Chapter II

2 Performance reviews relating to Government companies

Gujarat Water Resources Development Corporation Limited

2.1 Implementation of Sujalam Sufalam Yojana

Highlights

Against the estimated cost of Rs. 2,063.96 crore for work assigned by the State Government, the Company executed the works costing Rs. 1,127.64 crore during 2003-08. The Company did not complete the works within the stipulated time due to the delays attributable to contractors and also due its own delay in award of contracts/ approval of designs, *etc*.

(Paragraphs 2.1.7, 2.1.12 and 2.1.13)

In management of project fund, the irregularities such as, non surrender of unspent amount of grant of Rs. 2.42 crore to Government and diversion of the same to other works, irregular appropriation of grant Rs. 39.47 crore towards salary and allowances of staff were noticed in audit.

(Paragraphs 2.1.9 and 2.1.11)

Deficient management of contracts resulted in excess payment of Rs. 5.68 crore towards price variation charges to the contractors and non/short recovery of liquidated damages of Rs. 83.23 crore from the contractors.

(Paragraphs 2.1.15 and 2.1.18)

Installation of two spare pumps instead of one each at four pumping stations resulted in idle investment of Rs. 3.92 crore towards the cost of extra four spare pumps.

(Paragraph 2.1.16)

Pumping stations and pipelines were used to lift and transmit 153.27 million cubic metre of water against estimated 1,833.39 million cubic metre of water, based on the created capacity of pumping stations and pipelines. The capacity utilisation of both pumping stations and pipelines was only 8.70 *per cent*.

(Paragraph 2.1.19)

Introduction

2.1.1 Gujarat Water Resources Development Corporation Limited (the Company) was incorporated on 3 May 1971, as a wholly owned Government Company for development of ground water resources through tube wells. The Company is drilling and operating tube wells at various places of Gujarat as per the State Government directions. The State Government conceived (February 2004) Sujalam Sufalam Yojana (SSY) for diversion of surplus water from Central/Southern regions of State to ten water deficient districts[♣] located in North Gujarat, Saurashtra and Kachchh regions with a view to meet their domestic and irrigation water requirements. SSY was scheduled to be completed by December 2005. The State Government assigned (2003-05) some components of SSY *viz.,* the construction of pumping stations and laying of bulk water transmission lines with distribution network, construction of check dams on rivers and deepening of ponds/drains *etc.,* to the Company for implementation.

The management of the Company is vested in the Board of Directors (BOD). The Managing Director (MD) is the chief executive of the Company and is assisted by six Superintending Engineers, one Financial Advisor *cum* Company Secretary and one Administrative Officer.

Scope of audit

2.1.2 The performance audit conducted during December 2007 to April 2008 covers the Company's activities related to implementation of SSY components during 2004-08. The Company had five circle offices[©] (COs) and 14 division offices (DOs) under it, of which 10 division offices[♦] were associated with SSY. Audit examined the records kept at Company's head office (HO) and five DOs[▽] concerned with execution of more than 90 *per cent* of the value of works of SSY done upto March 2008.

Audit objectives

2.1.3 The audit objectives of the review were to ascertain whether the:

- Company had undertaken the works under SSY as per the guidelines of State Government;
- Receipt and utilisation of funds for the works of SSY were made in accordance with specific guidelines of the State Government and General Financial Rules;

[♣] Ahmedabad, Banaskantha, Dahod, Gandhinagar, Kachchh, Mehsana, Panchmahal, Patan, Sabarkantha and Surendranagar.

[©] Superintendent Engineer (Mech), Ahmedabad, Superintendent Engineer (Civil), Ahmedabad, Superintendent Engineer, Kherwa, Superintendent Engineer (Geology), Gandhinagar and Superintendent Engineer (SSY), Gandhinagar.

[♦] Ahmedabad (2), Deesa (2), Gandhinagar (2), Kherwa (1), Nadiad (1), Rajkot (1), Vadodara (1).

[▽] Ahmedabad (2), Gandhinagar (2), Kherwa (1).

- Implementation of the works *viz*., preparation and invitation of tenders, evaluation of bids, award of contracts and management of contracts were done in efficient, economic and effective manner;

- Operation & maintenance (O&M) arrangement was made for the assets created under SSY; and

- Internal control system of the Company was sensitive to highlight variations in the estimates, work standard *etc.*, for taking timely corrective action.

Audit criteria

2.1.4 The following audit criteria were adopted:

- State Government notifications/guidelines for the implementation of SSY;

- Terms and conditions in releasing Government grants and General Financial Rules of the State Government;

- Detailed Project Reports and decisions of BOD/MD;

- Financial and physical targets fixed for implementation of SSY; and

- Terms and conditions of the agreement entered with contractors for execution of works.

Audit methodology

2.1.5 Audit followed the following mix of methodologies:

- Scrutiny of agenda notes/resolutions of High Level Technical Committee/Tender and Projects Committee/BOD meetings;

- Scrutiny of draft tender papers, technical and administrative sanctions, evaluation of bids, copy of contracts, work orders, measurement books, running account bills (RA); and

- Review of progress reports on the works executed, correspondence with State Government/contractors and interaction with management.

Audit findings

2.1.6 Audit findings were reported to the Company and the Government in June 2008 and discussed in the Audit Review Committee of Public Sector Enterprises (ARCPSE) held on 10 September 2008 which was attended by Principal Secretary (Water Resources) to Government of Gujarat, Special Secretary & Chairman of the Company and MD of the Company. The views expressed by them have been considered while finalising the performance review.

Audit findings are discussed in succeeding paragraphs.

Project planning

2.1.7 The Narmada, Water Resources, Water Supply and Kalpsar Department of the State Government had prepared (February 2004) the project report for SSY. SSY envisaged construction of 337 Km Sujalam Sufalam Spreading Canal (SSSC) traversing through seven districts[♣] to carry estimated 700 million cum of flood water from Kadana dam (Panchmahal) to Banaskantha. Further, it was planned to lay pipe lines from Narmada Main Canal (NMC) (running parallel to SSSC) for lifting and transmitting one million acre feet water of NMC to SSSC and also to nine reservoirs[#] situated in northern region of the State. Other works envisaged are construction of check dam on rivers (Kadana to Banas river basin), deepening of ponds/drains, laying of bulk water transmission lines and distribution network in the ten districts.[∞]

The State Government granted (March 2004) in principle approval for implementation of SSY with an estimated cost of Rs. 6,237.33 crore. The State Government departments *viz.,* a) Water Resources b) Water Supply and c) Agriculture are implementing works of SSY related to irrigation (Rs. 4,241 crore), domestic water (Rs. 1,946.33 crore) and construction of *khet talavadis*[♦] (Rs. 50 crore) respectively. The Water Resources Department had assigned (2003-05) certain components of SSY related to irrigation, with cost estimation of Rs. 2,063.96 crore to the Company with a stipulation to complete them by December 2005. Thus, the Company had no role in the planning components of SSY.

The Company could not complete the work in time.

Against the estimated cost of Rs. 2,063.96 crore works assigned, the Company executed the works costing Rs. 1,127.64 crore during 2003-08 as given in ***Annexure 9***. The Company could not achieve this in time (December 2005) due to various reasons such as delay in award of contracts, delay in approval of design, slow progress of work due to delay in releasing payment to the contractors and also due to the delay attributable to the contractors as discussed in detail in the succeeding paragraphs.

Project finance

2.1.8 The State Government released (2003-08) grant of Rs. 1,131.02 crore to the Company for carrying out works related to irrigation component of SSY. Details of work wise receipt and utilisation of grant during 2003-08 are given below:

♣ Banaskantha, Gandhinagar, Kheda, Mehsana, Panchmahal, Patan and Sabarkantha.

Dantiwada, Dharoi, Ghuhai, Hathmati, Meshwo, Mazam, Muktewsar, Sipu and Watrak Dam.

∞ Ahmedabad, Banaskantha, Dahod, Gandhinagar, Kachchh, Mehsana, Panchmahal, Patan, Sabarkantha and Surendranagar.

♦ Small ponds for storing water during monsoon.

(Rs. in crore)

Name of work	Funds	
	Received	**Utilised**
Laying of pipelines	972.09	971.06
Construction of check dams:		
Big check dams	44.66	43.49
Check dams under SPPWCP[↓]	21.62	24.07
Distribution network of SSSC	38.99	37.57
Deepening of ponds/ network planning/ extension of command area	16.25	13.24
Maintenance & Repairs for pipelines	37.41	38.21
Total	**1,131.02**	**1,127.64**

Non-surrendering of unspent grant

2.1.9 The Company had received Rupees five crore for deepening the ponds under SSY during 2004-05, out of which the Company spent only Rs. 2.58 crore during 2004-06 for deepening of 34 ponds. In April 2006, the State Government decided to do the work departmentally. As such the Company had an unspent grant of Rs. 2.42 crore since April 2006 which should be surrendered to Government as per GFR rules 154(5) (ii). On the contrary, the Company diverted this balance fund for other components of SSY. No justification was on record for non-surrendering of unspent grant.

An unspent grant of Rs. 2.42 crore was not surrendered and was diverted for other works.

Loss of interest due to improper fund management

2.1.10 As per terms of contract awarded (February 2005) to Larsen and Toubro Limited (L&T), the Company should release secured advances to the contractor on security of the materials brought to site for providing and laying of MS pipelines from NMC (chainage 312.60 KM) Modhera to Dharoi dam. The Company releases advance by drawing funds from company's Liquid Deposits (LDs) kept with GSFS[*] (carrying four *per cent* interest). The funds deposited in LDs can be withdrawn by giving one day notice to GSFS. The Company had drawn Rs. 50 crore on 24 March 2005 from its LDs for paying secured advance to L&T and kept the same in current account of a bank till (28 April 2005) checking the quality of material by the competent laboratory. As the quality of material was not as per specification, the Company did not release secured advance to L&T. The Company should have drawn Rs. 50 crore only after checking the quality of material brought to site. Thus, premature drawl of funds resulted in loss of Rs. 19.18 lakh[ϒ] since the fund was lying in current account during 24 March to 28 April 2005.

Premature drawal of funds of Rs. 50 crore led to loss of interest of Rs. 19.18 lakh.

The Management/Government stated (July/August 2008) that keeping in view the request made by L&T on 22 March 2005 for release of advance at the fag end of the financial year 2004-05 and also to ensure the progress of work; it had withdrawn the funds on 24 March 2005. As L&T was unable to get the

[↓] Sardar Patel Participatory Water Conservation Programme forming part of SSY.
[*] Gujarat State Financial Services Limited- a State PSU.
[ϒ] Calculated on Rs. 50 crore at the rate of four *per cent* per annum for 35 days.

supply from its supplier due to some reasons, the funds were to be kept in the Company's current account. The reply indicates that the advance was drawn hurriedly as the secured advance becomes payable only when the material is brought to site and duly checked and valued by the engineer in charge of work.

Irregular appropriation of grant

Grant of Rs. 39.47 crore was irregularly appropriated for payment of salary and allowances of staff.

2.1.11 During 2003-08 the Company spent Rs. 1,127.64 crore (March 2008) under SSY. These funds were released by the State Government only for carrying out construction works. The Company, however, charged an amount of Rs. 39.47 crore towards salary and allowances of staff of 10 divisions of the Company executing the works of SSY. The Company had not obtained specific approval of State Government for appropriating the expenditure of Rs. 39.47 crore. Thus, the appropriation of grant of Rs. 39.47 crore was irregular.

The Management/Government stated (July/August 2008) that as per para 10.2.32 of Central Public Works Accounts Code every payment made to a member of the 'Work Charged Establishment' on account of salary and allowance should be debited to the 'Work in which he was employed'. Since the Company was assigned with SSY work the expenditure in this regard was charged under SSY. Further, the Company's BOD also decided (February 2005) to book salary and allowances of the concerned staff deployed for SSY work and also intimated its decision to State Government. The fact remains that appropriation for staff expenditure from grant was made by the Company without any specific provision in the estimate of SSY or approval of the State Government.

Project implementation

Delay in award of work

Contracts were awarded with a delay ranging from four to twenty nine months.

2.1.12 The State Government while assigning (March 2003 to November 2004) to the Company various works *viz,* laying of pipelines from NMC to SSSC, from NMC to reservoirs, construction of structure for SSSC, construction of check dams, ponds, stipulated 31 March 2005/December 2005 as targeted dates of completion of works. The Company, however, did not have any comprehensive plan for implementation of SSY works indicating the mile stone for approval of draft tender documents, invitation of tender, award of work *etc*. The Company, awarded contracts for the works with a delay ranging from four to twenty nine months[£] as per details given in ***Annexure 10***. In three cases contracts worth Rs. 30.79 crore were awarded even after expiry of 12 to 25 months from targeted date for completion of works. It could be seen from ***Annexure 10*** that delays were caused mainly due to excessive time taken in granting technical sanction, and award of works after receiving the bids. Reasons for the delay in award of works *viz.,* construction of check

[£] Even after considering three months time for survey, preparation of estimate, invitation of tenders and evaluation of bids.

dams/railway structure, deepening of ponds and deepening/widening of drains (Sl.No.3 to 6 of ***Annexure 10***) were not made available to audit.

The Management/Government stated (July/August 2008) that considering the works assigned to the Company during different period and various procedures to be followed as per Government rules, the Company had not delayed awarding of works. The fact remains that the Company had not made plans to complete the works as per scheduled dates. Moreover, the cases cited in audit i.e., inordinate delays in granting technical sanction and evaluation of bids indicate the internal inefficiency of management and not the cases of delay occurred due to adherence of Government rules.

Delay in execution of works

2.1.13 The various works awarded to the contractor, value of works, date of completion of works and delay in completion are given in ***Annexure 11***. During 2004-06, the Company awarded twelve major contracts valued at Rs. 907.58 crore meant for laying six pipelines[¥] and construction of nine pumping stations under SSY. Of these, in four contracts[€] (*i.e.,* laying of four pipelines including construction of one pumping station each) the scheduled dates for completion were June/August 2006. The works were actually completed in July/December 2007 with delays ranging from 354 to 578 days. In case of remaining eight contracts, the works were completed with the delays ranging from 187 to 589 days. The delays were attributable both to the Company and the contractors. The Company, however, considered the entire period of delay due to reasons beyond the control of contractors and the Company. In case of delay attributable to the contractors, the Company condoned the delay and granted extension of time without levy of LD which is discussed in detail in paragraph 2.1.18 *infra*. Further, the Company did not give the details, *viz.*, date of award work, stipulated/ actual date of completion of works, delay and its causes for the works of construction of check dams under SPPWCP (Sl. No. III of ***Annexure 11*)**.

Works were completed with a delay ranging from 187 to 589 days against the stipulated date of completion.

The Management/Government stated (July/August 2008) that heavy flooding due to monsoon of 2005/2006, interaction with other authorities and non approachability of sites were the reasons for these delays which were not in the control of the Company and the contractors. As works under SPPWCP were done through award of contracts by the beneficiaries/NGOs themselves, the Company did not have any contractual relation with the contractors for levy of LD. The reply is not acceptable as all the reasons cited above are not only foreseeable/incidental but also the loss of time on this account is factored in while fixing the duration of the contracts. Regarding SPPWCP, as the funds were routed through the Company, it should have monitored the timely completion of works by compiling the relevant data on these works and should have released funds to the beneficiaries/NGOs after exercising due diligence.

[¥] NMC near village Adundra, Jalundra, Modhera and Khorsam to SSSC: NMC near village Modhera to Dharoi Dam and NMC near village Khorsam to Saraswati Barrage.

[€] NMC near village Adundra, Jalundra, Modhera and Khorsam to SSSC.

Delay in conducting hydraulic test

2.1.14 As per terms of contracts awarded for laying pipelines and installation of pumping stations, the contractors were required to look after the operation and maintenance (O&M) of the pipelines and pumping stations for a period of two/three years upon the completion of the works. Hence, before the commencement of O&M works, the Company should first arrange for conducting the hydraulic test by the contractors upon the physical completion of the works assigned to them.

Hydraulic test of pipelines was conducted with a delay ranging from 71 to 331 days.

In case of NMC to SSSC - Khorsam, though the work was completed on 3 April 2007, the hydraulic test was not conducted (September 2008). In case of remaining pipelines works, though the works were completed physically, the hydraulic test was conducted with a delay ranging from 71 to 331 days as given below:

Name of pipeline	Date of completion of work	Date of completion of hydraulic test	Delay in hydraulic test (Days)
Modhera Dharoi pipeline	30 June 2007	26 May 2008	331
NMC to SSSC- Adundra	31 July 2007	4 February 2008	188
NMC to SSSC-Jalundra	31 October 2007	20 March 2008	141
NMC to SSSC -Modhera	31 December 2007	11 March 2008	71

Inordinate delay on the part of the Company in arranging for hydraulic test led to belated commencement of O&M part of contract. Consequently, the delay would also occur in handing over these pipelines to State Government after the completion of O&M period of the contracts.

In ARCPSE meeting (September 2008), the Management stated that due to good rain and full reservoir, pumping could not be done and as a result, there were some delays in arranging for the hydraulic test. The reply is general and the fact remains that there were inordinate delays which indicates deficient planning of the Company in ensuring the timely completion of hydraulic test.

Improper adoption of steel rate

2.1.15 As per terms of contract for payment of PV charges, SAIL price for steel per MT of the month in which the Company approved the draft tender papers (DTP) for awarding any work should be taken as 'base (star) price'. While deciding the PV charges every quarter, the Company will pay the difference between the base price and 'relevant quarter price' per MT of the steel for the quarter under consideration on the quantity of the steel consumed for the work. The Company's BOD decided (January 2005) that if steel is purchased in a quarter and is consumed in the next quarter, the lowest of the following would be considered as 'relevant quarter price' for payment of PV charges:

- Quarterly average rate (QAR) in the quarter in which steel is consumed.

- Quarterly lowest rate of steel purchased by the contractor in the quarter in which material is procured (as per bill produced by the contractor).

- Quarterly lowest rate of steel purchased by the contractor in the next quarter in which material is actually consumed (as per bill produced by the contractor).

Improper adoption of steel rate led to excess payment of price variation charges of Rs. 5.68 crore.

It was found in Audit that the Company did not follow this BOD decision in four[#] contracts which were awarded (June/July 2005) for laying of MS pipelines. The Company instead of considering quarterly average steel rate of SAIL in the quarter in which steel was consumed considered the quarterly average steel rate of SAIL in the quarter in which steel was purchased. As a result, 24,430.258 MT steel procured in the quarter of July-September 2005 and October-December 2005 and used[ƒ] in January-March 2006 was valued at higher rate (ranging between Rs. 1,496 and Rs. 3,496 per MT) than that of steel procured and used in January-March 2006 quarter. This has resulted in excess payment of PV charges by Rs. 5.68 crore.

The Management/Government stated (July/August 2008) that BOD while taking the decision also directed the Company to take suitable decision keeping its financial interest while approving the DTP for the works. The steel price was rising since January 2005. Hence, for the Company's financial interest, it had adopted the norm of QAR in the quarter in which steel was 'purchased' instead of 'consumed' while approving the DTP of the works which was also reviewed (February/March and April 2005) by BOD meetings. The fact remains that the management violated the BOD's approved criteria for PV and suffered loss. If the management wanted to change the criteria for PV it should have sought prior approval from the BOD after bringing out all the possible pros and cons of the new criteria. Further, the management did not bring to the notice of the BOD the fact that the original norms were changed; instead the BOD was misled in their subsequent meetings (February/March/April 2005) by stating that price variation norms as approved in BOD meeting of January 2005 were adhered to.

Loss due to provision for avoidable extra spare capacity

2.1.16 The Company had a practice to install one spare pump to each pumping station. The Company, however, installed two spare pumps at each pumping station attached to the following two pipelines laid from NMC to reservoirs:

- In Khorsam (NMC chainage 326.40 KM) to Mukteshwar dam pipeline-pumping station at Khorsam.

- In Modhera (NMC chainage 312.60 KM) to Dharoi dam pipeline-pumping stations at Modhera, Motidau and Rasulpur.

[#] NMC near village Adundra, Jalundra, Modhera and Khorsam to SSSC.
[ƒ] 24,413 MT steel consumed in Jan-March 2006.

The additional spare pumps at these pumping stations were installed despite their requirement to cater to lower demand compared to other pumping stations. Further, all the pumping stations lifting water from NMC were designed to run approximately 210 days in a year.

An idle investment of Rs. 3.92 crore was made due to installation of extra spare pumps.

As the Company provided two spare pumps instead of one each at the above four pumping stations, this resulted in idle investment of Rs. 3.92 crore[*] towards the cost of extra four spare pumps.

The Management/Government stated (July/August 2008) that in Khorsam to (Saraswati) Mukteshwar dam pipeline, Madhu Pavadi check dam constructed on Saraswati river, water was required to be fed up throughout year since it was a holy place and ground water discharge was also more in that area. In Modhera to Dharoi, continuous pumping of water was to be carried out in pipeline having 88.75 km length with head discharge of 222 metre. Hence, two spare pumps at each pumping stations were attached to these two pipelines. The reply is not acceptable as details of water lifted and transmitted through these pipelines (Sl.no. 1, 3, 4 and 5 of ***Annexure 13***) indicate that the pipelines were not used throughout the year and the actual utilisation was ranging from 8.31 to 14.04 *per cent* only. The average length of Modhera to Dharoi pipeline between each pumping station is 29.6 km and its head discharge is 74 metre, whereas the average length and head discharge of each feeder pipeline passing from NMC to SSSC is of 29.45 km and 82.5 metre. Despite this the feeder pipeline got one spare pump only.

Execution of excess works without prior approval of the competent authority

2.1.17 As per the Company's delegation of powers related to sanctioning of excess value of work over and above provided in the contract, prior approval of MD of the Company is required if the value of excess items is Rs. 30,000 and above. Audit observed that in the contract for providing and laying of pipeline from Modhera to Dharoi dam awarded (February 2005) to L&T, the Executive Engineer of concerned division[•] permitted L&T (March 2005 to October 2007) to undertake various excess items of works each exceeding Rs. 30,000 amounting to Rs. 77.11 lakh without obtaining the prior approval of MD. Further, even post facto approval was not taken (March 2008) for these items of works even though the works were completed in October 2007.

In ARCPSE meeting (September 2008), the Management accepted the audit contention and later furnished (October 2008) copy of the post facto approval accorded by MD on the excess value of work executed to the extent of Rs. 18.39 lakh. The fact, however, remains that not only the internal control system was lacking but also the post facto approval was still awaited for the remaining work of Rs. 58.72 lakh (September 2008).

[*] Khorsam Rs.1.70 crore, Modhera Rs. 84 lakh, Motidau Rs. 70 lakh and Rasulpur Rs. 68 lakh.
[•] Gujarat Water Resources Division, Kherva.

Non/short recovery of liquidated damages

Liquidated damages for Rs. 83.23 crore was non/short recovered from contractors.

2.1.18 The contracts made by the Company for implementation of SSY, provided for levy of liquidated damages (LD) for delay in completion of works. Audit noticed that the Company had not levied/ short levied the LD amounting to Rs. 83.23 crore in the cases discussed below:

As per terms of the contract awarded for eight works as given in ***Annexure 12***, if the contractor fails to complete the work by the stipulated date, the liquidated damages (LDs) at the rate of 0.1 *per cent* of the contract value per day from the date of delaying of the work upto the date of its completion would be recovered from the contractor. Further, the aggregate amount of LD calculated as above should not exceed 10 *per cent* of estimated cost of the work. The Company awarded (2004-06) various contracts with duration for completion ranging nine to twelve months including a provision of three months for monsoon period.

- Audit observed that the Company granted EOT ranging from 187 to 589 days beyond the stipulated date of completion of these contracts. Analysis of the reasons revealed that the delays were attributable both to the Company and to the contractors. The Company, however, while granting EOT did not levy LD even for the delays of 30 to 154 days attributable to the contractors *viz.,* procurement of materials for the work, slow progress in execution of work (*viz.,* site survey, site grading). Further, EOT were granted for the reason of monsoon though the same was already provided for in the duration of contract fixed originally. This resulted in non-levy of LD amounting to Rs. 80.27 crore as per the details given in ***Annexure 12*****.** The granting of EOT without levy of LD lacked justification.

The Management/Government stated (July/August 2008) that heavy flooding due to monsoon of 2005/2006, interaction with other authorities and non approachability of sites were the reasons for these delays which were not in the control of the Company and the contractors. All the reasons cited above are not only foreseeable /incidental but also the loss of time on this account are factored in while fixing the duration of the contracts. Thus, the Company should have recovered LD from the contractors whenever they pleaded for EOT for these reasons.

- The Company awarded (June 2004) the contract for laying pipeline from Khorsam (NMC chainage 326.40 KM) to Sarswathi (barrage) to firm 'N'[+] at a cost of Rs. 99.54 crore with a stipulation to complete the work by 7 June 2005. On the plea of delay in getting excise exemption certificate, clearance from Forest Department/ Railways/ BSNL and additional length of pipeline beyond scope of work, firm 'N' requested (October 2005) for EOT up to 30 November 2005. Pending decision on the request, firm 'N' completed the work on 20 February 2006. The Company's BOD (March 2006) granted EOT up to 5 November 2005

[+] Nagarjuna Construction Company Limited, Gurgaon.

to firm 'N' without levy of LD and also decided to recover LD from 6 November 2005 till the completion of work.

Audit observed that firm 'N' executed the work of Rs. 17.34 crore during 6 November 2005 to 20 February 2006. As such, for the delay of 107 days, the Company should have recovered LD of Rs. 1.73 crore based on the value of balance work as per tender conditions. But, the Company had recovered (June 2006) only Rs. 2.05 lakh from firm 'N'. Thus, there was a short recovery of LD by Rs. 1.71 crore.

The Management/Government stated (July/August 2008) that in audit the value of work done was taken based on RA bills, but firm 'N' had executed the works as per original contract value of Rs. 99.54 crore till 5 November 2005. The reply is not supported by documents. The immediate RA bill preceding the date of EOT *i.e.* 5 November 2005 was passed on 17 October 2005. The Company, however, had not furnished the details of measurement done on the works executed between 17 October 2005 and 5 November 2005. In the absence of which the date of actual completion of work (20 February 2006) as mentioned in the final RA bill dated 9 June 2006 was taken in audit.

- The Company awarded 151 contracts for construction of 151 Check dams (costing Rs. 15 lakh to Rs. 1.27 crore per dam) on rivers to various contractors during April 2004 to June 2006. The duration of each contract was for six months. The Company's BOD while discussing (6 March 2006) about the construction of check dam came to a conclusion that the check dam was a small work and could be done in time, if the contractor deployed sufficient manpower and machinery. Accordingly, the BOD decided that in case of delays in construction of the check dams, the LD should be recovered as per the terms for the contracts awarded. Out of total 151 contracts, in case of 45 contracts the stipulated period for completion was from March 2005 to June 2006. However, mainly on the reason of unapproachable site the works were delayed for the period ranging from 7 to 557 days for which LD worked out to Rs. 1.13 crore.

  Audit observed that disregarding the BOD decision of 6 March 2006, two divisions[#] supervising the execution of the above contracts, had submitted (November 2005 to March 2008) the proposals to the MD for waiver of LD for the delay in execution of the contracts. The MD's decision on the proposal was awaited (March 2008). The divisions should have recovered the LD from the contractors as per BOD decision. Thus, non recovery of LD of Rs. 1.13 crore over a period of two years and five months (November 2005 to March 2008) on the plea that the waiver proposal was under consideration, was not justified.

The Management/Government stated (July/August 2008) that in the BOD meeting held on 6 March 2006 the discussion was held with reference to some 16 check dams and LD was recovered in these cases. Every work got different

[#] Ahmedabad and Deesa.

reasons for the delay and hence, recovery of LD should be done on case to case basis. In respect of 45 check dams, the proposals for EOT works were under process for obtaining the approval of competent authority. However, the conclusion arrived at by the BOD on 6 March 2006 was a kind of principle decision indicating clearly that granting of EOT was unwarranted since check dam work could be done in time with sufficient deployment of manpower/ machinery.

- The Company awarded (May 2005) Mahesh and Company, Ahmedabad (firm 'M') the contract for construction and insertion of RCC box pushing under railway line near Talod on Ahmedabad-Khedbrahma section of Western Railway for the canal works at Chainage 139.61 km of SSSC for Rs. 1.86 crore. The stipulated date for completion was 14 January 2006. Firm 'M' executed work of Rs. 44.59 lakh up to January 2007 and the Company terminated (February 2007) the contract due to slow progress of work. The Company had recovered Rs. 18.05 lakh against due recovery of Rs. 30.24 lakh (Rs.15.12 lakh towards LD and Rs. 15.12 lakh towards forfeiture of Security Deposit and Performance Bond). The balance dues Rs. 12.19 lakh were not recovered though various deposits of Rs. 18.72 lakh were available with the Company against other ongoing work of firm 'M'.

The Management stated (October 2008) that against the order for termination of the contract, firm M filed petition in Honorable High Court of Gujarat and hence the matter was subjudice. The fact is that the firm M filed the petition only in February 2008. The Company, however, could have taken action for recovery of the balance dues from the deposits of the other ongoing works of firm M, immediately on the termination of this contract in February 2007.

Utilisation of pumping stations and pipelines

2.1.19 The Company had installed nine pumping stations (PSs) attached to six pipelines laid from NMC to SSSC or to reservoirs. Details on the working of the PSs during the period of its operation from September 2005 to March 2008 are given in ***Annexure 13***. The PSs were designed to run approximately 210 days in a year and lift and transmit 200/300 cusecs of water from NMC to SSSC or to reservoirs. Based on the created capacity of PSs and pipelines during the period, 1,833.39 million M^3 of water was estimated to be lifted and transmitted. Against this 153.27 million M^3 of water was actually lifted and transmitted. Thus, capacity utilisation of both PSs and pipelines was only 8.70 *per cent*. Further audit analysis made in this regard indicated the following:

Actual utilisation of pumping stations and pipelines was only 8.70 *per cent* against the estimate.

- Though two PSs at Khorsam and Hansapur for lifting and transmitting the water for Khorsam to Sarswathi (barrage) pipeline were operating for the last 31 months, their capacity utilisation remained between 14.04 to 19.86 *per cent* only.

- In three PSs at Modhera, Motidau and Rasalpur installed for Modhera-Dharoi dam pipeline, the capacity utilisation for the last 11 months ranged between 8.31 to 11.14 *per cent* only.

- In remaining four PSs each attached to four pipelines from NMC to SSSC, the capacity utilisation for the last 11 months remained between 1.58 to 7.83 *per cent* only.

- Each of the above PSs had arrangement for the power supply with contract demand ranging from 1,200 to 10,500 KVA. As per terms and conditions for power supply entered with erstwhile GEB/ Uttar Gujarat Vij Company Limited, Mehsana the PSs have to pay demand charges either on the actual registered demand or on 85 *per cent* of contract demand whichever was higher. Of the nine pumping stations, two PSs (Sl.no.1 and 2 of ***Annexure 13***) had actual registered demand less than 85 *per cent* of contract demand in all the months (31 months) during which it was operated. Rest of the PSs (referred at Sl. no. 3 to 9 of ***Annexure 13***) had actual registered demand less than 85 *per cent* of contract demand for seven to 10 months against 11 months during which these were operated. The total demand charge paid by all the PSs during September 2005 to March 2008 was Rs. 13.92 crore.

The Management/Government stated (July/August 2008) that due to unprecedented heavy rains during 2005 and 2006 the irrigation through canal was not required by Irrigation department. Hence, pipelines to reservoirs and pumping stations were underutilised. Due to non-completion of SSSC and its related structures, the four pipelines from NMC to SSSC remained underutilised. In respect of contract demand, the requirement for power would be evaluated on the expiry of one year working period after completion of SSSC work which was being carried out by State Government. Audit observes that the purpose of SSY is to transfer the surplus water from NMC/Kadana dam to other reservoirs. This surplus water would be available during monsoon only. Thus, through proper planning the water could have been taken to the needy places. Further, due to non synchronisation of various activities of SSY between State Government and the Company resulted in underutilisation of pipelines from NMC to SSSC.

Internal control/internal audit

2.1.20 The following points require attention in respect of internal control/internal audit:

- The Company did not have any comprehensive plan for implementation of SSY works indicating the mile stone for approval of draft tender documents, invitation of tender, award of work *etc.*

- The periodical progress reports submitted from the division relating to execution of SSY works were not analysed and discussed in any forum to have a better control over the various activities.

- The scope of work assigned to Internal Auditor of the Company during the year 2003-08 did not cover the work relating to physical verification of the assets created under SSY.

Monitoring and corporate governance

2.1.21 As per Section 292 A of the Companies Act, 1956, the Audit Committee (AC) is to be formed in the public limited company and is required to have periodical discussions with the company's auditors about the internal control system, scope of audit, audit observations and also to review half yearly/annual financial statements before submission to the BOD of the company.

A mention was made *vide* paragraph 4.19.14 of the Report of the Comptroller and Auditor General of India for the year ended 31 March 2005 (Commercial) – Government of Gujarat, about non attendance of AC meetings by Internal Auditors (IA) and Statutory Auditors (SA) of the Company since the management did not invite them for the meeting upto 2004-05.

Subsequently, during 2005-06 to 2007-08, though the Company invited the SA and IA for the seven AC Meetings held, the IA and SA did not attend five and four meetings respectively.

Like wise, the non-attendance of non-executive directors in the BOD meeting of the Company was also mentioned *vide* paragraph 4.19.9 of the above mentioned report. Besides, the State Government also issued (April 2003) instructions to all the state PSUs that the Government Directors in the BOD of the PSU should attend minimum of 50 *per cent* of BOD meetings held in a year. Despite this, during the year 2005-06, 2006-07 and 2007-08, out of twelve, four and four number of BOD meetings held, one non executive director each in the year 2005-06, 2006-07 and 2007-08 had not attended the prescribed number of meetings.

The Management/Government agreed (July/August 2008) to take necessary action for ensuring attendance of IA and SA and non-executive directors in future AC meetings and the BOD meetings respectively.

Acknowledgement

Audit acknowledges the cooperation and assistance extended by different levels of the Management at various stages of conducting the performance audit.

Conclusion

The Company's role in implementation of SSY is not only intermediary but also limited. The Company did not have any comprehensive plan for execution of SSY works indicating various milestones for various activities, such as approval of Draft Tender Papers, invitation of tender, award of work *etc.* Deficiencies mainly in management of contracts *viz.,* delay in award of works, excess payment of price variation charges to the contractors, non/short recovery of liquidated damages from contractors, installation of extra spare pumps, delay in arranging for hydraulic test, under utilisation of pumping stations and pipelines were noticed in audit.

Recommendations

- **The Company should prepare comprehensive plan for execution while taking up any future assignment under SSY or similar projects.**

- **The Company should devise a system for compilation of required data for correct working of price variation.**

- **The Company should review excess payments of price variation charges and non/short recovery of liquidated damages for effecting recovery from the contractors.**

- **The Company should explore the possibility for increasing the utilisation of pumping station and pipelines.**

Sardar Sarovar Narmada Nigam Limited

2.2 Commissioning of River Bed and Canal Head Power Houses

Highlights

The estimated cost of construction and commissioning of hydro power houses of Sardar Sarovar Project (SSP) increased from Rs. 979.95 crore in 1986-87 to Rs. 3,076.79 crore in 2005-06. Against the scheduled commissioning of the units of River Bed/ Canal Head Power Houses during August 1994 to April 1996, the units were commissioned only during August 2004 to June 2006.

(Paragraph 2.2.7)

An amount of Rs. 2,717.82 crore and Rs. 8.42 crore towards share of Capital/ Operation and maintenance cost of power project remained to be recovered from the participating States of power project, namely, Madhya Pradesh and Maharashtra.

(Paragraphs 2.2.9 and 2.2.10)

In the management of contracts related to civil and electrical works for the construction/commissioning of power houses, instances of extra expenditure for Rs. 58.70 crore due to incorrect fixation/revision of rates in the contracts were noticed.

(Paragraphs 2.2.13, 2.2.14, and 2.2.15)

In the absence of any clause in the agreement entered with BHEL for procurement of power project equipments, the Company was unable to avail the benefit of refund of terminal excise duty of Rs. 13.62 crore available under Export Import (EXIM) policy 1997-2002.

(Paragraph 2.2.20)

The auxiliary consumption and transformation loss of the units of both River Bed/Canal Head Power Houses exceeded the norms fixed in this regard by Central Electricity Regulatory Commission. This led to loss of 80.995 million units of power.

(Paragraph 2.2.26)

No system was in place to effectively monitor and control the operational and other expenditure incurred by the Operator for running the power houses. Adequate seismological monitoring mechanism is not in place and the power houses were not insured against any peril.

(Paragraphs 2.2.24 and 2.2.29)

Introduction

2.2.1 The Union Ministry of Water Resources constituted (October1969) the Narmada Water Disputes Tribunal (NWDT) for adjudication of disputes over the use, distribution and control of the waters of interstate river Narmada among the states of Madhya Pradesh, Maharashtra, Gujarat and Rajasthan. The NWDT gave its award in August 1978 and December 1979. As per the award, Government of Gujarat (GoG) or its nominee was to execute and operate the Sardar Sarovar Project (SSP). SSP envisaged construction of dam and appurtenant works (Unit-I); canals (Unit-II) and hydro power project (Unit-III). Unit-III comprised an underground River Bed Power House (RBPH) having six units of 200 MW each, a surface Canal Head Power House (CHPH) having five units of 50 MW each, a switch yard complex and power transmission network.

Further, as per the award, an interstate authority called Narmada Control Authority (NCA) started functioning since December 1980 for ensuring compliance to the decisions and directions in the award. The NWDT also formed (August 1978) Narmada Review Committee (NRC) to review and suspend any decisions taken by the NCA. Union Minister of Water Resources is the Chairman and the Chief Minister of each beneficiary States[∇] is the member of NRC. The Union Government constituted (September1980) Sardar Sarovar Construction Advisory Committee (SSCAC) to ensure efficient, economical and timely execution of dam and hydro power works. The Secretary of Irrigation, Union Government is the Chairman of SSCAC and Chairmen of the Central Water Commission (CWC) and Central Electricity Authority (CEA) and senior representatives of the beneficiary States are the other members.

GoG also promoted (March 1988) Sardar Sarovar Narmada Nigam Limited (Company) for implementing SSP. Narmada, Water Resources, Water Supply & Kalpasar Department of the State Government supervises and controls the activities of the Company. The work relating to RBPH and CHPH was started in July 1987 and March 1989 and completed in December 2006 and June 1998 respectively. The CHPH was commissioned and synchronised during August-December 2004 and RBPH was commissioned and synchronised during February 2005 to June 2006.

Scope of audit

2.2.2 The performance audit conducted during December 2007 - April 2008 covered the activities related to planning, financing, execution and commissioning of the hydro power project (Unit-III) and its performance. Audit examined the project related records kept at the head office of the Company (Gandhinagar) and all the three field offices[$] (Kevadia) engaged in the implementation of the power project. Though, the execution of the power project spreads over a period of more than twenty years since 1987, Audit

[∇] Gujarat, Madhya Pradesh, Maharashtra and Rajasthan.

[$] Narmada Project Power House Civil Construction Division, Narmada Project Hydro Power Electrical Circle and Narmada Project Hydro Power Mechanical Division.

mainly covered the activities related to the project from April 2003 to March 2008.

Audit objectives

2.2.3 The objectives of the performance audit were to ascertain whether:

- funds were managed economically and efficiently for the project;
- the share of capital and operation and maintenance cost was recovered from the participating States in time;
- the contract management of the Company was efficient and effective;
- the power project was completed and commissioned within the time schedule;
- adequate arrangements were made for efficient operation, maintenance and safety of the power houses;
- power generated and sold was properly invoiced and dues recovered as per terms of power purchase agreement; and
- internal control system of the Company ensured the implementation of the power project in economic, efficient and effective manner.

Audit criteria

2.2.4 The audit criteria considered for assessing the achievement of audit objectives were:

- relevant provisions of award of the NWDT and various agreements including loan agreements, Operation & Maintenance (O&M) agreement and Power Purchase Agreement;
- agenda/minutes of meetings of Board of Directors (BoD), progress/status reports, budgets, Government resolutions, directions, dam safety norms, panel report and Statutory/ Internal Auditors' (IA) reports; and
- Gujarat Electricity Regulatory Commission (GERC)/Central Electricity Regulatory Commission (CERC) norms.

Audit methodology

2.2.5 Audit methodology involved review, scrutiny, and analysis of:

- NWDT award, agenda/minutes of meetings of BoD / SSCAC/ NRC/Permanent Standing Committee (PSC)[∂], quarterly reports/ monthly reports/ status reports/ IA reports *etc.*;
- cost data, project cost, receipt of funds;
- administrative/technical sanctions, tenders, related correspondence and running account (RA) bills;
- norms and guidelines of Union/State Governments, CEA and statutory clearance; and
- power purchase/ O&M agreements.

Audit findings

2.2.6 The audit findings were reported (June 2008) to the Company and the Government and discussed in the Audit Review Committee of Public Sector Enterprises (ARCPSE) held on 26 September 2008 which was attended by Secretary (Narmada) to GoG, Narmada, Water Resources, Water Supply and Kalpsar Department and Managing Director of the Company. The views of the Government and the Management have been considered while finalising the performance review.

Audit findings are discussed in the succeeding paragraphs.

Project finance

Cost and finance for hydro power project

2.2.7 The estimated cost of SSP was Rs. 6,406.04 crore including the hydro power project cost of Rs. 979.95 crore (1986-87 price level). The construction of the power project started in April 1987 and was scheduled for completion in April 1996. As per the implementation schedule (May 1987), six units of RBPH were to be commissioned during August 1994 to April 1996 and five units of CHPH during August 1994 to August 1995. The Company awarded civil work contracts for RBPH /CHPH during July 1987 to March 1989 and also placed procurement order for Pump Turbine & Motor Generator sets (TG sets) in July 1987. The construction and commissioning of the project, however, was delayed due to following reasons:

- Overseas Economic Cooperation Fund (OECF), Japan was to finance for the purchase of TG sets for RBPH costing ¥ 2,464.61 crore. OECF disbursed (November 1990) ¥ 284.70 crore. However, second

[∂] A sub committee of SSCAC which scrutinises estimates, tender documents, construction programme and progress *etc*.

installment of ¥ 1,720 crore applied for (1991) was not received due to some concern over environmental issues related to SSP. Thereafter, the supplier of TG sets *i.e* Sumitomo Corporation, Japan gave supplier's credit for ¥ 2,005.88 crore which the Company availed during March 1999 to January 2005.

- Narmada Bachao Andolan (NBA) filed (April 1994) a writ petition for stopping the construction of dam for various reasons including the environmental issues of SSP in the Hon'ble Supreme Court. The Hon'ble Supreme Court allowed the construction of the dam in a phased manner since October 2000. The construction of dam to the height of 110.64 metres was achieved only in June 2004 which was the minimum drawn down level (MDDL) required for commissioning and operating both RBPH and CHPH.

Due to time overrun, the estimated cost of the project increased from Rs. 979.95 crore to Rs. 3,076.79 crore.

Due to time overrun, the estimated cost of the power project increased from Rs. 979.95 crore (1986-87) to Rs. 2,782.07 crore (2000-01). Further, the estimated cost increased to Rs. 3,076.79 crore in 2005-06. Besides supplier's credit, the Company availed (2004-07) a loan of Rs. 1,001 crore from Power Finance Corporation (PFC) and also got budgetary support of Rs. 305.12 crore from GoG for the power project during 2000-08. After achievement of MDDL in June 2004, the five units of CHPH and six units of RBPH were commissioned during August-December 2004 and February 2005 to June 2006 respectively. Against latest estimate of Rs. 3,076.79 crore, the Company incurred total expenditure of Rs. 2,135.81[f] crore (provisional) upto March 2008.

Non-availing the benefit of reduced interest on loan

2.2.8 PFC sanctioned (January 2005) a term loan of Rs. 1,001 crore for the power project. PFC disbursed the loan during March 2005 to June 2006. Interest rate charged on the loan ranged from 6.8 to 10 *per cent* for different dates of disbursement. The PFC has the right to reset the rate of interest after every three years at its discretion. The loan is to be repaid in sixty quarterly installments beginning from 15 January 2007. PFC while revising interest rate on the disbursements made after 1 January 2006 and 23 May 2006, allowed a reduction in interest rate by 0.25 *per cent* on disbursements made on or after 13 May 2004 from the date of commissioning of the first unit. Since the first unit of CHPH was commissioned in August 2004, the Company was entitled for reduction of interest by 0.25 *per cent* on disbursements made at the rate of 8.75 and 10 *per cent*. The Company, however, continued to pay normal interest without taking reduction benefit on the loan of Rs. 248.72 crore and Rs. 47.23 crore availed after 1 January 2006 and 23 May 2006 respectively. Thus, non availing of benefit of reduced interest rate resulted in loss of Rs. 3.18 crore (March 2008).

Non availing of reduced interest on loan from Power Finance Corporation resulted in loss of Rs. 3.18 crore.

[f] This does not include expenditure incurred on various items like maintenance of civil works, equipment maintenance, *etc.*, which were yet to be accounted in the books. Further, construction of Garudeshwar weir was yet to be taken up.

The Management/Government stated (June/July 2008) that it had taken up the matter with PFC for refund of excess interest charged.

Non payment of share of capital cost of Project by Participating States

2.2.9 As per the Tribunal award (December 1979), the capital cost of the project should be shared among Madhya Pradesh (MP), Maharashtra and Gujarat in the ratio of 57, 27 and 16 *per cent* being the beneficiaries of hydro power project respectively. The capital cost of hydro power project comprises of the following:

- Full cost of hydro power project, the switch yard and transmission lines in Gujarat constructed for supply of power to MP and Maharashtra;
- 56.1 *per cent* of the net cost of common facilities such as dam and appurtenant works; and
- 56.1 *per cent* of credit given to MP for downstream benefits received from Narmadasagar Dam.

Share of capital cost of Rs. 2,717.82 crore is pending realisation from participating States.

As per the above criteria, up to 2007-08, besides the direct expenditure of Rs. 2,135.81 crore on the hydro power project, the apportionment of common expenditure was Rs. 1,314.91 crore. After allocation of expenditure of dam and downstream benefits paid (Rs. 3,247.22 crore), as per above criteria, the total expenditure incurred on the power project was Rs. 6,697.94 crore (March 2008). Out of this, the share of Gujarat State is Rs. 1,071.66 crore. The share of capital cost of participating States, amount received, balance outstanding, disputed expenditure® and balance of undisputed share of participating States are as given under:

(Rs. in crore)

State	Gross share	Total received	Balance share	Disputed share	Balance undisputed
M.P.	3,817.82	2,065.07	1,752.75	1,681.20	71.55
Maharashtra	1,808.46	843.39	965.07	796.37	168.70
Total	**5,626.28**	**2,908.46**	**2,717.82**	**2477.57**	**240.25**

While accepting the facts, the Management/Government stated (June/July 2008) that the share of undisputed dues was small and it had made adequate efforts for its recovery from other States. Regarding disputed dues, these were pending before appropriate authority for their decision.

® Related to the cost of rock filled dykes and link channel works, interest and rehabilitation and resettlements (RR) expenditure.

Non payment of O&M cost by participating States

Share of O&M cost of Rs. 8.42 crore is pending realisation from participating States.

2.2.10 During 2004-08, the power houses transmitted 5,727.72 MUs to MP and 2,713.13 MUs of power to Maharashtra (worth Rs. 1,730.37 crore[∝]) and claimed O&M charges of Rs. 12.93 crore and Rs. 6.13 crore respectively. MP reimbursed Rs. 10.64 crore leaving a balance of Rs. 2.29 crore. Maharashtra had not reimbursed O&M cost of Rs. 6.13 crore (March 2008). Thus, the Company was yet to receive Rs. 8.42 crore from these States.

The Management/Government stated (June/July 2008) that it had made adequate efforts to recover the dues. The fact, however, remains that all the dues from Maharashtra and substantial amount from MP is still outstanding.

Project implementation

Non preparation of revised detailed project report

2.2.11 The Sardar Sarovar (Narmada) Project Report, prepared (January 1980) by the Narmada Project Dam Designs Circle, Vadodara envisaged setting up of River Bed Power House (RBPH) comprising of five units of 150 MW each and Canal Head Power House (CHPH) comprising of six units of 75 MW each (total capacity 1200 MW). The total cost was estimated at Rs. 306.10 crore.

Against the above, the Company set up RBPH comprising six units of 200 MW each and CHPH comprising five units of 50 MW each, thus increasing the total capacity to 1,450 MW. But the Company before going ahead with the revised plan, did not prepare a revised detailed project report (DPR) justifying deviation from original report and appraising water availability, cost estimates, finance pattern, implementation schedule, cost of generation, financial analysis to arrive at tariff structure, auxiliary consumption *etc*.

In the absence of revised DPR, control and monitoring exercised by the Company and its effectiveness could not be evaluated in audit.

Civil works

Excavation, tunneling and other civil works of RBPH

2.2.12 GoG awarded (July 1987) the contract for the work of excavation, tunneling and other civil works of RBPH to Jaiprakash Associates (firm J), New Delhi at a cost Rs. 40.42 crore against estimated cost of Rs. 41.25 crore. As per agreement, the work was to be completed by 6 April 1995. Due to the reasons discussed in paragraph 2.2.7 *supra,* the construction of RBPH was not completed as per schedule. Till April 1995, firm J completed work costing Rs. 27.14 crore (67 *per cent of* awarded work) and left the balance work of Rs. 13.28 crore. Firm J demanded (March 1995) enhancement of rates by 100 *per cent* for completion of the balance work with application of revised price

[∝] Calculated at the rate of Rs. 2.05 per kwh being the rate at which power is sold to GUVNL as per power purchase agreement.

escalation (PE) formula[ر]. Accordingly, the Company along with GoG (January 2000) appointed a committee under the chairmanship of Shri B.J. Diwan, a retired Chief Justice of Gujarat High Court to obtain their advice. The Committee recommended (May 2000) the following:

- extend the time for completion of work;
- enhance the original contract rates effective from 7 April 1995 by 60 *per cent* with base as IV quarter 1985 and apply revised PE formula up to 6 April 1995; and
- further enhance the rates so arrived at by 9.74 *per cent* to compensate for the discontinuance of revised PE formula, after which original contract PE would be applicable.

The Company implemented (November 2000) the recommendations of the Committee and granted extension of time for completion of works of RBPH from 6 April 1995 to 31 October 2004.

Details of amount of work done as per original tender rates up to 6 April 1995, the value of balance work executed at revised rate from 7 April 1995 and the total expenditure incurred (till May 2007) on the work was as under:

(Rs. in crore)

Particulars	Up to 6 April 1995	From 7 April 1995	Total
Work done			
Scheduled items	27.14	89.58	116.72
Extra items[£]	---	59.54	59.54
Total	**27.14**	**149.12**	**176.26**
PE			
On scheduled items	7.59	27.27	34.86
On Extra items	---	20.89	20.89
Revised PE			
On scheduled items	4.72	---	4.72
On Extra items	6.77	---	6.77
Total	**19.08**	**48.16**	**67.24**
Rebate for Power factor			0.12
Compensation on account of abnormal hike in minimum wages			0.33
Total			**0.45**
		Grand Total	**243.95**

Firm J did not complete the work as per schedule (October 2004) and the Company on three occasions granted extension of time up to December 2006

[ر] Under revised PE, enhanced amount of PE was allowed so as to adequately compensate the contractors against the increase in cost of various inputs. It came into effect from 1 October 1990 and remained in force till June 1996.

[£] If the quantities of work under any item exceeds by more than 30 *percent*, then the extra quantity is classified as "extra items" and the rate for which is fixed mutually between contractor and the Company. Items of work not included in the tender, but necessitated subsequently also come under extra items.

on the plea that it was necessitated due to various factors beyond the control of both the Company and firm J. No detailed justification was on record, even though the Company had to make the payments of Rs. 62 lakh on account of PE beyond the price index of scheduled date of completion for the works executed beyond October 2004. The work was completed in December 2006. The audit observations related to this contract are discussed in the paragraphs 2.2.13 to 2.2.16 *infra*.

Excess payment due to incorrect revision of rates

2.2.13 The Company while revising (November 2000) upward the original rates by 60 *per cent* as per directions of GoG, incorrectly calculated and fixed higher rates as under:

- In 110 out of 165 items of works included in the tender, the rate of the item included the cost component of schedule 'A' material issued to the contractor. While revising the rate of each item of the contract, the cost of schedule 'A' material should be deducted (tendered rate *minus* material cost) and 60 *per cent* should be calculated on the arrived figure of item. The Company however, did not deduct the schedule 'A' material cost.

- Further, the revised PE was applicable from 1 October 1990. The Company however, calculated revised PE since beginning of the contract (base index of last quarter of 1985) instead of last quarter of 1990. As a result, the Company applied revised price variation of 172 *per cent* instead of 113 *per cent*.

Thus, non deduction of cost of schedule 'A' materials coupled with application of higher rate of revised PE resulted in excess payment of Rs. 36.01 crore on the revised rates and payment of PE of Rs. 17.75 crore on the works executed during the period from April 1995 to December 2006 as per the details given in ***Annexure* 14.**

Incorrect revision of rates for RBPH civil works resulted in excess payment of Rs. 53.76 crore.

The Management/Government stated (June/July 2008) that revision of rates were made as per advice given (May 2000) by Justice Diwan Committee which was accepted by the State Government. However, based on the advice of Committee, the General Manager of the Company issued (December 2000) instructions to the Chief Engineer, Narmada Dam, for excluding the material component being supplied by the Company while revising the rates. Besides, the State Government had specifically instructed (November 2000) that the tender rates should be revised on the basis of applicability of agreement PE formula up to September 1990 and of the revised PE formula from October 1990 to April 1995. Thus, the rates were incorrectly revised disregarding the above instructions resulting in excess payment of Rs. 53.76 crore.

Excess payment for dewatering

2.2.14 As per terms of contract (July 1987), firm J was to execute the scheduled quantity of dewatering of 5.90 lakh kwh at Rupees two *per* kwh[▽]. If there was any increase in the quantity of work by 30 *per cent* and above over the scheduled quantity (*i.e* 7.67 lakh kwh), then the quantity of excess over 30 *per cent* was to be treated as an extra item and the Company should fix a separate rate for it. Firm J executed dewatering of 8.85 lakh kwh up to December 1989. The Company increased (February1994) the rate for dewatering from Rs. 2 to Rs. 10 *per* kwh from January 1990 applicable for quantity beyond 8.85 lakh kwh to the total revised quantity of 36.96 lakh kwh**.**

Adoption of 100 *per cent* hidden cost of labour instead of 50 *per cent* resulted in excess payment of Rs. 2.82 crore for dewatering work.

Scrutiny of rate analysis for this extra item of work revealed that hidden cost of labour at the rate of 100 *per cent* of direct labour charges was added to the labour component of the work. As per Report of Committee on cost control of River Valley Projects, Government of India, Ministry of Irrigation, only 50 *per cent* of direct labour charges is allowed as hidden cost of labour. Adoption of 100 *per cent* hidden cost of labour instead of 50 *per cent* allowed as per the Report resulted in allowing a dewatering rate higher by Rs. 1.35 per kwh. This had resulted in excess payment to firm J amounting to Rs. 1.36 crore on account of dewatering of 100.76 lakh kwh (Rs. 1.35 per kwh x 100.76 lakh kwh) and PE of Rs. 1.46 crore thereon during January 1990 to December 2006.

In ARCPSE meeting, the management stated (September 2008) that as the project was in remote area, hidden cost of labour at the rate of 100 *per cent* of labour charges was admissible as per Central Water Commission guidelines. However, the management did not furnish any document in support of its contention.

Incorrect fixation of rates for extra items of works

2.2.15 During execution of civil works, the Company awarded (March 1989 to October 2006) 69 extra items of work not included in the contract. The Company fixed rate of extra items based on the rate analysis made in this regard. Based on the major value of extra items of work, audit had selected 12 items and reviewed (constituting 65 *per cent* of total value of 69 items) rate analysis carried out by the Company. In case of six extra items of work, the Company included the overhead and profit elements on the component of materials which were supplied by the Company to firm J. This incorrect inclusion of the element resulted in fixation of higher rate for these six items and consequential excess payments of Rs. 2.12 crore (April 1991 to September 2005). Details of the six extra items of work, the incorrect rate fixed, quantity of work executed and the amount of excess payments are given in ***Annexure* 15.**

Inclusion of profit element on materials supplied by the Company for arriving at the rates for extra items led to excess payment of Rs. 2.12 crore.

The Management/Government stated (June/July 2008) that 20 *per cent* towards overhead charges and profit had been considered as per Report of

[▽] Against the rate of Rupees two *per* kwh, the Company was deducting Rupee one *per* kwh for the cost of power supplied to firm J for executing the work.

Committee on Cost Control of River Valley Project (RCC). However, the RCC stipulated the format for calculation of rate for any item of work. This includes all the cost components including material for the work. In the instant cases, since the material was being supplied by the Company for the work, it should have suitably excluded the overhead and profit element on this component while working out the rate for extra items of works.

Non recovery of cost of cement issued for grouting

2.2.16 In two extra items of work[∇], the estimate included cost of cement issued for grouting. Audit analysis revealed that the cost recoverable on 601.57 MT of cement issued (May 1996 to December 2004) for these works was not recovered from the RA bills. This resulted in excess payment of Rs. 9.73 lakh (Rs. 6.38 lakh being cost of cement and Rs. 3.35 lakh PE paid thereon) to firm J.

The Management/Government stated (June/July 2008) that the Company had recovered the cost of cement consumed for execution of the works. The reply is not correct as the Company had recovered the cost of cement consumed for concrete lining only thereby ignored the recovery of the cost of cement issued for grouting.

Payment of price escalation on lump sum item

2.2.17 The Company awarded (March 1989) the work of construction of Vadgam Saddle Dam /Canal Head Power House (VSD/CHPH) and appurtenant works to firm J at a cost of Rs. 29.11 crore. The work was to be completed by July 1995. One of the items of the work was construction and maintenance of Coffer Dam of suitable length to protect the work area against the water of nearby pond number 1 of SSP. This item of work was given for lump sum price of Rs. 50 lakh (against the estimated cost of Rs. 15 lakh). This price included the cost of constructing coffer dam, maintaining (including dewatering of seepage water) it both during construction and thereafter defect liability period of 12 months and dismantling the coffer dam after the defect liability period. No additional payment was to be allowed over and above the lump sum price.

Price escalation payment of Rs. 23.12 lakh was made for the lump sum item of work.

The work of VSD/CHPH was completed in June 1998 and the coffer dam was dismantled in March 2003 after defect liability period. Audit observed that during August 1989 to July 2006, the Company paid Rs. 23.12 lakh towards PE for the item of work which was made over and above the lump sum price of Rs. 50 lakh. Since the work of VSD/CHPH could not be completed by the stipulated date, the contractor had to prolong the work resulting in avoidable payment of Rs. 23.12 lakh towards PE even though it was a lump sum item. The Management/Government stated (June/July 2008) that the item work was also part of Schedule-B of the contract *i.e.* items put to tender for which PE was admissible. However, though the construction of cofferdam was included in Schedule-B, tender clause 16.5 specifically stated that the payment for the

[∇] Providing concrete lining in exit tunnel and in draft tube tunnel.

item work was to be made on lump sum basis which includes all cost up to dismantling.

Payment of incentive price escalation without approval of SSCAC

2.2.18 The expenditure incurred for various works executed by the Company for the hydro power project was to be approved by SSCAC. The Company, with the approval of GoG decided (December 1991) payment of incentive price escalation (IPE) for civil work contracts by revising the PE formula adopted as per agreements originally entered into. While approving the same, it was emphasised that the payment should be related to time bound programme. The IPE payment was made from October 1990 to June 1996 as an incentive for timely completion of the works related to the hydro power project. However, the works could not be completed as scheduled due to various factors referred to in paragraph 2.2.7 *supra.*

The Company incurred expenditure of Rs. 44.26 crore from October 1990 to December 2006 on the following works on account of introducing the incentive scheme.

Name of work	Scheduled date of completion	Actual date of completion	Amount of IPE paid (Rs. in crore)
RBPH civil work	06.04.1995	31.12.2006	34.86[ר]
Construction of TRC	30.06.1994	30.06.2004	3.80[∝]
RBPH pen stock	09.07.1991	31.03.2000	0.69
RBPH DT gates	25.10.1994	30.06.2004	0.52
CHPH/VSD	17.07.1995	30.06.1998	3.69
CHPH gates	06.08.1994	31.03.1997	0.70
		Total	**44.26**

Out of the above amount, Gujarat's share is Rs. 7.08 crore and the remaining amount of Rs. 37.18 crore was to be shared by the participating States. Since the payment was made without approval of SSCAC, the participating States objected the payment in the SSCAC meeting held on 26 June 1996 and decided not to approve the payment made. Hence, the chance of realisation of amount is remote and consequently it will be an additional burden on GoG/ Company.

Electrical works

Idle investment

2.2.19 RBPH is also designed for operation in reversible (pumping) mode[Σ]. The Company had kept in abeyance (December 2000) its plan for the construction of weir that was required for storing the water for its reuse under pumping mode. The Company awarded (September 2003) the work of supply

[ר] Rs. 11.49 crore being incentive PE paid up to April 1995 and Rs. 23.37 crore paid since then due to inclusion of incentive PE element in revised rates.

[∝] Rs. 0.41 crore being incentive PE paid up to June 1994 and Rs. 3.39 crore paid since then due to inclusion of incentive PE element in the revised rates.

[Σ] Under this mode the water discharged into the river after generation can be pumped back to the reservoir for further generation.

and commissioning of 24 KV Isolated Phase Bus Ducts (IPBD) and related equipments for RBPH to BHEL, Jhansi at a cost of Rs. 13.91 crore. The order also included item of equipments[f] costing Rs. 1.89 crore required for operating turbine under reversible pumping mode. BHEL supplied the above items during September 2005 to January 2006. As the construction of weir was kept in abeyance, the Company should not have placed order for the supply of above items. The supplied equipments were lying idle since January 2006. The Company suffered loss of interest of Rs. 31.82 lakh[*] on the investment of Rs. 1.89 crore during February 2006 to March 2008.

Electrical equipment s for Rs. 1.89 crore remained idle leading to loss of interest of Rs. 31.82 lakh.

The Management/Government stated (June/July 2008) that the item was required to be ordered along with other bus ducts to match the profile of the main bus duct. However, the equipments, if required subsequently, could be purchased from BHEL being Original Equipment Manufacturer.

Non availing of excise duty refund

2.2.20 The Company entered into an agreement (September1998) with Sumitomo Corporation, Japan (firm S) for supply of pump turbine & motor generator (TG) sets, associated equipments for RBPH at a contract price of ¥ 2,319.47 crore plus Rs. 96.23 crore. Firm S was executing this contract in association with two other Japanese firms[€] and Bharat Heavy Electrical Limited (BHEL), Bhopal. Under the contract, BHEL completed its portion of supply of equipments valuing Rs. 102.54 crore including taxes till March 2005.

As per Export Import (EXIM) policy 1997-2002 of GOI, supply of capital goods to power projects would be considered as "Deemed Export" and would qualify for the benefit in form of refund of terminal excise duty (ED) if the supply was made under procedure of international competitive bidding (ICB). As the above contract was awarded under ICB, the Company was entitled to get refund of terminal excise duty on the equipments supplied by BHEL. The price paid for the equipments was inclusive of ED of Rs. 13.62 crore. The Company was unable to get the benefit of the policy, in the absence of any clause in the agreement for recovering the refund of terminal ED from BHEL. This resulted in avoidable loss of Rs. 13.62 crore.

Non availing of benefit of ED refund eligible under EXIM policy resulted in loss of Rs. 13.62 crore in purchase of equipments.

The Management/Government stated (June/July 2008) that initially ICB was carried out in 1985 and an agreement was originally entered with firm S in 1987 before EXIM policy 1997-2002 came into effect. Since receipt of funds from OECF, Japan was stopped in November 1990, the original agreement with firm S was not implemented. As there was no clause in the original agreement for claiming refund of terminal ED, the Company did not include any such clause in the supplementary agreement (September1998) also. However, as the new policy came into force in 1997 based on which Company

[f] 24 KV 3000 AMPS starting IPBDs, tap off connection of disconnecting isolators with the starting IPBD (8 sets) and tap off connections with the starting IPBD (2 sets).

[*] Calculated at the rate of 7.77 *per cent* being the interest rate for Power Finance Corporation loan.

[€] Hitachi Limited and Toshiba Corporation, Japan.

could have made suitable provision in the supplementary agreement for claiming refund of terminal ED and safeguarded its financial interests.

Laying of transmission lines

2.2.21 The Company signed (February 1991) MoU with erstwhile GEB[↓] (for executing the work of laying of 400/220 KV double circuit (DC)/single circuit (SC)) transmission lines from Hydro Power Project to Madhya Pradesh and Maharashtra border on agency basis. The stipulated date for completion of work was February 1995. The Company released (February 1991 to March 2000) advances amounting to Rs. 75.17 crore to GEB for the work. GEB completed the work in March 2003. Against the total work valuing Rs. 78.32 crore, GEB adjusted Rs. 75.17 crore from advance and balance Rs. 3.15 crore from the dues for sale of power (September 2006). But GEB did not issue the final bills for the executed work and the Company had not followed the case. This indicates lack of internal control system in the Company. Management stated (May 2008) that a letter had been issued (May 2008) to GUVNL for submission of bills.

Non recovery of liquidated damages

2.2.22 As per the terms of the contracts, for the following works/supplies, the Company could recover liquidated damages (LD) from the contractors for the delay in execution of works. Audit scrutiny revealed that in the following cases, the Company did not recover LD as per terms:

Name of work/ month of award	Name of contractor	Contract value	Stipulated period of completion	Actual period of completion	Delay (days)	Amount of LD (Rs. in crore)	Reasons for delay
1. Supply of 24 KV Generator Motor Circuit Breaker for RBPH. (September 2003)	ABB, Switzerland	CHF[^] 26,92,791 plus Rs. 0.22 crore	August 2004 to October 2005	November 2004 to September 2005[≈]	41 to 111	0.53	Delay in supply of equipments by the supplier.
2. Erection of Turbine Generator Sets (LOI, December 1999) Start date- June 2000	PES Engineers, Hyderabad	Rs. 9.60 crore	August 2005	January 2007	518	0.96	1. Slow progress by the contractor/ non availability of crane. 2. Failure of contractor to arrange own cranes as per contract terms.
					Total	**1.49**	

[↓] Presently called Gujarat Urja Vikas Nigam Limited (GUVNL).
[^] Swiss Francs.
[≈] The order was for six units and the supply was made unit wise; the last unit was delivered in September 2005 before the stipulated delivery date; the rest were delivered late.

The Company did not recover LD of Rs. 1.49 crore for delayed supply/ erection of equipments.

In all these cases, delays were attributable to the contractor. The Company however, did not levy and recover LD amounting to Rs. 1.49 crore.

The Management/Government stated (June/July 2008) that for Sl. No. 1, LD was deducted and in Sl. No. 2 looking into civil structure arrangement, the contractor had mobilised small EOT crane which led to delay. However, the Company has not furnished any proof of deducting LD and mobilisation of small EOT crane does not absolve the contractor from contractual obligation.

Operation & maintenance of power houses

2.2.23 The Company entered (September 2004) into an agreement with GUVNL (the Operator) for operation & maintenance (O&M) of CHPH and RBPH for a period of 35 years. As per terms of contract, the Company would reimburse operating cost and also pay management fees of 15 *per cent* on the actual operating cost. Scrutiny of records revealed that the operator had not complied with the following terms of agreement nor the Company took any steps to ensure the compliance of terms by the operator:

- Both the operator and the Company were to conduct the performance tests of all the units of both power houses before starting commercial operations of the units. Thereafter, performance tests should be conducted by the operator from time to time. Though, all the units were commissioned and entered into commercial operations (August 2004 to June 2006) the requisite performance tests were not conducted (March 2008).

- Operator was to prepare annual operation plan[∇] in consultation with the Company for each ensuing year at least 60 days in advance. No such plan has been prepared so far (March 2008). Further, the operator has not submitted stipulated monthly operating reports to the Company.

Non-fulfillment of the O&M procedures by the operator is not only giving him undue benefit but also have long term effects on the health and longevity of the power house. The Management/Government stated (June/July 2008) that the performance tests could be conducted only if water level in dam reaches 123 metres and 129.5 metres for RBPH and CHPH respectively against the present dam height of 121.92 metres. No annual operation plan was prepared as operation requirement was being given by NCA based on inflow of water. However, looking into the present level of dam height, even the manufacturer carried out acceptance test below the designed level and defined the efficiency of turbine. Hence, both initial and subsequent performance tests should have been conducted with available water levels. Though the running hours of turbines are controlled by NCA, still the operator could have prepared annual operation plan focusing mainly the maintenance schedule, staff plans and equipments requirement.

[∇] Indicates the maintenance schedule, staff plan, equipments required, hours of operation *etc*.

Inadequate monitoring and control over the operator of power houses

Payment of Rs. 10.38 crore was made to O&M operator without verifying the genuineness of expenditure.

2.2.24 No system was in place to monitor and control the operational and other expenditure incurred by the Operator for running the power houses. Scrutiny of the documents related to reimbursement of expenditure made to the operator during 2004-08 revealed that the Company did not call for the supporting documents and verify the authenticity of expenses before making payments. Following are examples of some expenses for which payment was made by the Company without asking for the justification and details of expenditure.

Nature of expenditure	Amount (Rs. in crore)
Engagement of technical experts	1.37
Hiring of vehicles	0.94
Maintenance of plant equipments and office expenditure	4.60
Materials/furniture	3.47
Total	**10.38**

The Management/Government stated (June/July 2008) that all the above cited expenditure were incidental in running power houses and hence incurred. The reply does not give justification for not calling supporting documents and verifying the authenticity of such expenditure before making payment.

Performance of the power houses

2.2.25 The five units of CHPH were commissioned during August 2004 to December 2004 and six units of RBPH during February 2005 to June 2006. The units of power houses are running as per schedule received from Narmada Control Authority (NCA) depending on the inflow of water at SSP and discharge from upstream power houses. The generated power is routed through Western Regional Electricity Board[ר] (WREB) to the beneficiary States. After commissioning, the power houses generated 10,250.813 MUs (up to March 2008). The average capacity utilisation of CHPH and RBPH were 10.43 and 39.15 *per cent* respectively during January 2005 to March 2008. The low capacity utilisation was due to non-attaining of dam/water level of 138.68 metres and generation load controlled by NCA.

Excess auxiliary consumption and transformation loss

2.2.26 As per Central Electricity Regulatory Commission (CERC) norms (March 2004), auxiliary consumption for CHPH and RBPH is 0.5 and 0.7 *per cent* respectively and transformation loss is 0.5 *per cent* of energy generated.

Auxiliary consumption in power houses was in excess of norms by 80.995 MUs during 2004-08.

Against the energy of 10,129.622 MUs to be available after normative auxiliary consumption/transformation loss, the actual energy available and injected into Western Grid was 10,048.627 MUs during 2004-08. Thus, there

[ר] It was established by Government of India in March 1964. One of its functions is energy accounting for billing purposes.

was excess auxiliary consumption and transformation loss to the tune of 80.995 MUs since commissioning of the units. The reasons for excess auxiliary consumption and transformation loss were not analysed by the management for taking corrective measures.

The Management/Government stated (June/July 2008) that in RBPH, the generator transformers were all time in charging mode and hence auxiliary consumption was always higher than that of conventional generator transformers. The fact, however, remains that the norms were not achieved by taking corrective measures.

Sale of power

The Company entered (March 2005) into Power Purchase Agreement (PPA) with GUVNL for selling 16 *per cent* share of Gujarat in the power generated at both the power houses at a tariff of Rs. 2.05 per unit. The validity of PPA is for 35 years from the date of its signing. Scrutiny of PPA and related records revealed the following:

Excess recovery of rebate by GUVNL

2.2.27 As per terms of PPA between GEB (now GUVNL) and the Company, if GUVNL makes the payments through a letter of credit (LC) on the power bills raised by the Company, it is entitled to get a rebate of two *per cent* on the bill amount. If the payments are made other than through LC within a period of one month of presentation of bills, a rebate of one *per cent* would be allowed to GUVNL. GUVNL started remitting the payments through LC since December 2006. As such for the payments made till December 2006, the Company should have allowed the rebate at one *per cent*. GUVNL, however, recovered the rebate of two *per cent* during August 2004 to November 2006. This resulted in recovery of excess rebate of Rs. 1.62 crore by GUVNL.

Excess recovery of Rs. 1.62 crore was made by GUVNL against terms of PPA.

The Management/Government stated (June/July 2008) that the Company has taken up the issue with GUVNL and was pending settlement.

Loss of interest due to delay in issue of bills

2.2.28 As the sale of power is routed through WREB to GUVNL, WREB on monthly basis furnishes the details of energy supplied by the Company to GUVNL. Based on these details, the Company raises bill against GUVNL. In the absence of any specific time limit in PPA, the Company should prudently prepare and issue the bills to GUVNL within five days[⊕] from the date of receipt of details from WREB. Audit observed that during March 2005 to January 2008, the Company issued the bills with a delay ranging up to 220 days (on an average 28 days delay) even after expiry of five days from the receipt of details from WREB. This resulted in delay in realisation of dues ranging from Rs. 0.04 crore to Rs. 18.64 crore and consequent loss of interest amounting to Rs. 35.78 lakh[∝].

Delay in issue of bills to GUVNL led to loss of interest of Rs. 35.78 lakh.

[⊕] As per terms of PPA entered by Gujarat Mineral Development Corporation Ltd with GUVNL, it raises the bills against GUVNL within four days.

[∝] Calculated at the rate of 7.77 *per cent* being the interest rate for Power Finance Corporation loan.

The Management stated (June 2008) that PPA was signed only in March 2005; the delay up to March 2005 was due to non signing of PPA and that the bills could be raised only after signing the agreement. However, even after signing the PPA, there was delay in issuing bills and Audit has taken into account the delay after signing of PPA.

Lack of safety measures for hydro power houses

2.2.29 As per Geotechnical Report (1982) on SSP "the dam site located near the Tapi-Narmada Son zone is identified as a seismogenic shear zone stretching east-west". The Company established (1989) a close network of nine[∇] observatories installed to monitor the seismicity of the area. The dam safety panel of the Company visited SSP dam site (October 2001) after occurrence (January 2001) of earthquake in Gujarat. As the observatories were not functioning properly the panel recommended (October 2001) for modernisation of the observatories and also for the installation of seismic instruments in the power houses for systematic observation of earthquake effects. The Company did not implement the recommendations (March 2008). Further, the Company did not insure the assets of both power houses.

The Company did not install seismic instruments in observatories and did not insure the power houses.

Internal audit/internal control system

2.2.30 Internal control is a management tool used to provide reasonable assurance that management's objectives are achieved in an efficient, effective and orderly manner.

The Internal Audit wing of the Company is headed by Director (Finance) which looks after appointment of Chartered Accountants (CAs) as Internal Auditors, planning and monitoring of Internal Audits, pre-audit of major final bills, meeting of Audit Committees and review of Inspection Reports of Government Audit. There was no system in the Company to pre-audit the work bills/ supply bills, and review agreement conditions with reference to Government directions and policies.

The cases of excess payment of interest, excess payment due to incorrect revision of rates/ fixation of rates for extra items of civil works, payment of PE on lump sum item, non-availment of ED refund, non-recovery of liquidated damages and delay in issuance of energy bills discussed in paragraphs 2.2.8, 2.2.13-2.2.16, 2.2.17, 2.2.20, 2.2.22 and 2.2.28 *supra* are indicative of deficient Internal Control system of the Company.

Corporate governance

2.2.31 As per Section 292 A of the Companies Act, 1956, the Audit Committee (AC) is to be formed in the public limited companies to have periodical discussions with the Company's auditors about the internal control system, scope of audit, audit observations and also to review half

[∇] Gabhana, Naswadi, Kawant, Sagbara, Jitgadh (SSP surrounding areas), Shahada (Maharashtra), Barwani (MP), Alirajpur (MP) and Kukshi (MP).

yearly/annual financial statements before submission to the BoD of the Company.

A mention was made *vide* paragraph 4.19.6 of the Report of the Comptroller and Auditor General of India for the year ended 31 March 2005 (Commercial) – Government of Gujarat, about non attendance in AC meeting by Internal Auditors (IA) and Statutory Auditors (SA) of the Company. Subsequently, during 2005-08, out of 15 AC meetings held, SA and IA did not attend three and fifteen meetings respectively. Further, Chairman of AC was not an independent Director (upto July 2007) as stipulated in clause 49 of the listing agreement read with clarification issued by Securities and Exchange Board of India.

Regarding attendance of IA in AC, the management stated (June 2008) that the Company's Chief General Manager (Finance) in charge of its Internal Audit wing attended AC meeting. The CA firms appointed by the Company as IA should attend the AC meeting.

2.2.32 Like wise, the non-attendance of non-executive directors in the BoD meeting of the Company was also mentioned *vide* paragraph 4.19.2 of the above mentioned report. However, two non-executive directors did not attend any of the eight board meetings held during their term (2005-07). One non executive director did not attend any of the nine Board Meetings held during his tenure (2006-08). Two non executive directors attended only three and two meeting only out of nine and 11 Board Meetings held during their tenure 2005-07 and 2006-08 respectively.

The Management/Government stated (June/July 2008) that out of five non-executive directors pointed out in audit, four directors were nominees of Government of Maharashtra and Rajasthan.

Acknowledgement

Audit acknowledges the cooperation and assistance extended by different levels of the Management at various stages of conducting the performance audit.

Conclusion

Revised detailed project report was not prepared for implementation of the hydro power project of SSP. The Company implemented the hydro power project with cost and time overrun. It did not conduct the performance tests for both the power houses. The capital and operation & maintenance cost were not recovered fully from participating States. The deficient contract management and weak internal control system of the Company led to excess payment of interest, incorrect revision/fixation of item rates for civil works, payment of price escalation on lump sum item, non availing of excise duty refund, non recovery of liquidated damages, inadequate control over the activities of operation & maintenance operator and delay in issuance of energy bills. Corrective actions were not taken to control excess auxiliary consumption/transformation loss.

Adequate seismological monitoring mechanism was not in place and the power houses were not insured against any peril.

Recommendations

The Company may consider :

- **conducting the performance tests of all the units of power houses;**
- **taking effective measures to recover dues from the participating States;**
- **improving upon its general contract management to ensure economy, efficiency and effectiveness;**
- **analysing the reasons for excess auxiliary consumption of power/transformation loss and take corrective measures;**
- **making suitable arrangements for the audit of expenditure of O&M operator;**
- **insuring the assets of both power houses and modernising the observatories with seismic instruments in the power houses for systematic observation of earthquake effects.**

Gujarat State Electricity Corporation Limited

2.3 Performance of Dhuvaran oil and gas based thermal power station including commissioning of two new gas based Units

Highlights

The Company commissioned CCPP I and II in January 2004 and March 2006/November 2007 respectively with delay of 191 to 282 and 173 to 643 days respectively due to improper bid evaluation, delayed supply of gas turbine, placement of orders, *etc.*, which resulted in generation loss of 1,554.33 MUs.

(Paragraphs 2.3.8 and 2.3.9)

The Company incurred avoidable extra expenditure of Rs. 10.99 crore on account of price escalation, service tax, belated signing of agreement and incorrect estimation of requirement of water.

(Paragraphs 2.3.11, 2.3.12 and 2.3.33)

There was a shortfall in generation of power in DTPS to the extent of 6,872.694 MUs during 2003-08. The shortfall in generation was due to low plant load factor, backing down of generation, frequent outages, non conducting of residual life assessment studies and non-execution of Renovation and Modernisation works.

(Paragraphs 2.3.13, 2.3.15 to 2.3.17, 2.3.19, 2.3.22, 2.3.26 and 2.3.27)

The Company incurred extra/infructuous expenditure of Rs. 3.32 crore due to improper procurement of capital spares which remained unutilised.

(Paragraph 2.3.30)

The cost of generation increased from Rs. 2.93 per unit in 2003-04 to Rs. 4.85 per unit in 2007-08 for Unit I to VI and Rs. 1.54 per unit in 2005-06 to Rs. 3.46 per unit in 2007-08 for CCPP I due to low capacity utilisation, higher auxiliary consumption and increase in repairs and maintenance cost of Unit.

(Paragraph 2.3.32)

Introduction

2.3.1 Gujarat State Electricity Corporation Limited (Company) was incorporated on 12 August 1993 with the aim to acquire power stations of erstwhile Gujarat Electricity Board (GEB) and also to set up its own power stations for generation of power. Dhuvaran oil and gas based thermal power

station (DTPS) is one of the nine* power stations of the Company. The DTPS has six low sulphur heavy stock (LSHS) and two gas based Units with total capacity of 439.067 MW (220 MW TPS and 219.067 MW CCPP I and II) (March 2008).

The DTPS is headed by a Chief Engineer (CE), assisted by three Superintending Engineers to look after the plant operations and maintenance. The CE reports to the Executive Director (ED) of the Company. ED supervises and controls the operation of all the power stations of the Company in the State. The details of the unit of DTPS are given below:

Particulars	TPS-I	TPS-II	CCPP^-I	CCPP-II
Month/year of commissioning	1964-65	1972	January 2004	November 2007
No. of Units	4	2	1	1
Installed Capacity (MW)	254 (Closed)	280 (derated capacity 220)	106.617 (Gas 67.850) (Steam 38.767)	112.45 (Gas 72.51) (Steam 39.94)

The Units of TPS I and II had completed their estimated life of 25 years by 1991 and 1998 respectively. The Company closed (May 2007) all the four Units of TPS I. The capacity of Unit V and VI of TPS II was also derated (April 2007) from 140 to 110 MW each due to problem in loading the Unit. The Company commissioned the combined cycle power plants (CCPP) I and II in January 2004 and November 2007 at a cost of Rs. 329.09 crore and Rs. 368.18 crore respectively. During 2003-08, the DTPS generated 7,692.829 MUs and the sale price ranged between Rs. 3.10 and Rs. 4.40 per unit. The variable cost per unit ranged between Rs. 2.24 and Rs. 4.36, leaving the element of contribution ranging between Re. 0.04 and Rs. 1.04 per unit.

Scope of Audit

2.3.2 The performance review conducted during December 2007-March 2008, covers the aspects of planning, funding, execution, commissioning and operation of new power projects CCPP I and II; operational performance of the TPS for the period of five years during 2003-08; residual life assessment (RLA) study on the old Unit of TPS I and II (Unit-I to VI) and corrective action taken in this regard. Audit test checked the records at the Company's corporate office at Vadodara and DTPS.

Audit objectives

2.3.3 The performance audit was conducted with a view to ascertain whether:

* Thermal: Gandhinagar, Panandhro , Sikka, Ukai and Wanakbori ; Gas/oil: Dhuvaran and Utran and Hydro: Kadana and Ukai.

^ In combined cycle power plant, the gas and steam turbine cycles are combined. First, the natural gas is used as fuel and power is generated through gas turbine, then the hot exhaust gas passes through heat recovery boiler to generate steam, utilising the residual heat content of the exhaust gas. The generated steam is used in steam turbine to generate additional power.

- the new power plants of CCPP I and II were planned and commissioned in an efficient and economical manner;
- the operation of all the Units of TPS I and II and CCPP I and II was conducted in an efficient, economical and effective manner;
- residual life assessment of old power Unit was done and corrective action was taken by the Company on the basis of the findings of the study for running the old Units; and
- closure of Unit I to IV of TPS-I and derating of TPS-II (Unit V and VI) from 140 to 110 MW was supported with justifiable causes.

Audit criteria

2.3.4 The performance of the TPS was assessed with reference to:

- study report regarding residual life assessment of old power Units and agenda and minutes of Board of Directors (BOD) meeting;
- norms/guidelines of the Central Electricity Authority (CEA) regarding closure/derating the capacity of power stations, planning and implementation of power project;
- approved procedures for award of contracts with reference to the principles of economy, efficiency, effectiveness and transparency;
- terms and conditions of the contracts; and
- draft project reports (DPR), operational norms of the Company and power industry norms.

Audit methodology

2.3.5 Audit adopted a mix of the following methodologies:

- examination of agenda notes and minutes of BOD meetings and DPRs;
- review of contracts and related correspondence regarding power purchase, gas supply, installation of power plants, *etc*.;
- analysis of generation data of TPS I, II and CCPP I; and
- interaction with Management at different levels and analysis of the information so received.

Audit findings

2.3.6 The audit findings arising from the performance review were reported (July 2008) to the Management and the State Government. The audit findings

were also discussed in the exit conference held on 27 May 2008, which was attended by Managing Director and other officials of the Company. The views of the Government and Management were taken into account while finalising the review.

The audit findings are discussed in the succeeding paragraphs.

Operational performance

2.3.7 The DTPS's capacity of 439.067 MW constituted 9.21 *per cent* of the Company's total generation capacity of 4,766 MW as on 31 March 2008. During 2003-08, TPS I, TPS II and CCPP I generated 10,166.651 MUs which constituted 7.61 *per cent* of the Company's total generation of 1,33,524.098 MUs. This indicated that TPS was operating below average performance of the Company. The unit cost of generation for TPS increased from Rs. 2.93 in 2003-04 to Rs. 4.85 in 2007-08. Likewise, the unit cost of generation for CCPP I increased from Rs. 1.54 in 2005-06 to Rs. 3.46 in 2007-08.

The details regarding operational performance in respect of Unit I to VI of the TPS I and TPS II are given in ***Annexure* 16** and that of CCPP I, in ***Annexure* 17** and cost of generation in ***Annexure* 18.**

Construction and commissioning of CCPP I and II

Non-adherence to milestones

2.3.8 GoG approved the construction of CCPP I (December 1997) and CCPP II (September 2002). The project cost was estimated at Rs. 329.09 crore (November 2000) and Rs. 368.18 crore (June 2004) respectively. The Power Finance Corporation of India Limited sanctioned (May 2002/September 2004) term loans of Rs. 231 crore and Rs. 258 crore for CCPP I and II respectively. The Company availed loan of Rs. 172.15 crore (February 2003 to October 2007) and Rs. 200 crore (April-June 2006) for CCPP I and CCPP II respectively. The details of scheduled commissioning as per the DPR and actual synchronisation of CCPP I and II in open and combined cycles are as under:

Unit	Scheduled date for commissioning	Actual dates of commissioning	Delay (in days)
1. CCPP-I			
Open cycle	21 April 2003	2 January 2004	282
Combined cycle	21 July 2003	28 January 2004	191
2. CCPP-II			
Open cycle	24 December 2005	15 June 2006	173
Combined cycle	24 January 2006	1 November 2007	643

The implementation and synchronisation of the project was delayed mainly due to improper bid evaluation for award of engineering, procurement and commissioning (EPC) work of CCPP I by the Board's consultant (Desein), late delivery of generator turbine, high temperature in steam turbine, delayed commencement of engineering portion of the project, delayed placement of Balance of Plant material of CCPP I and delays in civil works, erection

and commissioning of steam turbine generator and failure of gas turbine compressor in CCPP II.

Losses during pre commissioning period

Both CCPP I and II were commissioned with a delay of 191 to 282 days and 173 to 643 days respectively.

2.3.9 Even after the synchronisation of CCPP I and II in open and combined cycles, certain ancillary works[†] remained incomplete. CCPP I and II were commercially commissioned on 28 January 2004 and 1 November 2007 with delay of 191 to 282 days and 173 to 643 days respectively. Resultantly, the Company suffered aggregate generation loss of 1,554.33 MUs. The Company recovered Rs. 19.47 crore and withheld the dues of Rs. 4.61 crore for CCPP I and Rs. 15.01 crore for CCPP II towards liquidated damages.

Audit further observed that CCPP I and II consumed excess[▽] gas of 13,41,384 SCM[*] and 62,92,636 SCM respectively during the period between synchronisation and commercial commissioning (June 2003-January 2004 and July-October 2007 for CCPP-I and II respectively). The excess consumption of gas resulted in extra expenditure of Rs. 10.63 crore.

Government/Management stated (August 2008) that the Company was not losing anything except the deferment of revenue for a particular period of project execution for which the Company recovers liquidated damages from the contractor. As regards the cost of fuel used for generation of power during the intervening period, the same would be paid by the beneficiary at actuals and thus, the Company would not lose in the process. The reply is not acceptable as the deferment of revenue has financial implications by way of interest burden for longer period on the borrowed funds. The delayed commissioning of CCPP will also adversely affect the consumer satisfaction. Besides, the levy of liquidated damages would not be sufficient to cover entire loss sustained by the Company. The beneficiary would reimburse the price which would ultimately result in increase in tariff.

Project implementation

Award of contracts

The Company awarded seven contracts worth Rs. 2,723.19 crore during 2003-08 (including CCPP I, EPC contract of BHEL placed in October 2001) for supply, erection, commissioning, civil works of plant and equipments, supply of fuel and water, Renovation & Modernisation activities and maintenance. The irregularities noticed are discussed in the succeeding paragraphs.

Improper bid evaluation in award of EPC work in CCPP I

2.3.10 The erstwhile GEB invited (July 1999) bids for EPC of CCPP I. The Board approved (12 October 2000) the award of EPC contract to L&T

[†] Gas inlet line valve replacement, gas shut off valve operation, gas waste oil tank drain line and water sump, GT air inlet system and evaporating air cooler system, GT oil and gas compartment sealing for protection from rain water in respect of CCPP-I and Gas inlet system, HP/IP/LP feed water system, condensate water system, AC plant, *etc.*, in respect of CCPP II.

[▽] With reference to theoretical norm prescribed in DPR.

[*] Standard Cubic Metres.

Improper evaluation of bids led to delay in award of work and consequent delay in commissioning of CCPP I.

Sumitomo Consortium (L&T SC) which was L-I. Bharat Heavy Electrical Limited (BHEL), one of the bidders who furnished (September 2000) the itemised prices of the mandatory spares repeatedly requested the Company to obtain similar details from other bidders also, as the same formed a substantial part of the contract. Accordingly, the Company requested (December 2000) L&T SC to submit the itemised price break-up including mandatory spares by 18 December 2000 as per the Request for Proposal (RFP) stipulations. The Company, however, issued (December 2000) the letter of intent (LOI) to L&T SC for Rs. 301.45 crore without waiting for the price break-up. L&T SC submitted (January 2001) the price break-up of mandatory spares. On scrutiny, it was noticed that same was not in conformity with the RFP stipulations. L&T SC contented (January 2001) that the Company had left the interpretation of the term SET* under the mandatory spares to the bidders. To overcome the dispute over the interpretation of the term SET of mandatory spares, the Company decided (April 2001) to reopen the bidding process for the entire EPC after seeking (March 2001) the opinion of the consultant. On re-bidding, the Company awarded (October 2001) the contract to BHEL at a cost of Rs. 286.03 crore.

Audit observed that the Company did not state in clear terms the exact nature of requirement of mandatory spares under SET in the tender despite engagement of the services of the consultant. As a result, the evaluation of the bids was not based on clear terms. Thus, improper evaluation of bids not only resulted in delay in award of work by 10 months but also led to re-bidding of the work and consequent delay in commissioning of the project.

Government/Management while accepting audit contention stated (August 2008) that the price evaluation was done on the pretext that all the bidders understood the word SET in its true spirit but L&T SC did not agree with the universal meaning of SET. Further, since re-bidding was necessary as per the procedure laid down by the Company, delay in award of work was imminent. The fact, however, remains that the evaluation was done based on the improper terms which led to re-bidding and delay in award of work.

Execution of contracts

Audit review of execution of contracts indicated instances of avoidable extra expenditure on transportation of gas, avoidable extra payment of escalation and irregular payment of service tax. These are discussed in the succeeding paragraphs.

Avoidable extra payment of escalation

2.3.11 As per the GSA entered (February 2004) with GAIL, the price of the gas delivered comprised of foreign component (Rs. 135 per MMBTU) and Indian Rupees (Rs. 42 per MMBTU). Further no fixed transmission charges were payable during the tenure of the GSA *i.e.* up to 1 January 2009. Based on the common transportation tariff decided (May 2006) by Ministry of Petroleum & Natural Gas (MOPNG), GAIL revised the gas price (Indian

* SET includes all the components /parts as are necessary for complete functional requirement.

In violation of terms of agreement, GAIL charged transmission charges of Rs. 5.46 crore.

Rupee component) to Rs. 32.37 per MMBTU and applied trunk transmission charges (Rs. 25.42 per MMBTU) from June 2006 on the gas supplied to the Company. Audit observed that the unilateral application of trunk transmission tariff by GAIL led to undue escalation of the R-LNG price and was in violation of the terms and conditions of the GSA. The Company made the payments, thereby incurring an avoidable extra expenditure of Rs. 5.46 crore during 2006-08.

Government/Management stated (August 2008) that GAIL had revised the transportation tariff as per notification issued by MOPNG (May 2006). The reply does not address the point that such a revision was contrary to the provisions of the GSA. The GSA clearly stated that the transmission charges would be nil up to 1 January 2009. Further, the Company did not effectively pursue the matter with GAIL in accordance with the provisions of the GSA.

Irregular payment of service tax

2.3.12 As per the EPC agreement entered (March 2004) with BHEL for CCPP II, the Company required BHEL to furnish the components wise (supplies, erection and commissioning services and civil and construction works) price break up though the contract price was inclusive of all the taxes and exclusive of service tax, which should be reimbursed. The Central Excise and Service Tax Appellate Tribunal, Delhi vide its decision (2003) had opined that works contract cannot be segregated and part of it subjected to tax. Thus, EPC contract cannot be segregated into supply and service part and the service part is subjected to tax. The said decision was also later upheld (2004) by the Honourable Supreme Court. Audit observed that the Company, however, segregated the composite contract and incurred avoidable expenditure of Rs. 2.86 crore towards payment of service tax during March 2005 to December 2007 on the erection and commissioning work being service component of the contract price.

The Company made irregular payment of service tax of Rs. 2.86 crore.

Government/Management stated (August 2008) that in view of applicability of works contract tax, the Company had taken (October 2001) legal opinion at the time of negotiating the CCPP-I contract with BHEL. As per the opinion the works contract tax was leviable on deemed sales of goods where transfer of property takes place. Only supply portion was liable to tax, hence the Company segregated the contract in three parts. The reply is not tenable for the reasons that both the decisions of Appellate Tribunal (2003) and Honourable Supreme Court (2004) were received much later than the period of legal opinion sought by the Company for CCPP-I and hence the same did not hold good for the later project of CCPP II.

Operational performance

Performance of thermal power station

The TPS I and II have an aggregate generation capacity of 534/220 MW during 2003-08. With the above capacity, the TPS I and II could have generated 13,466.348 MUs during 2003-08 in 2,27,904 possible hours of

generation against which the Company generated 7,692.829 MUs in 1,48,640 actual running hours with a consequential generation loss of 5,773.519 MUs.

Shortfall in generation

2.3.13 The Company had not fixed the generation targets for 2003-05. For 2005-08, the Company made projection for generation in its tariff petition filed with Gujarat Electricity Regulation Commission (GERC). As against the targeted/projected generation of 9,189 MUs, the Company generated 7,693 MUs of energy comprising 79 *per cent* of the targeted/projected generation during 2003-08. Thus, there was shortfall in generation of 1,496 MUs.

The Management stated (August 2008) that shortfall in generation was due to backing down and forced outages being higher than anticipated. The reply has ignored the fact that the Company instead of backing down could have generated additional power and sold it to other states as discussed in paragraph 2.3.16. Further, the forced outages indicate lack of adequate preventive maintenance.

The reasons for shortfall in generation are analysed in the succeeding paragraphs.

Lower plant availability

Against the norms, lower targets for plant availability were fixed.

2.3.14 The Kulkarni Committee and the Rajadhyaksha Committee (the Committees) set up by the Government of India for suggestion on improvement in the generation in power stations had recommended (April 1975 and September 1980 respectively) the annual availability of the generating unit for operation upto 80 to 85 *per cent* of the total available hours (the remaining time meant for maintenance purpose). As against these norms, the Company fixed targets of 46 to 60 *per cent* plant availability during 2005-08.

The table below shows that the targets of plant availability factor[£] (PAF) of TPS as approved by GERC and the achievement there against during 2005-08.

Year	Target	Achievement
	(*per cent*)	
2005-06	46	68.13
2006-07	47	44.61
2007-08	60	84.56

Note: Data for 2003-05 pertaining to GEB period was not available.

Low PAF during 2005-07 with reference to the norms of the Committees was evident in outages for unscheduled maintenance. The Company did not cover the defective electrical and mechanical equipments in the scheduled periodical maintenance/annual overhauling (AOH) and did not ensure completion of such overhauling work within the prescribed time limit. Improvement in PAF in 2007-08 was mainly because no AOH was taken up during the year.

[£] The availability factor of a power plant is the amount of time that it is able to produce electricity over a certain period, divided by the amount of the time in the period.

The Management stated (August 2008) that the low PAF was attributed to higher cost of generation, backing down, ageing effect of the units, higher forced outages and high maintenance and economically unviable operation. The fact remains that despite low PAF and uneconomical operations of the TPS I and II, the Company delayed the corrective measures.

Low plant load factor (PLF)

2.3.15 Against the national level PLF[‡] ranging between 72.96 and 77.03 *per cent* during 2003-07, the PLF of TPS I and II ranged between 31.02 and 45.20 *per cent*. Of the six units, the PLF of Unit I to IV ranged as low as between 1.3 and 56.17 *per cent* while the PLF of Unit V and VI ranged between 27.52 and 58.59 *per cent* during 2003-07. After unbundling (April 2005) of the erstwhile GEB, GERC approved (January 2006) the PLF at 36 and 45 *per cent* for the years 2005-06 and 2006-07 respectively on the tariff petition submitted by the Company for the financial years 2005-09. However, the actual PLF of TPS stood at 31.20 and 28.44 *per cent* which was lower by 13.34 and 36.80 *per cent* compared to the PLF approved by GERC. Against the approved PLF of 60 *per cent*, the actual PLF of TPS was 69 *per cent* during 2007-08.

Plant Load Factor of TPS ranged between 31.02 and 45.20 *per cent* during 2003-07.

Audit scrutiny revealed that low PLF during 2003-07 was on account of longer duration of both planned and forced outages and running of Unit on partial load due to non availability of load bearing equipment such as boilers, boiler feed pumps, turbine and condensers.

The low PLF indicated that the Company could not restrict the planned outages within the prescribed time limit, minimise the forced outages due to failures of boiler feed pumps, turbines, boilers, *etc.,* for want of regular maintenance and did not find remedy such as sale of surplus power to outside State to tackle backing down of generation.

The Management stated (August 2008) that as these Units were more than 40 years old and running with constraints, its PLF could not be compared with national average PLF. Further, the Company attributed low PLF to higher cost of generation, backing down, higher forced outages and high maintenance and economically unviable operation. The fact remains that the TPS could not even achieve the PLF approved by GERC which was decided considering the life of the TPS.

Backing down of generation

2.3.16 The Company entered into (1 April 2005) a Power Purchase Agreement (PPA) with its holding Company, Gujarat Urja Vikas Nigam Limited (GUVNL) for sale of energy. The PPA provided that the Company was not entitled to sell energy or capacity in the generating stations and projects to any other person whether in the State or outside, except the surplus energy which the Company could generate as per the declared availability in excess of schedule given by GUVNL. Audit observed that though there was no demand from GUVNL and the plant was available, the Company resorted

The Company could not generate additional power of 2,010.660 MUs due to backing down of generation.

[‡] Plant load factor is the percentage of actual generation to rated generation capacity of plant.

to reserved shut down (RSD) for 22,644 hours in 147 cases during 2003-08. Due to RSD the Company could not generate additional power of 2,010.660 MUs which could have been sold by the Company to other States in terms of said clause. Thus, failure to exercise the option to generate surplus energy out of declared availability in excess of the schedule given by GUVNL and sell it to other States deprived the Company of additional contribution.

The Management/Government stated (September/October 2008) that the decision to back down generation was taken by State load despatch centre depending upon the demand and supply position and was not in control of DTPS. The fact remains that the Company did not establish any system of obtaining the advance intimation from GUVNL about its demand for power and did not explore any avenue for selling the surplus power by directly liasioning with State Load dispatch centre.

Running unit with partial load

2.3.17 The yearly Plant Performance Report (2003-08) of TPS indicated that the Units were operated on partial load due to repeated trouble of boiler tube puncture, loss of excitation and non-availability of natural gas. Though, these factors were largely controllable, the management failed to take timely remedial action resulting in shortfall of 2,306.101 MUs in generation.

The Management stated (August 2008) that the generation of TPS-I was restricted to 35-40 MW due to drum pressure and attributed forced outages to ageing effect, boiler tube leakages, vaccum problem and poor quality of water from bore wells. The fact, however, remains that in the absence of corrective measures there was substantial generation loss.

Auxiliary consumption

2.3.18 GERC prescribed the norm of 11 *per cent* for auxiliary consumption during 2005-08. However, the auxiliary consumption of the TPS I and II ranged between 9.69 and 12.50 *per cent* during 2005-08. There was excess auxiliary consumption of 33.06 MUs over the GERC norm.

The Management stated (August 2008) that when the unit were under reserved shutdown, some of the auxiliaries were to be kept in running condition to take back in service as and when advised by State load despatch centre. Further, the generation of TPS-I was restricted to 35-40 MW due to drum pressure. However, the norm fixed by GERC for auxiliary consumption was made based on the submissions made by the Company in its tariff petition.

Outages

Thermal power stations have outages, which may be planned and/or forced. While planned outages are necessary for maintenance work on boilers, turbo-generators (TG) *etc.,* forced outages are due to unforeseen factors arising from lack of adequate and timely preventive maintenance. During 2003-08 the units were shut down for 56,620 hours due to planned outages (27,832 hours), and forced outages (28,788 hours) as discussed in the succeeding paragraphs.

Planned outages in excess of norm

2.3.19 Planned outages for annual overhauling and periodical maintenance work are normally to be scheduled for the off-peak season *viz.,* November to February when the demand for power is usually low. During 2003-07*, the Company undertook two Capital Overhauling (COH) and eight Annual Overhauling (AOH) works of which two and five respectively were undertaken in peak seasons. The Company, thus, used 5,096 hours of peak seasons for COH and 5,502 hours of peak season for AOH.

Planned outages in excess of norm led to generation loss of 4,994 hours and 535.690 MUs.

CEA prescribed a norm for planned outages at 10 *per cent* of the available hours. Audit observed that the planned outages of Unit I to VI during 2003-2008 (except 2004-05 and 2007-08) exceeded the norm as detailed below:

Particulars	Years				
	2003-04	2004-05	2005-06	2006-07	2007-08
Available hours	52,704	52,560	52,560	52,560	17,568
10 *per cent* of available hours	5,270	5,256	5,256	5,256	1,757
Actual outages in hours	7,969	2,679	6,709	10,432	--
Excess hours	2,699	(-) 2,577	1,453	5,176	(-) 1,757

The net loss of hours was 4,994 during 2003-08 due to excess planned outages which led to generation loss of 535.690 MUs.

The Management stated (August 2008) that the planned outages of TPS were within the range of 10 *per cent* (4.54 to 9.09) as allowed by CEA. The reply does not appear to be factually correct as the outages reviewed in audit indicated that the planned outages were in excess of the norms.

Excess time taken for overhauling

2.3.20 Kulkarni Committee recommended (April 1975) the norm of 28/30 days for regular overhauling of boiler. The unit wise details of time fixed and taken for overhauling of generators and loss of generation during 2003-07 due to excess time taken are given in ***Annexure* 19**.

Excess time taken for overhauling led to loss of generation of 618.716 MUs.

Audit observed that during 2003-07, the TPS took 7,151 hours (298 days) in excess of norms to complete the annual overhauling in respect of three Units (II, V and VI) out of total six Units of TPS. Failure to adhere to the time schedule resulted in the loss of generation of 618.716 MUs.

The Management stated (August 2008) that the excess time taken for overhauling was mainly due to replacement and repairing of capital spares.

* No AOH/COH was taken during 2007-08.

Poor maintenance work during planned outages

2.3.21 For uninterrupted and efficient operation of the TPS, the state of health of the boiler, turbo generator and accessories need to be constantly monitored and corrective measures taken. During all planned outages and scheduled maintenance, the vulnerable areas are to be identified and checked thoroughly to obviate the recurrence of outages. Audit observed that TPS failed to follow these procedures. As a result, there were forced outages on nine occasions during 2003-08, aggregating to 1,036 hours within eight days from the date of restarting the units, after planned outages.

Audit scrutiny of outages revealed that during 2003-08, these forced outages had occurred mainly due to boiler/condenser tube puncture. The management failed to examine the status of the tubes during overhauling before restarting these units, leading to forced shut down. Consequently, the TPS sustained loss of generation of 65.206 MUs.

The Management stated (August 2008) that all the vulnerable areas based on the problems noticed during running of the Unit were covered during overhauling and despite this, there was every chance of leaving gap. Further, due to complex process, the identification of the problem in advance was difficult. The reply is not acceptable as the instances of forced outages immediately after planned outages reflect poor maintenance undertaken during overhauling.

Performance of CCPP I

The CCPP I has generation capacity of 106.617 MW during 2004-08. With the above capacity, the TPS could have generated 3,891.947 MUs in 36,504 possible hours of generation against which the Company generated 2,473.832 MUs in 28,586 actual running hours with a consequential generation loss 1,418.115 MUs .

Shortfall in generation

2.3.22 Audit scrutiny revealed that PAF of CCPP I ranged between 33 and 91 *per cent* during 2003-08. During 2006-07, PAF had reduced to 33 *per cent* due to two major breakdowns in June and November 2006 followed by prolonged interruption in the gas supply due to damage (August 2006) of the GAIL's pipe line. As against the projected generation of 2,145 MUs, the Company generated 1,620.757 MUs of energy during 2005-08. Thus, there was a shortfall of 524.243 MUs.

The Management stated (August 2008) that the shortfall was due to forced outages in June and November 2006 due to vibration problem of bearing in Gas Turbine and interruption of gas supply.

Auxiliary consumption

2.3.23 The CCPP-I commenced commercial operation from 28 January 2004 and generated 2,473.832 MUs of power till 31 March 2008. However, it could

There was excess auxiliary consumption of 41.398 MUs.

send out only 2,358.219 MUs for sale to GUVNL due to loss of 115.613 MUs under auxiliary consumption. The GERC stipulated the norm of three *per cent i.e.*74.215 MUs of auxiliary consumption. The actual auxiliary consumption, however, was 4.67 *per cent*. This resulted in excess auxiliary consumption of 41.398 MUs during February 2004 to March 2008 as detailed in ***Annexure* 17**.

Government/Management stated (August 2008) that as the gas booster compressor (GBC) was installed in CCPP-I, the applicable auxiliary consumption would be 5.5 *per cent* instead of three *per cent* of the gross generating capacity. Further, the contractors were penalised for exceeding the guaranteed auxiliary consumption as per the terms of contract. However, the GBC is to be run occasionally and as per GERC orders (December 2007) the approved norm is three *per cent* and the auxiliary consumption of three *per cent* can be increased to the extent of actual consumption by GBC. The details of actual consumption by GBC were not furnished by the management.

Maintenance contract for CCPP-I

2.3.24 The Project Committee had recommended (January 2002) that the Comprehensive maintenance of CCPP-I should be outsourced in due course. The Company awarded (August 2004) the maintenance contract as a stop gap arrangement for initial period of six months at the rate of Rs. 8.90 lakh per month. The Company, however, did not tenderise the maintenance work and continued the said stopgap arrangement upto 19 February 2007.

The TPS belatedly invited (January 2007) tenders in response to which, two bids were received. Though both the bidders were not technically qualified, their price bids were opened on 22 January 2007. The Company, however, reinvited (February 2007) the tender and extended (20 February 2007) the duration of existing contract by yet another two months at the same rate, terms and conditions of the original order or till issue of new contract. In the reinvited tender, the Company received L-1[*] rate of Rs. 80.81 lakh per annum *i.e,* Rs. 6.73 lakh (inclusive of service tax and work contract tax) per month which was 26 *per cent* below the estimated cost of Rs. 9.10 lakh per month put to tender. The Company awarded (17 April 2007) the contract to L-1 firm for both the CCPP I and II.

Thus, the Company, instead of terminating the maintenance contract after an initial period of six months, extended the same till 17 April 2007 which resulted in avoidable extra expenditure of Rs. 82.09 lakh during February 2005 to March 2007.

The Management stated (August 2008) that as the rate of reinvited tender was lower than existing rate, the L-1 firm was paid at lower rate from 22 March 2007 *i.e.* from the very date of opening of price bid, though order was placed on 16 April 2007. The new rates were made applicable from 19 April 2007. Further, the reply does not state the reasons for extending the initial contract of six months from time to time till April 2007.

[*] Universal Erectors, Ahmedabad.

Short recovery of insurance claim

2.3.25 The Company had taken Industrial All Risks Insurance Policy for CCPP-I from the Consortium of Insurers[v] (Insurers). The Business Interruption (BI) section of the Policy covers the damage to the premises of insured due to any peril, causing an interruption to the insured's business. It enables the insured to recover loss of gross profit due to a reduction in turnover and increased cost of working incurred in minimising that loss of gross profit. Audit observations on two instances of BI are given below.

- On 17 June 2006, the gas turbine of CCPP-I tripped on reverse power after an increase in the vibrations of bearing 1 (load gear box side). The Company informed (19 June 2006) BGGTS,[∇] the supplier of gas turbine to undertake repairs. In view of the forced shutdown, the Company preponed its planned shutdown and also decided to carry out Hot Gas Path Inspection (HGPI) of the plant though 24,000 operational hours were not completed as specified by the supplier. After repairs and HGPI, the plant returned to service on 24 August 2006. Audit observed that gas supply to CCPP-I was disrupted from 12 August 2006 due to damage to the GAIL pipeline. The Loss Assessors[*], however, while computing the BI loss did not approve claim for 34 days i.e. 21 days on account of the planned shut down and 13 days for non-availability of gas from 12 to 24 August 2006. Audit further observed that the Company had gas supply agreement with GAIL and Gujarat State Petroleum Corporation Limited (GSPCL) which states that if the gas supplies from any one supplier were discontinued for any reason, the Company would be able to utilise the supplies from the other supplier and thereby ensure uninterrupted generation of power. The Company did not arrange for the alternate gas supply from GSPCL from 12 August 2006. By not arranging the alternate source of gas, the Company not only kept the plant idle for 13 days but also had to forgo the BI claim for this period. Consequently, the Company short received the BI claim to the extent of loss of profit of Rs. 1.38 crore.

Government/Management stated (August 2008) that the period of 13 days was curtailed by the loss assessors due to non-availability of gas during which the Company could not have generated power. The Company further stated that the non-availability of gas being force majeure, the Company was not entitled to recovery of fixed cost as per the PPA. However, the Company had already entered into a GSA with the other gas supplier GSPCL in May 2003 and therefore, instead of keeping the plant idle it could have availed the gas supply from GSPCL and run the plant for generation. This could have not only enabled the Company to claim the BI loss of 13 days but also the fixed cost.

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[v] Bajaj Allianz General Insurance Company Limited, Government of Guajrat Insurance Fund, Reliance General Insurance Company Limited, ICICI Lombard General Insurance Company Limited, National Insurance Company Limited and New India Insurance Company Limited.

[∇] BHEL-GE Gas Turbine Services Pvt. Ltd. (a joint venture of BHEL-GE).

[*] Bhatavadekar and Company, Mumbai.

- The CCPP-I unit experienced a jump in vibrations in turbine 1 when the unit was running at a base load of 66 MW on 2 November 2006. The unit was immediately stopped. As per BHEL's investigation report, the crack initiations in the first stage compressor blades had taken place due to stress corrosion caused by chloride attack. High vibration coupled with these pre-existing discontinuities in the form of pits aided crack propagation by corrosion fatigue resulting in the final failure of the compressor blades. The claim for material damage was disallowed by the Insurers as the damage was not considered as accidental but due to fatigue brought about by stress corrosion arising out of the chloride attack. Under the BI section of the policy, entire period for the replacement of Ro blades was also considered as not admissible for computation of BI loss. Out of the total estimated interruption of 300 days, after considering the Company's option for repairs, the Insurers disallowed the BI period of 180 days being the estimated delivery period and repairs of the compressor rotor, turbine rotor, stator *etc.,* and considered the balance period of 120 days for the BI claim. Audit observed that the Company had actually taken only 159 days for replacement and repairs. Thus, due to non-consideration of actual replacement period of 159 days as against the estimated 180 days, the Company short received Rs. 2.23 crore towards BI insurance claim for 21 days.

Government/Management stated (August 2008) that the loss assessors deducted 180 days towards replacement of Ro blades as the failure of Ro blade happened due to fatigue and therefore was considered not admissible. The actual number of days taken for replacement was 159 days as against the required 120 days as per the assessment report. Thus the claim was passed for a period of 120 days only. As per the loss assessors report, the period of replacement considered not admissible, was estimated to be 180 days whereas 120 days were assessed for repairs. The actual replacement period, however, was only 159 days. As such, the savings in replacement period by 21 days were eligible for BI loss claim which the Company did not take up with the Insurers.

Residual Life Assessment studies

2.3.26 As per the CEA guidelines, 'Residual Life Assessment (RLA) studies of the generating Unit to improve the operational efficiency of the thermal power stations are required to be taken up on completion of 25 years of service or one lakh hours of operation through the agencies approved by the Chief Inspector of Boilers, Government of Gujarat. Accordingly, out of six, three Units (I, II, and IV) were due for RLA studies. However, due to non-viability, the Company closed Unit I to IV with effect from 28 May 2007 and dropped the implementation of the recommendations of the RLA studies in respect of Unit V and VI in view of uncertainty of getting fuel from IOC after July 2009. A mention was also made vide paragraph 2.4.21 and 2.4.22 of the Report of the Comptroller and Auditor General of India for the year ended 31 March 2007 (Commercial) – Government of Gujarat about the avoidable purchase of materials for renovation and modernisation (R & M) activities at the TPS.

Renovation and modernisation programme

The renovation and modernisation (R&M) activities are undertaken with a view to increase the operational efficiency of the existing power plants. Some of the deficiencies noticed in audit are discussed below:

Dropping of R&M activities resulting in deprival of additional monetary benefit

Non-execution of R & M works deprived the Company of the benefit of Rs. 80.92 crore.

2.3.27 Under the Renovation and Modernisation R&M activity, the Company decided (January 2004) to replace the water wall tubes of boiler, high pressure heaters, control and instrument system and pass valves/isolating valves of feed water control in Unit V and VI at an estimated cost of Rs. 40.34 crore. On completion of the work, the Company envisaged additional revenue/ saving of Rs. 51.11 crore per annum in terms of increase in the generation by 2.40 lakh unit per day and saving of 63.40 MT of fuel worth Rs. 6.80 lakh per day and smooth and reliable plant operation. Rural Electrification Corporation (REC) had also sanctioned the loan to the extent of 90 *per cent* of the estimated cost of each work. The Company decided (September 2006) to drop the said activity on the plea that huge capital expenditure was involved and the pay back period was not sufficient. Subsequently, the Company decided (March 2007) to revive the activity to ensure that the Unit would run upto the year 2011 *i.e.* the period upto which Indian Oil Corporation Limited (IOC) had agreed to supply LSHS. The pay back period was estimated between 2.5 and 6.5 months. The tenders for the work were also finalised. The Company, however, dropped (September 2007) the work citing the non-availability of LSHS from IOC from July 2009 onwards and instead derated (April 2007) the capacity of Unit V and VI from 140 to 110 MW. Thus, non-execution of the approved R & M work not only deprived the Company of the benefit of Rs. 80.92 crore for nineteen months from September 2006 to March 2008 but also resulted in derating of the Unit V and VI from 140 to 110 MW in April 2007 as detailed in ***Annexure* 20**.

The Management stated (September 2008) that all the four R & M activities were not taken up due to uncertainty of availability of LSHS beyond July 2009, the pay back period was not justified and there was no shutdown possible for the work. However, the Company's earlier decision (March 2007) to revive activities was also based on the same expected pay back period and possibility of availability of LSHS.

Non-execution of minor schemes

2.3.28 The Company proposed (January 2006) 18 minor R & M schemes duly approved by REC for extending finance of Rs. 85.66 crore for the TPS I and II with the scheduled programme upto 2008-09 and beyond. However, the Company closed (May 2007) Unit I to IV due to ageing effect and the Unit V and VI are also likely to be closed due to non-availability of LSHS from IOC. The details of the 18 schemes executed, benefits available from their execution, and the reasons for not taking up the work were not made available to audit.

The Management stated (August 2008) that six schemes were taken up at the cost of Rs. 9.65 crore. The reply, however, does not state the benefits derived of the schemes executed. Further, no reasons were given for not taking up or dropping the remaining 12 schemes.

Inventory Control

2.3.29 During 2003-2008, the DTPS placed 3,209 orders worth Rs. 126.42 crore on purchases (excluding fuel) of store material. The inventory details of the DTPS are given below:

Year	Opening stock	Receipt	Rate difference	Issued	Closing stock	Equivalent stock (in months)
	(*Rs. in crore*)					
2003-04	7.94	13.15	0.15	12.25	8.99	8.80
2004-05	8.99	8.86	(-)0.17	8.94	8.74	11.73
2005-06	8.74	10.41	(-)0.27	8.45	10.43	14.82
2006-07	10.43	42.70	0.21	31.33	22.01	8.43
2007-08	22.01	11.87	1.70	11.72	23.86	24.43

The management had neither prescribed any norms for inventory holding nor had it adopted the norms of similar generating unit of National Thermal Power Corporation Limited (NTPC) which follow the norm of four month's inventory holding. It would be seen from the table above that the DTPS had inventory holding ranging from 8.43 to 24.43 months during 2003-08. This resulted in additional inventory holding cost of Rs. 9.87[∂] crore per annum.

In this connection, the following points were noticed in audit:

- Although the DTPS was operating stores since 1964-65, no Material Manual for effective control over the stores was prepared.
- The DTPS had not determined maximum, minimum and re-ordering inventory levels for any item of stores.
- The Company had not formulated a system of regular physical verification of stores.

The Management stated (September 2008) that the physical verification of the stores was conducted for the year 2007-08.

Procurement of material/spares

Belated indenting/procurement of spares for capital overhauling work

2.3.30 The DTPS submitted to Head Office, Vadodara an indent (April 2000) for spares required for replacement of damaged parts of Turbine Generator in

[∂] Rs.14.80 crore (average clearing stock during 2003-08) minus Rs. 4.93 crore (Rs. 14.80 crore /12 months x four months being NTPC norms).

the ensuing capital overhauling (COH) of Unit V and VI. Accordingly, the Head office of the erstwhile GEB placed (April 2001) the purchase order with GE Power India Limited, New Delhi at a cost of Rs. 3.32 crore which completed the supply by January 2002. Audit observed that COH of Unit V and VI were completed in February 2000 and August 2000, respectively. As such, the spares meant for replacement could be used only in the subsequent overhauling work which would be due after normal period of five to six years. The TPS, however, did not undertake COH of the above Unit (March 2008). As a result, the spares worth Rs. 3.32 crore remained idle. Further, the warranty period of 18 months from the date of supply also expired in July 2003. Thus, the unscheduled purchases of costly spares not only led to blockage of funds of Rs. 3.32 crore but also resulted in loss of interest of Rs. 2.15 crore*.

Unscheduled purchase of spares costing Rs. 3.32 crore led to loss of interest of Rs. 2.15 crore.

The Management stated (August 2008) that the indent for spares was placed (April 2000) against the replacement of the stock utilised. The reply is not factually correct as the records indicate that the indented quantity was meant for utilisation during the ensuing capital overhauling of August 2000.

Idling of the generator transformer

2.3.31 BHEL make 170 MVA Generator Transformer (GT) installed at Unit VI failed in February 1999. The DTPS initiated actions to undertake repairs of GT only in July 2001. Though, the DTPS made three attempts during 2001-03 to fix an agency for repairs, it did not place orders on the plea that the bidding agencies were either incapable or demanded price revision. The GT was yet to be repaired (March 2008). Thus, due to delay in initiating actions for placement of orders for repairs, the Company could not get the GT repaired and put to use even after more than nine years.

The Management stated (August 2008) that the attempts to repair were made through other agencies but the same could not be finalised due to very poor response. The fact, however, remains that the GT was lying idle for more than nine years.

Cost of generation

2.3.32 The details regarding cost of generation during 2003-08 are given in ***Annexure* 18.** The per unit cost of generation of TPS I and II increased from Rs. 2.93 in 2003-04 to Rs. 4.85 in 2007-08 and of CCPP I from Rs. 1.54 in 2005-06 to Rs. 3.46 in 2007-08 due to failure of the management to restrict different components of generation cost within the limits approved by GERC as analysed below:

The per unit cost of generation of TPS increased from Rs. 2.93 to Rs. 4.85 during 2003-08 and of CCPP I from Rs. 1.54 to Rs. 3.46 during 2005-08.

- Low capacity utilisation (Paragraph 2.3.14).
- Higher auxiliary consumption (Paragraphs 2.3.18 and 2.3.23).

* Interest is calculated at the Company's average borrowing rate of 10.50 *per cent* per annum for 74 months from February 2002 to March 2008.

- Frequent outages of the TPS I and II and increase in repairs and maintenance cost by 67 *per cent* from Rs. 8.39 crore in 2003-04 to Rs. 14.05 crore in 2007-08.

- Increase in administrative expenses and repairs and maintenance cost by 1,830 *per cent* from Rs. 2.69 crore in 2005-06 to Rs. 49.25 crore in 2006-07 for CCPP I.

The per unit cost of power sent out from TPS was higher than the realisable cost of Rs. 3.10 fixed by GERC for 2005-06 by Re. 0.18 per unit, and Rs. 4.40 fixed by GERC for 2007-08 by Re. 0.45 per unit. Similarly, the per unit cost of power sent out from CCPP-I was higher than the realisable cost of Rs. 2.73 fixed by GERC for 2006-07, by Rs. 2.37 and Rs. 2.91 fixed by GERC for 2007-08 by Re. 0.55. Resultantly, the Company sustained loss of Rs. 22.99 crore, Rs. 58.97 crore and Rs. 91.15 crore on sale of power during 2005-06, 2006-07 and 2007-08 respectively. The actual generation cost and cost per unit incurred during 2003-04 and 2004-05 in respect of CCPP I was not available on record (March 2008).

The Management/Government accepted (September/October 2008) the audit findings.

Avoidable expenditure due to improper water management

2.3.33 To cater to the requirement of 40,000 cubic metre per day of water for the DTPS, the GoG agreed (July 2004) to supply water from Mahi canal to the DTPS at the rate of Re. 0.75 per cubic metre as fixed charges. For this, the Company was required to enter into an agreement with the GoG failing which the penalty at the rate of Rs. 2.95 being 50 *per cent* of normal rate of Rs. 5.90 per cubic metre and at the rate of Rupees two being 25 *per cent* of the revised (February 2007) normal rate of Rupees eight per cubic meter towards water charges was leviable for drawal of water. Audit observed that the Company did not enter into an agreement with the GoG and paid penalty of Rs. 76.01 lakh during 2006-07. The Company belatedly entered (May 2006) into an agreement for reserving 1.46 crore cubic meter per year of water at the rate of Rs. 0.75 per cubic metre. The DTPS actually drew 34.03 lakh cubic metre of water during 2006-07 but paid Rs. 1.10 crore for 1.46 crore cubic metre thereby making excess payment of Rs. 84 lakh on the shortfall quantity of 1.12 crore cubic metre. Further, it was observed that during the period, the DTPS also used bore well water which was costlier due to chemical process required to be done to make it usable for the plant operations. As a result, the Company incurred an avoidable expenditure of Rs. 1.07 crore due to consumption of bore well water instead of the canal water. Thus, delay in entering into an agreement with the GoG and incorrect estimation of requirement of water for DTPS led to avoidable expenditure of Rs. 2.67 crore.

Belated signing of agreement and incorrect estimation of water requirement led to avoidable expenditure of Rs. 2.67 crore.

The Management stated (August 2008) that the agreement was delayed as State Irrigation Department was not ready to provide water at the rate of Wanakbori TPS which attracted penalty. Further, the bore well water was taken to sustain generation as full quantity of water was not available. However, the records regarding negotiations with the Irrigation Department

over the rate of water were not shown to Audit. Further, reply is silent on excess payment made for short drawal of water. Besides, the Company did not take up the matter for getting full quantity of water which led to more use of bore well water and consequent extra expenditure.

Surplus staff

2.3.34 The aggregate strength of the staff engaged by the Company at TPS as on 31 March 2008 was 842 persons (technical 679 and non-technical 163 persons). The Company closed (May 2007) oil and gas based four units of 63.50 MW and diverted the staff to Unit V and VI of TPS. Despite availability of additional manpower from closed Unit, the Company paid overtime of Rs. 1.96 crore including Rs. 1.41 crore to operation and maintenance staff of the TPS during 2007-08. Further, in respect of CCPP I, the Project Committee of the Company had approved (January 2002) the strength of 30 persons including supervisory and subordinate staff. The Company, however, engaged on an average 24 excess staff during 2004-07 involving average monthly wage bill of Rs. 3.67 lakh.

The Management stated (September 2008) that the Units of TPS and CCPP-I and II were totally different on every aspect hence 100 *per cent* deployment could not be possible in all the staff categories. Further, during June 2007 to March 2008, operating staff was inadequate against the total sanction and due to this, overtime expenditure was incurred. The overtime expenditure calculated by Audit pertains to Unit V and VI of TPS where surplus staff from Unit I to IV was deployed and, therefore, the payment of overtime was not justified.

Acknowledgement

Audit acknowledges the cooperation and assistance extended by different levels of the Management at various stages of conducting the performance audit.

Conclusion

The Company commissioned both combined cycle power plant (CCPP) I and II with delay ranging from 191 to 282 and 173 to 643 days in open and combined cycle respectively. Main reasons were improper bid evaluation, delayed supply of gas turbine and delay in placement of orders which resulted in loss of generation. The Company incurred avoidable extra expenditure on account of price escalation and service tax. Non-adherence to the stipulated time limits for periodical maintenance works led to shortfall in projected generation due to excessive outages. Performance of the Company was deficient due to poor maintenance of the Dhuvaran oil and gas based thermal power station, non execution of approved renovation and modernisation activities, excess payment on improper water estimation and unscheduled/excess procurement of material. The Company did not utilise the services of the excess manpower productively so as to minimise the employee cost.

Recommendations

The Company may:

- **adopt efficient and effective commercial practices in contract management for avoiding delay in award/execution of work;**
- **plan procurement of maintenance spares keeping in view the maintenance schedules, available stock and time required for getting the supplies;**
- **identify the recurring troubles in the plants and formulate a strategic maintenance schedule to match with the statutory overhauling works so as to minimise the forced outages; and**
- **conduct an exercise to identify the staff for each running generation unit and ensure its optimum utilisation.**