA issued (August 2010) the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010. These regulations provided for certain safety measures such as Fire Detection, Alarm and Protection System, Conditioning Monitoring/ Diagnostic Equipments to be in place in each EHT SS and switchyard.

The position regarding such safety measures in the Company is given below:-

Fire Detection, Alarm and Protection System

- A comprehensive fire detection, alarm as well as Fire Protection System (FPS) was required to be installed. The Control Room was to be provided with fire detection and alarm system based on smoke detectors and/ or heat detectors. As against the above, fire detection/ alarm system was available only at 400 kV SS Bhilai and in all other 220/ 132 kV SSs, only Portable Fire Extinguishers were available. Further, Control Rooms were not provided with any smoke/ heat detectors.
- The transformers or reactors of 10 MVA and higher rating or oil filled transformers or reactors with oil capacity of more than 2000 litre were required to be provided with automatic High Velocity Water Spray System as per relevant Indian Standard or Nitrogen Injection based FPS. The transformers/reactors of 220 kV or higher voltage should preferably be

⁴⁹ In an AC electrical power system it is a device that indicates the degree to which two systems generators or power networks are synchronised with each other

⁵⁰ 220 kV SS at Suhela and Banari

provided with Nitrogen injection based FPS in addition to automatic High Velocity Water Spray System.

As against the above, only one transformer (400 kV SS at Bhilai) was provided with High Velocity Water Spray System.

- Water Hydrant System was to be provided for DG Set, Auxiliary Power Supply System Area, Stores, Fire Fighting Pump House and Transformer/reactors in all the EHT SSs and Switchyards. As against the above, no water hydrant system was provided in any of the EHT SSs of the Company.

The Government stated (November 2012) that provision would be made in the business plan of the Company to provide 156 numbers FPS at all the remaining places.

Conditioning Monitoring/ Diagnostic Equipments

Diagnostic equipment is required to be provided to assess the health of various equipment in SSs and switchyards of 132 kV and higher voltages. Online diagnostic equipment were to be of dedicated type for those critical equipments, the health of which is required to be monitored continuously. Portable type on-line diagnostic equipment and off-line diagnostic equipment was required to be provided for one or a cluster of SSs and switchyards, depending upon the size of the same. The diagnostic equipment should include Dissolved Gas Analyzer (DGA), winding resistance meter and frequency response analyzer for transformers and reactors, capacitance and tan-delta measuring units for transformers and instrument transformers, circuit breaker analyzer including dynamic contact resistance meter and leakage current monitor for surge arrester and relay testing kit.

As against the above, the online DGA System was available only at 40 MVA transformers at 132 kV SSs – Balodabazar, Mandir Hasaud, Chakarbhata, Baramkela, Baikunthpur and Dhamdha commissioned during the period 2009-12. Other offline diagnostic equipments were available with SSs individually/ in cluster.

The Government stated (September 2012) that the estimated expenditure for providing 151 numbers DGA system at all the remaining places has been worked out to ₹ 3.02 crore for inclusion in the business plan of the Company.

From the above it may be concluded that the safety arrangements at the Company's various SSs were inadequate and the Company is not adequately equipped to handle the situation effectively in the event of a major disaster.

Unfruitful expenditure of ₹ 11.38 crore on purchase of second set of Emergency Restoration System

2.36 Emergency Restoration System (ERS) is used to restore power supply after break down of transmission towers due to floods, storms, cyclones etc. In February 2006, administrative approval for procurement of two sets of ERS

was accorded subject to examination of its usefulness. As the erstwhile Board did not have prior knowledge of the utility and cost benefits of ERS, the BoD of the erstwhile Board in its 61st meeting held on 15 December 2006 decided to procure one set of ERS suitable for 400/220/132 KV transmission lines subject to assessment of the cost effectiveness, essentiality for procurement, etc. at the competent level. The Committee, constituted (19 December 2006) for this purpose, analysed all the instances of tower collapse since inception of the erstwhile Board and observed (23 December 2006) that in all the cases new towers were erected and power supply was restored in minimum time with the help of its own tower parts fabrication division. The Committee, however, opined that in certain cases the use of ERS may be beneficial. Regarding cost benefit analysis, the Committee expressed its inability to assess the same stating that the possibility of tower collapse, its frequency, possible revenue loss, etc. could not be worked out and hence it recommended to consider purchase of ERS as an insurance spare for attending any emergency situation. Accordingly, the erstwhile Board decided (28 December 2006) to procure one set of ERS and placed (9 January 2007) orders with PCI Limited, New Delhi at a total cost of ₹ 11.69 crore. The equipment was delivered on 9 July 2007. Subsequently, the erstwhile Board placed (29 November 2007) an extension order with the same firm and procured one more set of ERS at the negotiated cost of ₹ 11.38 crore without citing any justification for its procurement.

On scrutiny of records we observed that as the first set of ERS itself was procured as an insurance spare since its full utilisation and cost benefit could not be assessed, the erstwhile Board should have gone for the procurement of the second unit only if the instances of tower collapse was so high that the erection of new towers and early restoration of power supply could not be managed with one unit. It is pertinent to mention that since procurement of ERS, there were only two instances⁵¹ of tower collapse up to March 2012, of which in one instance only (Korba-Bhilai line) ERS could be utilised. In the other occasion of tower collapse in Bastar region, ERS could not be utilised due to hilly terrain though it was considered as most useful by the Committee for the purpose of quick restoration of power supply in the region being a sensitive area. The Company's inability to use ERS in hilly terrain of Bastar region proves that ERS was feasible only in plain terrain and approachable locations. This fact was also reported (6 June 2006) by the field engineer of the erstwhile Board. CSERC had also advised (24 August 2006) the erstwhile Board not to procure ERS at all because it may not be prudent to make huge investment for procurement of ERS which may remain idle most of the time and may be useful only in plain terrain.

Unfruitful expenditure of ₹ 11.38 crore on purchase of second set of ERS without any justification.

Thus procurement of the second set of ERS was not justifiable which resulted in unfruitful expenditure of ₹ 11.38 crore.

The Government stated (November 2012) that the ERS is not only an exceptionally useful equipment in the event of breakdown of transmission lines but is also an asset to be used in regular transmission works. The

⁵¹ 05.06.2008 - Gurur Barsoor Line and 05.06.2009 - Korba Bhilai Line

Company has been successful in using ERS on various such occasions and saved crores of rupees towards power supply.

The fact remains that during the last five years, the ERS was used only four times for normal work and only once during collapse of towers which does not justify the procurement of a second set of ERS.

Energy Accounting and Audit

2.37 Energy accounting and audit is necessary to assess and reduce the transmission losses. The transmission losses are calculated based on Meter Reading Instrument (MRI) readings obtained from Generation to Transmission (GT) and Transmission to Distribution (TD) boundary metering points. However, the Company had not conducted any Energy Audit during the period from 2007-08 to 2011-12. As on 31 March 2012 there were 156 interface boundary metering points between TD (130) and GT (26) where 0.2 class accuracy meters were required to be provided.

All the GT points and three TD points were provided with 0.2 class meters. However, the remaining 127 TD points were provided with different class (1.0 and 0.5) accuracy meters.

Further, test check of data for a three month period from January 2012 to March 2012 of six divisions⁵² with 203 numbers of feeders indicated existence of high percentage of losses in 25 feeders ranging between 4.59 *per cent* to 42.86 *per cent* and gains ranging between 0.01 *per cent* to 24.56 *per cent* in 148 feeders. This was due to usage of different accuracy class meters.

The Government stated (November 2012) that provision would be made in the business plan of the Company to replace all the meters installed at the remaining 127 numbers TD boundary points with 0.2 accuracy class meters.

Thus, the usage of different class of meters at input and output points made energy accounting by the Company unrealistic.

Financial Management

2.38 One of the major objectives of the National Electricity Policy 2005 was to ensure financial turnaround and commercial viability of the Power Sector. The financial position of the Company for the three years⁵³ ending 2011-12 is as given in the following table:

⁵² Raipur, Jagdalpur, Bhilai, Bilaspur, Raigarh and Bishrampur

⁵³ The Company started its activities w.e.f 1 January 2009 after restructuring of the erstwhile CSEB. Hence, data has been furnished from 2009-10 onwards.

(₹ in crore)				
Sl. No.	Particulars	2009-10 (Audited)	2010-11 (Audited)	2011-12 (Provisional)
A. Liabilities				
1	Paid up Capital	0.05	0.05	650.05
2	Share Capital Suspense A/c	655.10	655.10	155.10
3	Reserves & Surplus ⁵⁴	-	-	109.44
4	Borrowing (Loan Funds)			
4 (i)	Secured	230.09	627.72	952.04
4 (ii)	Unsecured	67.93	57.48	47.03
4 (iii)	Total 4 (i) + 4 (ii)	298.02	685.20	999.07
5	Deferred Liabilities	42.21	193.33	450.04
6	Inter Company Adjustment A/c	252.41	124.67	225.28
7	Current Liabilities & Provisions	228.22	278.70	639.75
8	Total	1476.01	1937.05	3228.73
B. Assets				
9	Gross Block	1222.34	1746.89	1915.40
10	Less: Depreciation	288.40	377.97	477.67
11	Net Block	933.94	1368.92	1437.73
12	Capital Works-in-Progress (CWIP)	280.23	149.04	640.47
13	Investments	0.00	0.00	363.04
14	Current Assets, Loans and Advances (CA)	249.79	391.32	787.49
15	Accumulated loss	12.04	27.77	0.00
16	Total	1476.01	1937.05	3228.73
17	Debt Equity Ratio = 4 (iii) / (1+2)	0.45	1.05	1.24
18	Profit after tax/ Loss (-)	5.50	(-) 15.99	137.22
19	Interest (net of IDC ⁵⁵ capitalised)	34.25	30.97	42.63
20	Total return on Capital Employed (18+19)	39.75	14.98	179.89
21	Capital Employed [11+12+(14-7)]	1235.75	1630.58	2225.94
22	Percentage Return on Capital Employed (20/21 X 100)	3.22	0.92	8.08

(Source: Data furnished by the Company)

It may be seen from the above that the Debt-Equity ratio of the Company increased from 0.45:1 to 1.24:1 during the period 2009-12 mainly due to increase in borrowings from ₹ 298.02 crore to ₹ 999.07 crore because of financing of new projects.

Percentage of Return on Capital Employed increased from 3.22 (2009-10) to 8.08 (2011-12) due to increase in Return on Capital Employed indicating improvement in operational performance. Capital Employed also increased from ₹ 1235.75 crore (2009-10) to ₹ 2225.94 crore (2011-12) due to increase in Net Block and Capital Work-in-progress.

2.39 The details of working results like revenue realisation, net surplus/loss and earnings and cost per unit of transmission are as follows:

⁵⁴ Including Capital Grants but excluding Depreciation Reserve

⁵⁵ Interest During Construction

Audit Report on Public Sector Undertakings (General, Social, Economic and Revenue Sectors) for the year ended 31 March 2012

Sl. No	Description	2009-10 (Audited)	2010-11 (Audited)	2011-12 (Provisional)
1	Income			
(a)	Revenue from transmission & SLDC charges (₹ in crore)	262.95	290.35	758.20
(b)	Other income including interest/subsidy (₹ in crore)	11.59	7.38	29.11
(c)	Total Income (a) +(b) (₹ in crore)	274.54	297.73	787.31
2	Transmission			
(a)	Installed capacity (in MVA)	3690	4170	4430
(b)	Power received from generating units (in MUs)	16444.32	17512.78	18305.24
(c)	Loss in transmission (in MUs)	764.80	772.58	753.91
(d)	Net power transmitted (b)-(c)	15679.52	16740.20	17551.33
(e)	Percentage of transmission loss [2(c) / 2(b) X 100]	4.65	4.41	4.12
3	Expenditure (₹ in crore)			
(a)	Fixed cost			
(i)	Employees cost (₹ in crore)	107.15	113.08	390.22
(ii)	Administrative and General expenses (₹ in crore)	18.45	15.43	22.88
(iii)	Depreciation (₹ in crore)	40.95	89.57	99.60
(iv)	Interest and finance charges (Net after capitalisation) (₹ in crore)	34.25	30.97	42.63
(v)	Total fixed cost (₹ in crore)	200.80	249.05	555.33
(b)	Variable cost:			
(i)	Repairs & maintenance (₹ in crore)	25.44	24.51	24.66
(ii)	Total variable cost (₹ in crore)	25.44	24.51	24.66
C	Total Cost 3(a)+(b) (₹ in crore)	226.24	273.56	579.99
4	Realisation (₹ per unit) 1 (a) / 2 (d)	0.167	0.173	0.432
5	Fixed cost (₹ per unit) 3 (a) (v) / 2 (d)	0.128	0.149	0.316
6	Variable cost (₹ per unit) 3 (b) (ii) / 2 (d)	0.016	0.015	0.014
7	Total cost (₹ per unit) (5+6)	0.144	0.164	0.330
8	Margin (4-6) (₹ per unit)	0.151	0.164	0.418
9	Net surplus (₹ per unit)	0.023	0.009	0.102

(Source: Data furnished by the Company)

It may be seen from the above that during the period from 1 April 2009 to 31 March 2012, the realisation per unit increased by 159 *per cent* from ₹ 0.167 (2009-10) to ₹ 0.432 (2011-12). This was mainly due to approval of enhanced tariff by CSERC in the tariff order for the year 2011-12. Although there was an increase of 129 *per cent* from ₹ 0.144 (2009-10) to ₹ 0.330 (2011-12) in total cost per unit but due to increase in margin per unit by 177 *per cent* from ₹ 0.151 (2009-10) to ₹ 0.418 (2011-12) which resulted in increase in surplus by 343 *per cent*.

It was further observed that the transmission losses decreased from 4.65 *per cent* (2009-10) to 4.12 *per cent* (2011-12) and was even better than the norms fixed by CSERC from the year 2009-10 onwards as discussed in *paragraph 2.27*.

Points noticed on financial management are discussed in the following paragraphs:

Non execution of long term Power Transmission Agreement with CSPDCL

2.40 After restructuring of the erstwhile Board w.e.f. 1 January 2009, the Company signed (15 October 2009) a Memorandum of Understanding (MoU) with CSPDCL. The MoU *inter alia* provided the following:-

- A long term Power Transmission Agreement (PTA) between the Company and CSPDCL would be executed for capacity allocation as per the Chhattisgarh State Electricity Board Transfer Scheme (transfer scheme) to be notified by the State Government, within 30 days from the date of notification of above transfer scheme.
- PTA would be submitted immediately to CSERC for approval.
- The MoU would remain in force until the long term PTA was executed by the companies and approved by CSERC.
- CSPDCL would undertake to make payment for transmission service as per tariff decided by CSERC and as per arrangement to be agreed mutually between them.

In this connection, on scrutiny of records relating to billing of transmission charges by the Company and its realisation from CSPDCL, we observed as follows:-

Non realisation of ₹ 406.22 crore from CSPDCL towards transmission charges due to non execution of PTA.

2.40.1 The Government of Chhattisgarh had notified the transfer scheme on 31 March 2010. In accordance with the MoU, the PTA was to be executed on or before 30 April 2010. Though the draft PTA was forwarded (May 2010) to CSPDCL by the Company, the same was not executed (November 2012) due to lack of response from CSPDCL and non pursuance of the matter by the Company. Consequently, the modalities for payment of transmission bills by CSPDCL also could not be finalised and this led to irregular payments to the Company by CSPDCL thereby putting the Company in a financial crunch. Since August 2011, CSPDCL had not made any payment to the Company resulting in accumulation of outstanding amount of ₹ 406.22 crore upto March 2012. As a result, the Company was not having sufficient funds for its routine O&M works as well as for capital works as discussed in *paragraph 2.43*.

It is also pertinent to mention that CSERC in its Tariff Orders for the financial year 2009-10 (May 2009) and 2011-12 (March 2011) had directed the Company to finalise the long term PTA at the earliest being a basic requirement for functioning of the Company. In spite of the above, the Company did not finalise the PTA.

The Government stated (November 2012) that the draft PTA submitted to CSPDCL was received back (June 2012) after vetting and the same has been submitted (June 2012) to CSERC for approval.

Non-realisation of revenue of ₹ 23.41 crore due to non levy of late payment surcharge on CSPDCL.

2.40.2 As per CSERC (Terms & Conditions of determination of Multi Year Tariff Principles) Regulations, 2010 (applicable w.e.f. FY 2010-11), the bills relating to transmission charges were to be paid within 60 days from the date of issue and in case of delay, surcharge at the rate of 1.25 *per cent* per month would be levied by the Company on CSPDCL. However, scrutiny of bills raised by the Company w.e.f. April 2010 revealed that the Company did not levy any surcharge on CSPDCL though the bills were paid with delays ranging between 15 and 227 days. Non-levy of surcharge on CSPDCL as per regulations resulted in non-realisation of revenue of ₹ 23.41 crore to the Company.

The Government stated (November 2012) that in September 2011 the Company had requested CSPDCL for payment of surcharge but the same was not considered by CSPDCL citing the reasons that PTA was not executed. The Government further added that looking to the observation of audit, the Company has raised (August 2012) surcharge bill of ₹ 23.41 crore on CSPDCL.

The fact remains that the Company could not recover the above amount so far (November 2012).

Defective cash management in SLDC resulting in loss of interest of ₹25.89 lakh

2.41 SLDC has been maintaining a separate current account with State Bank of India (SBI) since 16 May 2009 for collection of various receipts i.e. Application Fees, Short Term Open Access Charges, Long/ Medium Term Open Access Charges etc. Subsequently, CSERC (Fees and Charges of State Load Despatch Centre and Other Related Matter) Regulation, 2010 was notified (26 October 2010) and according to the regulation, SLDC was to create and maintain a separate fund called “SLDC Development Fund”. The charges on account of return on equity, interest on deposit, depreciation and other income such as registration fee, application fee, 50 *per cent* of short term open access charges (operating charges) etc were to be deposited to the Fund. Accordingly, SLDC opened (13 April 2011) ‘SLDC Development Fund A/c’ with SBI.

On scrutiny of the bank statement of Collection Account for the period from 16 May 2009 to 31 March 2012, we observed that SLDC failed to transfer the funds deposited in this account to the Company’s account at the head office or Development Fund Account immediately. The delay in transferring the funds ranged between one and 290 days and funds remained unutilised in a non-interest bearing current account. Since it is a collection account and no payment was being made from this account, the amount deposited in this account should have been transferred to the Company’s account at the Head Office immediately. Delay in transferring the funds resulted in blocking of funds and consequent loss of interest of ₹ 21.13 lakh⁵⁶.

⁵⁶ worked out at the minimum interest rate of 10.15 *per cent* per annum at which Company obtained cash credit from bank

Loss of interest of ₹ 25.89 lakh due to defective cash management.

In respect of Development Fund Account, SLDC opted for auto sweep facility for current account called Corporate Link Term Deposit (CLTD) on 23 February 2012. Under CLTD facility, the customer has to maintain a minimum balance of ₹ 25,000 and any amount exceeding the minimum balance would be converted into Fixed Deposits (FD) in multiples of ₹ 5,000 automatically for the period till the fund is utilised by the customer. At the requirement of the customer, if there are insufficient funds in the current account, the FD would be automatically closed (depending on the withdrawal amount) without any loss of interest. However, for CLTD, SLDC had fixed a minimum balance of Rupee one crore. Had SLDC exercised its option for availing CLTD facility from the beginning with minimum balance of ₹ 25,000 instead of Rupee one crore, it could have earned additional interest of ₹ 4.76 lakh during the period from 13 April 2011 to 31 March 2012.

Thus, due to defective cash management the Company had suffered loss of interest of ₹ 25.89 lakh.

The Government stated (November 2012) that as suggested by audit, auto sweep facility on daily basis for transferring amount from above accounts to head office main account has since been started from 6 July 2012.

Tariff Fixation

2.42 The financial viability of the Company depends upon generation of surplus (including fair returns) from operations to finance its operating needs and future capital expansion programmes by adopting prudent financial practices. Revenue collection is the main source of generation of funds for the Company.

The tariff structure of the Power Transmission Company is subject to revision approved by the CSERC after the objections, if any, received against Aggregate Revenue Requirement (ARR) petition filed by them within the stipulated date. The Company was required to file the ARR for each year 120 days before the commencement of the respective financial year. For example, ARR for the year 2011-12 was required to be filed by November 2010. CSERC accepts the application filed by the Company with such modifications/conditions as may be deemed just and appropriate and after considering all suggestions and objections from the public and other stakeholders. The following table shows the due date of filing ARR, actual date of filing ARR, date of approval of tariff petition and the effective date of the revised tariff:

Year	Due date of filing	Actual date of filing	Delay in days	Date of approval	Effective date
2007-08	November 06	31.07.2007	243	22.10.2007	01.11.2007
2008-09	November 07	No tariff petition ⁵⁷			
2009-10	November 08	26.02.2009	88	30.05.2009	01.04.2009
2010-11 (MYT)	November 09	04.10.2010	308	No tariff order ⁵⁸	
2011-12 (MYT)	November 10	04.10.2010	--	31.03.2011	09.04.2011

(Source: Data compiled from information furnished by the Company)

From the above it may be seen that during the four years ending 31 March 2011, the Company failed to file application for determination of tariff in time and the delay ranged between 88 and 308 days. Even after getting exemption for filing petition for the year 2008-09 on the grounds of preparing Multi Year Tariff (MYT) petition for the year 2009-10, the Company defaulted in submission of the business plan and the MYT application for the year 2009-10.

Further, while issuing (30 May 2009) tariff order for the year 2009-10, CSERC had directed the Company to ensure filing of tariff petition under MYT principles for the year 2010-11 in time i.e. November 2009 so that the next tariff order could take effect from 1 April 2010. However, the Company filed the petition on 4 October 2010. As a result, no tariff order could be passed by CSERC for the year 2010-11 and consequently the Company had to realise revenue during the year at the lower rate of 2009-10 leading to short recovery of ₹ 148 crore which was realised in 2011-12. Thus, delay in filing tariff petition for the year 2010-11 resulted in deferment of realisation of ₹ 148 crore by one year and consequent loss of interest of ₹ 16.28 crore⁵⁹ to the Company.

Deferment of realisation of revenue of ₹ 148 crore due to delayed filing of tariff petition resulted in loss of interest of ₹ 16.28 crore.

It is pertinent to mention that the erstwhile Board/ Company was having a separate wing headed by a Chief Engineer to deal with tariff related issues but despite this the Company could not file the tariff petition in time.

The Government stated (November 2012) that the delay for the year 2010-11 occurred due to delay in issue of MYT Regulations by CSERC. After issuance (January 2010) of the MYT Regulation 2010, the business plan of the Company was approved by CSERC in June 2010 and thereafter, the MYT petition was filed in October 2010. The Government further stated that the ARR is determined by CSERC in advance which is provisional in nature. Adjustment of surplus and deficit on account of true up of expenditure on various heads of ARR based on actual is a regular and continuous process. It

⁵⁷ On request of erstwhile CSEB, CSERC did not insist on filing of tariff application for the year 2008-09 so as to allow it sufficient time to prepare Multi Year Tariff (MYT) application for first control period of three years from 2009-10 to 2011-12. In absence of tariff order, ARR approved for 2007-08 was continued.

⁵⁸ By the time (31.03.2011) CSERC finalised the tariff order; previous year 2010-11 was already over. As such, no tariff order was passed separately for the year 2010-11 and revenue realisation was made based on ARR of 2009-10.

⁵⁹ Calculated at the minimum borrowing rate of interest of 11 per cent at which the Company borrowed funds from PFC during the year 2010-11.

was further stated that though audit has observed deficit of ₹ 148 crore resulting in loss of interest to the Company, it has not considered the fact that surplus of ₹ 110 crore realised by the Company during 2005-06 to 2009-10 adjusted in the ARR of 2010-11 has also resulted in gain of interest to the Company by applying the same logic.

The reply does not consider the fact that the 'CSERC (Terms and conditions of determination of tariff according to multi year tariff principles) Regulations, 2008' was already in force based on which the Company was required to file the MYT petition for the year 2010-11 by November 2009. The reply regarding deferment of revenue is not acceptable because surplus/ deficit do arise in normal course due to reasons beyond the control of the Company but in the instant case the deficit of ₹ 148 crore had arisen due to controllable delay of one year in filing tariff petition by the Company. Regarding surplus of ₹ 110 crore pertaining to previous years, it is pertinent to mention that while working out the loss of interest, audit had considered the net deficit of ₹ 148 crore after adjusting the surplus of ₹ 110 crore.

Inadequate repair and maintenance of transmission system due to shortage of funds

2.43 Repair and maintenance (R&M) is an important activity and thus it should not be neglected. The essential works needed for security, safety and efficient operation of the transmission system must be carried out in time in a planned way. For every financial year, the Company forecasts R&M expenses and gets it approved in the tariff order of the concerned year. The details of R&M expenses approved by CSERC and actual expenditure incurred thereagainst for the last five years are as follows:

Year	Nature of Expenditure	Approved in tariff order (₹ in crore)	Actual expenditure as per true up petition (₹ in crore)	Percentage of actual expenditure to approved expenditure
1	2	3	4	5 = (4/3X100)
2007-08	R&M	24.70	10.69	43
2008-09	Data not available in absence of separate tariff order			
2009-10	R&M	42.61	27.28	64
2010-11	O&M ⁶⁰	274.20	148.18	54
2011-12	O&M	302.20	190.00 (as per revised ARR)	63

(Source: Data compiled from information furnished by the Company)

From the above it may be seen that the Company could not spend the full amount planned for R&M/O&M activities during the last five years and actual expenditure ranged between 43 and 64 *per cent*. We observed that the reason for lower expenditure during the years 2010-11 and 2011-12 was shortage of funds due to delay in filing of tariff petition and non payment of transmission

⁶⁰ including employee cost, Administrative & General expenses and R&M

charges by CSPDCL as discussed in *paragraph 2.42* and *paragraph 2.40.1* respectively. As a result, the Company could not take up the necessary renovation and replacement of equipments, old circuit breakers, relay, etc. and modernisation works in EHT SSs.

The Government stated (November 2012) that optimum repair and maintenance works of the transmission system were carried out as per the routine practice. However, due to shortage of funds, some of the renovation and modernisation works have been slightly deferred which have not affected the Company's operation. This is evident from the fact that the Company has achieved better transmission system availability factor of more than 99.80 *per cent* during the years 2010-11 and 2011-12 against the target of 97 *per cent* set by CSERC.

The reply is not acceptable because merely achieving better transmission system availability factor does not guarantee against possible breakdowns in future, which can only be prevented by timely and adequate repair and maintenance of the system.

Material Management

2.44 The key functions in material management are laying down an inventory control mechanism, procurement policy for materials and a policy for disposal of obsolete inventory. We observed that the Company had not formulated any procurement policy, inventory control mechanism for economical procurement and efficient control over inventory and a policy for disposal of obsolete inventory.

2.45 The details of consumption and closing stocks of inventory⁶¹ since December 2010 are as follows:

(₹ in crore)						
Year	Opening inventory	Purchase during the year	Consumption	Consumption (per month)	Closing inventory	Closing stock in terms of months to consumption
1	2	3	4	5	6 (2+3-4)	7 (6/5)
2010-11 (01.12.2010 to 31.03.2011)	26.38	24.34	31.21	7.8	19.51	2.50
2011-12	19.51	103.65	83.81	6.98	39.35	5.64

(Source: Data compiled from information furnished by the Company)

Though the Company had limited its closing stock to six months' consumption, but due to absence of an inventory control mechanism, it had

⁶¹ Though restructuring of erstwhile CSEB was made effective from 1 January 2009, the Company wise bifurcation of store materials has taken place w.e.f. 01.12.2010 vide Government of Chhattisgarh order dated 29.10.2010. Prior to this, inventory was held combinedly by the Company and CSPDCL.

neither made any ABC analysis⁶² nor fixed any maximum/ minimum level or reorder level of inventory.

The Government stated (November 2012) that the observations of audit regarding ABC analysis and fixing of inventory levels have been noted and action would be taken accordingly.

Physical verification of stocks in the stores

2.46 There are two⁶³ area stores under the control of the Company. Physical verification of the stores was conducted as per the Store Manual which provides that the stock of every material is to be physically verified not less than once in a year in each area store. Physical verification of both the stores for the year 2011-12 was in progress (May 2012).

Non-disposal of unserviceable materials

2.47 The value of non-moving, surplus, obsolete, unserviceable and scrap items since December 2010 is as follows:

Particulars	(₹ in crore)	
	2010-11 (01.12.2010 to 31.03.2011)	2011-12
Surplus/ obsolete/ unserviceable scrap	1.79	1.95
Non-moving	6.56	8.02
Total	8.35	9.97
Disposal of surplus/ obsolete/ unserviceable/ scrap	0	0.10

(Source: Data compiled from information furnished by the Company)

It may be seen from the above that after starting accounting of inventory separately by the Company from December 2010, the stock of unserviceable and non moving items as on 31 March 2012 had increased by about nine and 22 *per cent* respectively. We also observed that the non-moving stock included two sets 60 degree and eight sets tangent multi circuit towers weighing 163.37 MT valuing ₹ 1.27 crore which were procured in June 2006. However, these could not be utilised for more than six years and were kept in the open yard. This resulted in blocking of funds to the tune of ₹ 1.27 crore with consequential loss of interest of ₹ 0.84 crore⁶⁴. This was also indicative of poor material management.

The Government stated (November 2012) that regular action such as holding e-auction, identification of non-moving inventory for utilisation/ disposal etc is being taken to reduce the inventory of unserviceable materials. The Government further stated that the towers were procured with a view to maintain a reasonable inventory of essential, important and special material to

Unjustified procurement of tower parts resulted in blocking of funds of ₹ 1.27 crore.

⁶² System of inventory control where items are categorised according to their value. For example, high value items are categorised as A and least valued items are categorised as C.

⁶³ Bhilai and Bilaspur

⁶⁴ ₹ 1.27 crore X 6 yrs X 11 *per cent* i.e. minimum interest rate at which the Company borrowed loan from outside agencies

deal with unforeseen situation for effective and regular power supply.

Regarding procurement of tower parts, the reply is not acceptable because the above material was included in the non-moving items due to non-utilisation of such material for more than six years. Further, the deterioration of quality of the material could not be ruled out. The Company should take steps to utilise or dispose of the materials.

Non-disposal of unserviceable power transformers

2.48 On failure of transformers installed at SSs, a Committee is set up to assess their reparability and to give their recommendations. If it was found that the transformer was not reparable, the same was to be surveyed of and action for disposal initiated. The Company entered (21 February 2011) into an agreement with Metal Scrap Trading Corporation Limited, Kolkata (MSTC) for sale of scrap material through e-auction.

On scrutiny of the records relating to disposal of scrap we observed that 20 numbers of failed/ unserviceable power transformers of various capacities were lying at various SSs for periods ranging between seven and 316 months for disposal as detailed in **Annexure 2.3**. From the Annexure it could be seen that though failed /out of service transformers were lying for considerable period, the Company did not take any action for their disposal. For disposal of scrap, the Company initiated action belatedly during 2011. Out of 20 numbers of failed transformers, only six transformers (serial number 1-6 of **Annexure 2.3**) were put on auction and the Company was able to get successful bidders for four power transformers at a total value of ₹ 2.12 crore.

This indicates that the erstwhile Board/ Company did not have any policy and monitoring mechanism for identification and timely disposal of scrap. Had the Company initiated action for disposal of unserviceable power transformers promptly, the Company could have earned revenue and freed up space for storage of other materials.

The Government stated (November 2012) that the action is being taken for disposal of unserviceable transformers in a definite timeframe as suggested by audit.

Monitoring and Control

2.49 The performance of the EHT SSs and lines of 400/220/132 kV on various parameters like maximum and minimum voltage levels, breakdowns, voltage profiles should be recorded/ maintained as per the Grid code standards.

To ascertain the adequacy of the monitoring mechanism prevailing in the Company, we called (May 2012) for information regarding the procedures existing for monitoring the performance of the SSs and lines, monthly MIS reports, details regarding programmed overhauls of equipments like CBs, due

dates of next oil change, OLTC⁶⁵ operations, schedule of maintenance works, performance of EHT SS batteries, performance of relays and cause-wise analysis of feeder breakdowns etc. However, no information was furnished by the Company so far (November 2012).

In absence of the reply, we were not able to comment on the adequacy of the monitoring mechanism in the Company.

2.50 SLDC did not maintain any register/ log book for recording of A/B/C messages received on account of grid violation (refer *paragraph – 2.30*). We further observed that Company had no Management Information System (MIS) in place for apprising the BoDs regarding yearly performance of the Grid/ number of messages received and action taken by the Company to ascertain Grid discipline.

The Government stated (November 2012) that a register for recording of A/B/C type messages has now been opened with effect from May 2012.

Internal Controls and Internal Audit

2.51 Internal control is a process designed for providing reasonable assurance for efficiency of operations, reliability of financial reporting and compliance with applicable laws and statutes which is designed to ensure proper functioning as well as effectiveness of the internal control system and detection of errors and frauds.

The Company outsourced the internal audit function to private Chartered Accountant firms from the financial year 2009-10 onwards. Scrutiny of the Internal Audit Reports revealed that the Internal Audit focused only on establishment matters rather than on the core activities of the Company. We also observed that there were lapses in the internal control system leading to a case of embezzlement, which could not be detected by the Company, as discussed below:-

Embezzlement of ₹23785

2.52 As per standard practice, the Drawing and Disbursing Officer (DDO) should check all the entries in the cash book as soon as possible after the date of their occurrence and should initial the book with date after the last entry checked. The cash book should be signed by him at the end of the month and such signature should be understood as fixing responsibility for all entries of the month inclusive of the closing balance. Further, the disbursing officer should verify the totalling of the cash book or have this done by some principal subordinate who should initial it as correct. The actual balance of cash in the chest should be physically verified on the last working day of each month.

The Substation Division, Bhilai of the Company receives cash from various parties regularly and the cashier of the division was required to remit the daily

⁶⁵ On Load Tap Changer.

cash receipts to Regional Accounts Office (RAO), Durg (now RAO of CSPDCL) immediately. However, on test check of entries pertaining to cash receipts and cash remittance in respect of the division, we observed that the cash received on eight occasions during the period 20 March 2009 to 17 May 2010 were not remitted to RAO, Durg by the cashier. This fact was also overlooked by the DDO due to non-verification of relevant records on periodical basis as per standard practice. Thus, failure of the DDO to verify the cash book regularly led to embezzlement of ₹ 23785 by the cashier. Had the DDO followed the laid down procedures and checked the entries in the cash book, the above incident could have been avoided.

While accepting the audit observation, the Government stated (November 2012) that ₹ 23785 has now been recovered from the wife of the concerned cashier and necessary guidelines have been issued to the dealing assistant and the principal subordinates by the Executive Engineer (Substation) Division, Bhilai.

Audit Committee

2.53 As per Section 292A of the Companies Act, 1956 every public company having paid up capital of not less than rupees five crore shall constitute an Audit Committee. During the financial years 2007-08 to 2010-11, the paid up capital of the Company was below rupees five crore. Hence, the provision relating to constitution of an Audit Committee under Section 292 A of the Companies Act 1956 was not applicable to the Company. However, during the financial year 2011-12, the Company's paid up capital increased to ₹ 650.05 crore but the Company had not constituted any Audit Committee till date (November 2012).

While accepting the audit observation, the Government stated (November 2012) that the Company had initiated the process for constituting the Audit Committee.

Conclusion

The Performance Audit revealed that there were abnormal delays in execution of projects due to deficient planning and non-adherence to the recommendations of Task Force Committee to undertake various preparatory activities in advance/ parallel to project appraisal and approval phase resulting in time overrun ranging between three and 38 months. The main reasons attributed for delay were delay in acquisition of land, non- handing over of site to the contractors, Right of Way problems and lack of clearances from Ministry of Environment & Forest and Railways. Against the targeted addition of transformation capacity by 4419 MVA during the years 2007-08 to 2011-12, the Company could add only 3299 MVA. Bus bar protection panels were not in place to maintain the system. The rate of failure of CTs within normal working life during the last five years upto 2011-12 was 3.58 per cent which indicated that CTs were maintained properly. However, the Company had not taken immediate steps to repair the failed PTs and instead

procured new ones resulting in blocking of funds. From the year 2009-10 onwards, the transmission losses were within the norms fixed by CSERC. 31 out of 55 numbers of 132 KV SSs were not connected to SLDC through RTU for safety and security of Grid. Increase in number of type A/B/C messages indicated that the Company failed to maintain the grid discipline. The Company did not have adequate infrastructure for disaster management and the safety measures at EHT SSs and Switchyards were also not adequate. The Company failed to execute long term Power Transmission Agreement with CSPDCL as well as recover the transmission charges amounting to ₹ 406.22 crore as on 31 March 2012. There was delay in filing tariff petition ranging between 88 and 308 days resulting in deferment of realisation of revenue and consequent loss of interest of ₹ 16.28 crore. The Company had neither laid down any inventory policy nor fixed minimum/ maximum level of stock. The Company had not constituted an Audit Committee though it was a statutory requirement under the Companies Act, 1956.

Recommendations

The Company may

- introduce an effective monitoring system to ensure that all the required approvals are obtained before commencement of the projects;
- ensure adherence to the standards/ norms fixed in the Chhattisgarh State Electricity Grid Code for effective functioning and maintenance of transmission network;
- ensure installation of adequate number of bus bar protection panels to protect the SSs and lines;
- maintain SLDC as per Grid Code and ensure that all EHT SSs are connected to SLDC through RTUs on real time basis for safety and security of Grid;
- provide adequate equipments for safety of EHT SSs and switchyards;
- file tariff petition with CSERC in time for timely realisation of revenue;
- frame an inventory policy clearly indicating minimum, maximum and re-ordering level of various inventories and ensure prompt disposal of the unserviceable/ obsolete items; and
- constitute an Audit Committee as per the provision of the Companies Act, 1956.