

## CHAPTER - III

### 3 Reviews relating to Statutory corporation

#### Gujarat Electricity Board

#### 3.1 Power sector reforms - signing of Memorandum of Understanding and implementation thereof

##### Highlights

The Memorandum of Understanding was signed in January 2001 between Government of India and Government of Gujarat as a measure of joint commitment to undertake time bound power reforms in the State.

(Paragraph 3.1.2)

Report of the consultants on corporatisation of the Board, received in May 2000, was not considered (July 2003). Thus, consultancy fees of Rs.66.02 lakh paid for the report was unproductive.

(Paragraph 3.1.8)

The Board suffered a revenue loss of Rs.19.92 crore due to excessive transmission and distribution losses of energy during 2002-03 despite the expenditure of Rs.40.75 crore incurred under accelerated power development programme for system improvement.

(Paragraph 3.1.9)

The Board could not avail benefits of Rs.4.43 crore *per annum* due to indecision in the implementation of the wide area network project. Besides, it incurred infructuous expenditure of Rs.40.70 lakh on consultancy charges (Rs.22.35 lakh) and commitment charges (Rs.18.35 lakh) on the project.

(Paragraph 3.1.11)

Failure to submit the proposal for adopting new fuel cost adjustment formula as per Gujarat Electricity Regulatory Commission's directives resulted in loss of Rs.762.94 crore during 2001-03.

(Paragraph 3.1.15)

The achievement of the profit centres could not be measured due to non-identification of the off-take points and non-fixation of the transfer price of power supplied to the profit centres.

(Paragraph 3.1.21)

## Introduction

**3.1.1** Gujarat Electricity Board (Board) was established in 1960 under the provisions of the Electricity (Supply) Act, 1948. The Board is engaged in generation, transmission and distribution of electricity in the State of Gujarat except in urban areas of Ahmedabad and Surat which are served by two public limited companies\*.

Section 59 of the Electricity (Supply) Act, 1948, stipulated a minimum rate of return (ROR) of 3 *per cent* on the value of fixed assets of the Board in service at the beginning of the financial year. Against this, the actual ROR (excluding subsidy from the State Government) was negative. The Board had been incurring losses since 1985-86 and the accumulated losses went up to Rs.5,873 crore as on 31 March 2003. The main reasons for losses were unremunerative tariff, supply of power to agriculture at subsidised rates, excessive transmission and distribution (T&D) losses, *etc.*

Continued negative ROR, besides adversely affecting the ways and means position of the Board, also jeopardised the developmental activities of the Board. The State could not add much to its generating capacity, which was 4,540 MW<sup>♣</sup> during 1997-98 and marginally increased to 4,888 MW in 2002-03 against the demand of 6,112 MW in 1997-98 and 8,601 MW in 2002-03. In order to increase the generating capacity, the Board incorporated a subsidiary company (Gujarat State Electricity Corporation Limited) in August 1993 for generation of power. The company is a deemed Government company under section 619-B of the Companies Act, 1956.

### *Memorandum of Understanding*

**3.1.2** A Memorandum of Understanding (MOU) was signed on 19 January 2001 between the Government of India (GOI) and the Government of Gujarat (GOG) as a measure of joint commitment to undertake the reforms in power sector in a time bound manner and the support which the GOI would extend to GOG. The MOU was valid for a period of five years and subject to review annually. The records made available to audit, however, did not indicate meetings, if any, held between GOI and GOG specifically for review of MOU.

## Organisational set up

**3.1.3** The Board does not have any formal organisational set up for the specific purpose of implementing the reform process. In respect of implementation of the reform process and commitments under the MOU, the Board stated (August 2003) that the implementation of the reform process was depended on the decision of GOG to finally restructure the Board, based on the recommendations of the consultants appointed by the Asian Development Bank (ADB). It was further stated that the activity of reform was an ongoing

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- The Ahmedabad Electricity Company Limited and Surat Electricity Company Limited, respectively.
  - ♣ Mega Watt

process and the same had been discussed by the Board from time to time based on the reports of consultants.

### Scope of Audit

**3.1.4** Status of power sector reforms during 1997-2003 including the reforms made in the State of Gujarat as per MOU signed between GOI and GOG in January 2001 was reviewed during December 2002 to February 2003.

The audit findings, as a result of test check of records, were reported to the Government/Board in March 2003 with a specific request for attending the meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE) so that view points of Government/Board was taken into account before finalising the review. The meeting of ARCPSE was held on 26 May 2003 with officials of State Government and the Board and their view points have been duly incorporated in the review.

### Implementation of the reform programme

**3.1.5** The objectives of the reforms and restructuring of the power sector as per MOU have been outlined in *Annexe-18*. Out of the commitments made in the MOU, the following components of the reform programme were implemented:

Sl. No	Commitments made by the State Government	Present status
1.	Setting up of Gujarat Electricity Regulatory Commission (GERC)	Gujarat Electricity Regulatory Commission was set up (July 1999).
2.	Implementation of first tariff award of GERC	The Board got approval of its first tariff award by GERC and implemented it <i>w.e.f.</i> 10 October 2000.
3.	Offsetting subsidy and subvention arrears owed by GOG to the Board till 31 March 2000 against dues of the Board owing to GOG and payment of outstanding municipality dues owing to the Board till 31 March 2001.	GOG adjusted Rs.2,072.94 crore on 31 March 2001 and Rs.1,974.47 crore on 26 September 2001 against outstanding loan of Rs.4,047.41 crore as on 31 March 2000.
4.	Introduction of the Reforms Bill in the Gujarat State Assembly and subsequent enactment of the Reforms Act.	The State Legislative Assembly passed the Gujarat Electricity Industry (Reorganisation and Regulation) Bill, 2003 (the Reforms Act) on 14 May 2003 which came into effect from 16 May 2003

5.	Creation of independent distribution circles of Kheda (Anand) and Rajkot as profit centres and accord of fiscal and administrative autonomy to such profit centres by the Board.	The Board created (October 1998) two profit centres at Anand and Rajkot.
6.	Rationalisation and reduction of electricity duty by GOG in the budget for the financial year 2002-03.	GOG rationalised and reduced the electricity duty in the budget for the financial year 2002-03.

### Formation of separate companies

#### *Formation of a generation company*

**3.1.6** The Board was unable to mobilise requisite funds for undertaking expansion activities for setting up additional generation capacity to meet the increasing demand of power in the State. To overcome resource crunch, Gujarat State Electricity Corporation Limited (GSECL) was incorporated on 12 August 1993 with authorised capital of Rs.10 crore. GSECL received the certificate of commencement of business in September 1993. The commercial operations of GSECL started only in October 1998 with the commissioning of 210 MW Gandhinagar Unit-V followed by commissioning of 210 MW Wanakbori Unit-VII in April 1999. Besides, the Board transferred (August 2002) the Utran gas based thermal power station (UGTPS) to GSECL. Moreover, GSECL was also setting up a 107 MW combined cycle gas based thermal power station (TPS) at Dhuvaran, which was under completion stage (July 2003). Further, as per MOU, the assets and management of Gandhinagar TPS units I-IV were to be transferred to GSECL for which the approval was granted by GOG (March 2001). However, the Board stated (August 2003) that in the absence of finalisation of modalities, the transfer of Gandhinagar TPS had not materialised (September 2003).

**In spite of GOG approval in March 2001, the Board did not transfer Gandhinagar TPS to GSECL.**

#### *Formation of a transmission company*

**3.1.7** Gujarat Energy Transmission Corporation Limited (GETCL) was formed in May 1999 under the Companies Act, 1956 for undertaking transmission activities with authorised share capital of Rs.100 crore. The Board invested (16 March 2002) Rs.45 lakh towards equity share capital but the Company could not start commercial operations as transmission lines of 66 to 400 KV were not transferred to GETCL by the Board due to lack of directions from the State Government (September 2003).

**Transmission company formed in May 1999 could not start commercial operation for lack of directions from GOG.**

### Appointment of consultants

**3.1.8** The Board appointed (March 1999) Administrative Staff College of India, Hyderabad (ASCI) to draw a detailed action plan for implementation of various tasks, specifically for corporatisation of the Board at a consultancy fee of Rs.66.02 lakh. ASCI in its final report (May 2000) recommended restructuring of the Board in phased manner into one or more generating

**Consultants' report obtained by spending Rs.66.02 lakh was not considered by the Board.**

companies, one transmission company, five distribution companies and retaining the Board as holding company.

However, the report was not submitted to the Board of Directors (BOD) for consideration (July 2003). The Board stated (August 2003) that though the report was not submitted to BOD yet the same was utilised by the consultants of Asian Development Bank (ADB) in connection with sanction of loan by ADB to the Board in December 2000. The Board's contention was not tenable as the very purpose of appointment of ASCI was defeated due to the Board's inaction on the report.

The Board after passing of the Reforms Act (May 2003), appointed (May 2003) M/s. CRISIL Infrastructure Advisory (CIA) as a consultant for formulating and implementing the restructuring and reforms in the Board. As per terms of the appointment, CIA would submit its report by October 2004 and charge consultancy fee of Rs.72 lakh. Besides, the Board also constituted (May 2003) a Reform Project Management Group (RPMG) to coordinate with other departments on the various issues that require clarification and interaction and to furnish information to CIA. The appointment of new consultant without considering and implementing the earlier report was irregular.

### **Support from Government of India and financial institutions**

#### *Assistance received from the Government of India*

**3.1.9** As per the MOU signed with State Government/State Electricity Boards (SEBs), GOI provides financial assistance to the SEBs for strengthening the infrastructure in the power sector through respective State Governments under Accelerated Power Development Programme (the programme). The assistance so received by the Board was to be utilised mainly for the following:

- To ensure 100 *per cent* metering system with high precision electronic meters up to distribution transformer centres (DTC) level so as to accurately assess the supply of energy;
- To ensure 100 *per cent* metering of the consumers so as to increase the metered energy;
- Revamping of 66/11 KV sub-stations so as to ensure the reliable supply and meet the increased demand;
- Bifurcation of long feeders, so as to improve the voltage regulation and reduction in energy losses;
- Computerised billing centres and automatic data logging system to improvise mechanism for billing and accounting of energy; and
- Renovation and modernisation (R&M) of the power stations in the State.

The Board received Rs.200.15 crore (including Rs.101.25 crore for rehabilitation work in earthquake affected Kutchh district) during 2000-03 against the sanctioned cost of Rs.803.17 crore of the programme. Thereagainst Rs.77.16 crore was utilised under the programme up to February 2003. Audit observed that despite incurring a substantial expenditure of Rs.40.75 crore on replacement of meters and metal meter boxes (MMB) and strengthening of distribution and sub-transmission systems for reduction of T&D losses in three circles covered under the programme, viz. Sabarmati, Himatnagar and Jamnagar, the percentage of T&D loss actually increased in these circles during 2002-03, as detailed below:

Name of the circle	2000-01	2001-02	2002-03
	(T&D loss in percentage)		
Sabarmati	8.53	9.13	9.52
Himatnagar	8.25	8.48	9.39
Jamnagar	20.42	19.76	21.54

**There was heavy T&D loss of 80.993 Million units in Jamnagar circle during 2002-03.**

T&D loss in case of Jamnagar circle was abnormal during 2000-03 as it was in excess norms of 15 *per cent* fixed by Central Electricity Authority. Consequently, the Board suffered a revenue loss of Rs.19.92 crore<sup>Ø</sup> on the excess T&D losses of 80.993 million units<sup>∇</sup> as worked out in audit for 2002-03.

The Government/Board stated (July 2003) that efforts were being made by the Board for reducing the distribution losses in Jamnagar circle and there was substantial reduction in T&D losses from industrial, urban and GIDC<sup>Δ</sup> feeders of Himatnagar circle. The reply of the Board was not tenable as there was an overall increase in distribution losses.

### ***Loans from Power Finance Corporation Limited***

**3.1.10** The Board had not formulated any future investment plan for achieving the programme under power sector restructuring and MOU. However, the Board made investment for renovation and modernisation (R&M) of its existing TPS and system improvement out of the loans and assistance availed from the Power Finance Corporation Limited (PFC) and GOI during 1998-2003. It was observed that during the said period the Board drew Rs.107.64 crore out of Rs.143.86 crore sanctioned by PFC in six schemes, as tabulated below:

Ø At the rate of Rs.2.46 *per unit* realisation rate for 2002-03

∇ Difference of units sent out (1,238.715 MU) and units received (971.915 MU) minus 15 *per cent* normative T & D loss on units sent out.

Δ Gujarat Industrial Development Corporation

(Amount rupees in crore)

Name of scheme	Date of sanction	Sanctioned amount	Amount drawn up to March 2003	Status of work	Scheduled completion date
Wide Area Network (WAN)	27 May 1998	9.52	Nil	The work was not taken up yet (August 2003)	January 1999
Installation of 500 MVAR capacitors	21 August 1998	10.45	10.45	The work was completed in July 2000	April 2000
Installation of 500 MVAR capacitors	3 April 2000	18.74	11.42	The work was completed belatedly (July 2003)	December 2001
R&M of Wanakbori TPS	19 November 1998	27.45	20.13	The work was in progress (August 2003)	January 2004
R&M of Gandhinagar TPS	27 August 1999	41.70	35.85	-do-	July 2003
R&M of Ukai TPS	13 December 1999	36.00	29.79	-do-	March 2004
<b>Total</b>		<b>143.86</b>	<b>107.64</b>		

Scrutiny of the records revealed the following irregularities:

#### **Wide Area Network (WAN)**

**3.1.11** The Board developed and implemented computerisation in various application areas *viz.*, computerised billing of consumers, financial accounting system, inventory control etc. The Board approached (February 1998) PFC for availing of loan for setting up WAN in order to interlink all the business applications and control system through robust communication network system.

Besides, implementation of WAN would result in benefits of Rs.4.43 crore *per annum* to the Board due to better management of working capital and revenue realisation, thereby reducing overdraft burden, saving of time in decision-making, saving in administrative expenses and better monitoring, control and redistribution of inventory. Accordingly, PFC sanctioned (May 1998) loan of Rs.9.52 crore to the Board with the stipulation to complete the work relating to WAN in January 1999.

**Non-implementation of WAN project deprived the Board of annual benefits of Rs.4.43 crore besides unfruitful expenditure of Rs.40.70 lakh.**

Scrutiny of the records revealed that even after lapse of more than four years from the stipulated date of completion (January 1999) of WAN, the Board neither initiated any action nor drew the loan (March 2003). This deprived the Board of the annual benefits of Rs.4.43 crore. Since the Board could not draw the loan according to the time schedule submitted to PFC, the Board had to pay commitment charges of Rs.18.35 lakh. Further, payment of consultancy charges of Rs.22.35 lakh made to M/s. Tata Consultancy Services (TCS) for

the preparation of “Information Systems and Strategy” relating to the work of WAN also remained unfruitful.

The Government/Board (July 2003) stated that it could not decide the type of technology due to advancement in the information technology and it was waiting for stabilisation of the same.

### ***Assistance from Asian Development Bank***

**3.1.12** The Asian Development Bank (ADB) sanctioned (December 2000) \$350 million, comprising policy loan of \$150 million and project loan of \$200 million which was to be utilised up to 31 December 2002 and 30 June 2005 respectively as per the loan agreement. Further, the policy loan was to be released to GOG through GOI in three tranches of \$50 million each upon fulfillment of conditions attached thereto.

GOI released (January 2001) the first tranche of ADB’s policy loan of \$50 million (equivalent to Rs.233.70 crore) to GOG. In turn, GOG released (February 2001) Rs.136.91 crore as loan to the Board after adjustment of Rs.96.79 crore being the grant already paid towards clearance of electricity dues of municipalities. As per the conditions of ADB, the loan was to be utilised for liquidation of outstanding liabilities to IPPs\*, coal suppliers, railway freight *etc.* The Board had not received the amount of second tranche due to non-fulfillment of two conditions *viz.* submission of action plan for metering all agricultural consumers and transfer of assets and management of Unit I-IV of Gandhinagar TPS to GSECL (July 2003). In respect of the project loan, ADB paid Rs.19.36 crore (four million dollars) during May to December 2002 to suppliers on the basis of bills forwarded by the Board.

## **Non-implementation of GERC directives**

### ***Metering of agricultural consumers***

**3.1.13** GERC in its tariff award directed (October 2000) the Board for metering of all agricultural consumers in a phased manner by October 2003. This was included as one of the commitments in the MOU. The Board could provide meters only to 31,216 out of 5,19,685 consumers billed under Horse Power (HP) based tariff as on 31 March 2003. As per the Board’s estimate, metering on HP based agricultural connections would lead to increased revenue of Re.0.21 *per unit* of energy sold. Thus, the delay in metering of 4.88 lakh HP based consumers as on 31 March 2003 led to non-realisation of anticipated revenue of Rs.173.19 crore<sup>⊗</sup> for the year 2002-03.

### ***Submission of proposal on new fuel cost adjustment formula***

**3.1.14** The Board, apart from the energy charges, was also separately recovering fuel cost adjustment (FCA) charges from the consumers to

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\* Independent Power Producers

⊗ Average load 8.26 KW X Average daily supply hours 8 hrs X Minimum utilisation factor 0.7 X number of unmetered consumers 4,88,469 X number of days in year 365 X minimum benefit of metered tariff Re.0.21 = Rs.1,73,18,77,781.21



**Non-observation of GERC's directives resulted in revenue loss of Rs.762.94 crore.**

neutralise the effect of increase in the cost of generation/purchase of energy till GERC tariff award of October 2000. However, GERC in the tariff award merged the FCA prevalent up to the date of the award in the new tariff and directed (October 2000) the Board to submit a proposal for adoption of a new formula for FCA within six months. However, the Board failed to submit the proposal on new FCA formula (July 2003) as per the direction. Consequently, the increase in fuel cost of Re.0.16 and Re.0.19 *per unit*\* at the Board's TPS during 2001-02 and 2002-03, respectively was not recovered from the consumers. This resulted in revenue loss of Rs.762.94 crore (Rs.344.01 crore during 2001-02 and Rs.418.93 crore during 2002-03). Reasons for the Board's failure to adhere to the GERCs' directives were not made available to audit (July 2003).

### **Creation of independent profit centres**

**3.1.15** ADB appointed (July 1997) M/s. Deloitte Touche Tomatsu (DTT) as a consultant to design a model for profit centre as a precondition for sanction of loan for which consultancy fees were to be paid by ADB. On the basis of the report submitted (May 1998) by the consultant, MOUs were signed between the Board and two of its circles at Rajkot and Anand in October 1998.

The main objectives of creating two circles into profit centres *inter alia* included:

- Reduction in T&D losses,
- Creation of effective cost control system, and
- Ensuring efficient revenue realisation,

In order to assess the efficacy of the profit centres at Anand and Rajkot, an analysis of the activities of the centres was carried out in audit with reference to the objectives of creation of such centres. The results of audit analysis are given hereunder:

#### ***Reduction in T&D losses***

**3.1.16** A review of the T&D losses at various sub-divisions of the Rajkot centre revealed that even after the expiry of three years since the centre was created, the losses ranged between 30 and 51.77 *per cent* in 13 out of 39 sub-divisions due to insufficient energy audit activities like installation of MMBs, replacement of defective meters, checking of installation at consumers' premises, etc. The Government/Board stated (July 2003) that a system of feeder manager was being introduced, for monitoring each feeder with T&D losses in excess of 30 *per cent*. Accordingly, action was being taken at circle, zonal and head office level, for monitoring the feeders to reduce the distribution losses. The reply was not tenable as the action proposed by the Board was belated.

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\* Calculated based on the fuel cost of Rs.1.24 *per unit* incurred during 2000-01

### ***Creation of effective cost control systems***

**3.1.17** The Board neither ensured the preparation of financial budgets by the profit centres for allocation of funds nor allowed the centres to take decision related to cash flow management as envisaged in MOU signed with centres. This in turn affected the overall performance of the centres in achieving the targets. Likewise, powers were not given to the centres for dealing with the matters related to revenue realisation and its retention.

The Government/Board stated (July 2003) that funds were allotted to centres on the basis of indent received from them. Besides, according to the policy of the Board, no circle was allowed to retain the revenue collected. The reply was not tenable since the restrictions imposed for retaining the revenue collected was not in consonance with the concept of financial autonomy as envisaged.

**3.1.18** In respect of procurement of materials the centres can place orders up to Rs.10 lakh each. However, the financial powers delegated to centres were inadequate, as scrutiny of the records of pending works at Anand centre revealed that three out of four works valuing Rs.56.01 lakh remained unexecuted for one to three years as on March 2003 for want of material, to be procured through the Board.

The Government/Board stated (July 2003) that the procurement of the material locally was costlier compared to procurement of the material by the Head Office in bulk quantity and then supplying it to the centres. The reply was not tenable since the inadequate financial powers with the centre hampered their efficient functioning.

### ***Ensuring efficient revenue realisation***

**3.1.19** One of the objectives of the restructuring of the two circles into profit centres was to ensure efficient revenue realisation. However, the revenue arrears in respect of all categories of consumers had increased from Rs.60.78 crore and Rs.59.52 crore in March 2001 to Rs.80.83 crore and Rs.74.04 crore in March 2003 in Rajkot and Anand centres respectively. The Government/Board stated (July 2003) that increase in arrears was due to huge outstanding lying unrecovered from permanently disconnected consumers (PDC) and water works consumers. Thus, the revenue arrears were mounting in the centres.

**3.1.20** Out of 50,298 agricultural consumers under Rajkot centre, only 9,458 agricultural consumers exercised the option to be billed under meter based tariff of which only 1,127 agricultural consumers were installed with meters up to March 2003. This indicated a very poor performance of the installation of meters and billing under meter based tariff.

**Negligible progress was made in billing under meter based tariff.**

**The achievement of the profit centres could not be measured in the absence of fixation of off-take point and transfer price.**

**3.1.21** As per the MOUs signed with centres, the Board was to supply and deliver electricity of agreed quantity and quality at the outskirts of the geographical limits of a profit centre. Meters were to be installed at the off-take points to monitor the quality and quantity of the electricity supplied. The circles at the beginning of each quarter were to notify to the Board, the

electricity requirement for that quarter. However, no off-take points<sup>∇</sup> were identified for purchase of power. Consequently, quantity of power supplied to the profit centre was not measured. Besides, transfer price for power supplied was also not fixed by the Board. As a result, the achievement of the profit centre could not be evaluated correctly as both the profit centres were preparing their Profit and Loss Account on the basis of different transfer prices adopted on their own accord.

Thus, the concept of a profit centre though based on sound managerial principles and concepts, failed as the Board did not implement it as per the road map designed by the consultants.

### **Conclusion**

**The State Government/Board initiated the process of power sector reforms with the formation of Gujarat State Electricity Corporation Limited (August 1993) and Gujarat Energy Transmission Corporation Limited (May 1999). However, no progress has been made to make the Gujarat Energy Transmission Corporation Limited functional. The financial assistance availed from Power Finance Corporation Limited and Government of India for renovation and modernisation of the existing thermal power stations and also system improvement did not yield the desired results due to delay/non-implementation of programmes. In spite of the Gujarat State Electricity Regulatory Commission's directives, the Board failed to meter all agricultural consumers and submit the proposal for accepting new fuel cost adjustment formula within the prescribed time limit. As regards the profit centres, the desired results were not achieved even after a lapse of four years from the date of creation of the centres due to non-adherence to the objectives in the right perspective. The State Government and the Board need to take adequate steps for expediting the power reforms and implementation of measures as envisaged in the Memorandum of Understanding.**

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∇ Off-take points refer to the sub-stations from where energy has been supplied by the Board to profit centres

## **3.2 Procurement and performance of energy meters in Gujarat Electricity Board**

### **Highlights**

**As per section 26(1) of the Indian Electricity Act, 1910, the Board is required to install and maintain correct energy meters on each point of supply of energy to consumers for measuring the energy actually sold. Of the total 74.74 lakh consumers, 4.88 lakh agricultural consumers were unmetered, besides, as on 31 March 2003 besides there were 6.57 lakh defective meters pending replacement.**

*(Paragraph 3.2.1)*

**Non-metering of 4.88 lakh agricultural consumers as on 31 March 2003 led to non realisation of anticipated revenue of Rs.173.19 crore during 2002-03.**

*(Paragraph 3.2.5)*

**The Board incurred avoidable expenditure of Rs.2.35 crore due to non placement of orders at the lowest rate, non placement of repeat orders, and non comparison of rates of previous tender and inter state rates.**

*(Paragraphs 3.2.12 to 3.2.18)*

**The Board incurred extra expenditure of Rs.2.02 crore due to bulk purchase at rates higher than local purchase rates.**

*(Paragraph 3.2.19)*

**The Board lost revenue of Rs.81.22 lakh due to delay in replacement of defective three-phase meters and non raising of supplementary bills in the case of 332 low tension consumers, test checked in audit.**

*(Paragraph 3.2.22)*

**Due to inadequate monitoring in 17 out of 67 high tension express feeders test checked in eight operation and maintenance divisions, the Board suffered revenue loss of Rs.1.52 crore on account of transmission and distribution losses in excess of the norms.**

*(Paragraph 3.2.24)*

### **Introduction**

**3.2.1** Energy meters are broadly classified into five types viz., single phase, three phase, low tension current transformer (CT) operated, high tension (trivector) and feeder meters. The first four are installed at consumer premises,

feeder meters are installed at sub-stations for recording energy received through incoming feeders and energy sent out through outgoing feeders to a number of consumers or a single high tension consumer. Meters are also installed at generating stations for preparing energy account and determining system losses.

As per section 26(1) of the Indian Electricity Act, 1910, the Board is required to install and maintain correct energy meters on each point of supply of energy to consumers for measuring the energy actually sold. Of the total 74.74 lakh consumers, 4.88 lakh agricultural consumers were unmetered (March 2003). Details of number of consumers under each category along with units sold during 1998-2003 is given in **Annexe-19**. Besides, as on 31 March 2003 there were 6.57 lakh defective meters pending replacement.

In January 2001, the Government of Gujarat (GOG) entered into a Memorandum of Understanding (MOU) with the Ministry of Power, Government of India (GOI) to undertake the reform and restructuring of the power sector in the state of Gujarat in a time-bound manner, which envisaged *inter alia* metering of all agricultural consumers in a phased manner by October 2003 and replacement of conventional meters by quality meters to increase revenue.

### **Organisational set up**

**3.2.2** For distribution of power and operation and maintenance of distribution lines, the Board has five regional offices, each headed by an Additional Chief Engineer under the overall supervision of the Chief Engineer (Distribution) at Head Office, 19 Operation and Maintenance (O&M) circles, each headed by a Superintending Engineer, 76 O&M divisions, each headed by an Executive Engineer and 439 sub-divisions, each headed by a Deputy Engineer.

The billing, collection of revenue and regular O&M functions relating to low tension (LT) consumers are done by the sub-divisions. The O&M divisions, under the overall supervision of General Manager (Commerce), look after similar functions in relation to high tension (HT) consumers. The stores purchase (SP) section of the Board at Head Office headed by Chief Engineer (Materials) looks after the purchase of various types of meters as per the requisitions received from the Chief Engineer (Distribution).

### **Scope of Audit**

**3.2.3** This review conducted during October 2002 to February 2003 covers the deficiencies in the system of procurement and performance of energy meters and metering equipments for five years upto 2002-03 as noticed during audit of records of 16\* out of 76 O&M divisions and 229 out of 271 centralised purchase orders placed by the Board during 1998-2003. The audit

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\* Surat (Industrial), Surat (Rural), Ankleshwar (O&M), Ankleshwar (Industrial), Bharuch, Vishwamitri (E), Vadodara (O&M), Jamnagar (City), Jamnagar (Rural), Sabarmati, Bavla, Rajkot (O&M), Rajkot (City), Rajkot (Rural), Bhavnagar (City) and Bhavnagar (O&M)

findings as a result of test check of records relating to purchase orders placed during 1998-2003 for procurement of energy meters by the Board and performance of energy meters and metering equipment were reported to the Government/Board in April 2003 with a specific request for attending the meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE) so that view point of Government/Board was taken into account before finalising the review. The response from the Government/Board for holding the discussion on the draft review under the forum of ARCPSE was awaited (July 2003).

### Financing pattern

**3.2.4** The purchase of meters is normally financed through budgetary allocations. Besides, GOI provided funds for various schemes under the MOU through the Accelerated Power Development Reform Programme (APDRP) and counter part funding<sup>#</sup> was done by Rural Electrification Corporation (REC) and Power Finance Corporation (PFC).

The table below summarises the funds sanctioned, received and utilised during 2000-01 to 2002-03 (up to February 2003) in respect of the above programme.

Schemes	Year	Funds sanctioned			Funds received (up to February 2003)			Amount spent (up to February 2003)
		GOI	REC/ PFC	Total	GOI	REC/ PFC	Total	
(Rs. in crore)								
Replacement and installation of meters	2000-01	11.39	11.39	22.78	11.39	9.86	21.25	22.78
Strengthening of distribution and sub-transmission system	2002-03	291.97	291.97	583.94	75.42	---	75.42	27.44

### Implementation of metering schemes

**3.2.5** Funds of Rs.22.78 crore meant for the financial year 2000-01 and received in March 2001 (GOI) and October 2002 (REC) were to be utilised for replacement of 1.40 lakh defective meters by quality meters and installation of 0.49 lakh three-phase meters in agricultural connections in three identified circles. Due to resistance from farmers in installation of meters and also to ensure timely closure of scheme, the Board utilised the fund received for the year 2000-01 for replacement of 1.87 lakh defective meters by quality meters and installation of 0.15 lakh meters in agricultural connections and sought approval for the modification in the scheme of metering. The approval from GOI was awaited (August 2003).

For the year 2002-2003, the GOI sanctioned a scheme for strengthening of distribution and sub-transmission system; initially for three circles at a cost of

<sup>#</sup> Counter part funding indicates matching contribution that has to be arranged by the Board.

Rs.255.27 crore and further extended it to six more circles at a cost of Rs.328.66 crore. During the year 2002-03, the Board received only Rs.75.42 crore from GOI. No counterpart funding was received. The Board only spent Rs.27.44 crore (up to February 2003) for both the schemes put together. Consequently, against the target of replacing 6.40 lakh defective meters by quality meters and installing 1.45 lakh meters in agricultural connections, the Board (February 2003) could replace only 0.52 lakh meters and install 484 meters in agricultural premises at a cost of Rs.6.15 crore. Remaining amount was utilised for other than metering activities.

GERC, in its award of October 2000, which was also adopted in the MOU signed in January 2001, envisaged metering of all agricultural consumers by October 2003. Hence, over and above the metering of agricultural consumers done under the APDRP circles, metering of agricultural consumers was also done in other circles not covered under the scheme. However, by 31 March 2003 the Board was able to provide meter only to 31,216 of its 5.20 lakh HP based agricultural consumers, leaving 4.88 lakh HP based agricultural consumers still unmetered.

As per the Board's own estimate, metering an agricultural consumer and consequent shifting from the HP based tariff to the metered tariff led to increased revenue of Re.0.21 per unit of energy sold. The non metering of 4.88 lakh HP based consumers as on 31 March 2003 led to non realisation of revenue of Rs.173.19 crore for the year 2002-03 as calculated below:

**Non metering of 4.88 lakh HP based agricultural consumers led to non realisation of anticipated revenue of Rs. 173.19 crore.**

Average Load in KW	Average hours supplied in a day	Minimum utilisation factor	Number of unmetered consumers (in lakh)	Number of days in a year	Minimum benefit of metered tariff per KW	Amount (Rupees in crore) (product of column 1 to 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.26 KW	8 hours	0.7	4.88	365	Rs.0.21	<b>173.19</b>

The Board needs to expedite its arrangement of counter part funding so as to avoid delays in implementation of schemes and also lay down time period for achievement of targets to ensure effective monitoring.

### **Procurement of energy meters**

**3.2.6** During 1998-2003, the Board procured 20.42 lakh meters at a cost of Rs.199.74 crore which included 8.69 lakh quality and semi-quality meters procured at a cost of Rs.70.44 crore.

### **Purchase procedure**

**3.2.7** The Board had SP section at head office, which made the purchases, as per the stores procedure and delegation of powers laid down by the stores procedure code as amended from time to time. Tenders above Rs.10 crore had to be approved by the Board of Directors whereas tenders above rupees five crore and upto Rs.10 crore were approved by the Purchase Committee. In October 2000 the Board also adopted a purchase policy to streamline purchase procedure like classification of new and regular parties, price evaluation,

requirement of technical specifications, negotiations and quantity distribution which had also to be followed for purchases made after that date.

### ***Assessment of requirement***

**3.2.8** Besides replacement of conventional meters and installation of meters in agricultural premises under the APDRP the requirement of meters for each year was assessed based on new connections to be released, defective meters to be replaced as per the regular activities of the Board scheme. Though the Board had been replacing around 3.29 lakh to 6.83 lakh defective meters every year during 1998-2003, there were still 4.21 lakh to 7.88 lakh meters pending replacement at the close of these years. The Board, therefore, needs to make a realistic assessment of its requirements and also link it with the funded schemes being carried out separately so as to minimise number of defective meters pending replacement.

### ***Suppliers rating cards***

**3.2.9** The stores procedure code and the purchase policy did not provide for a system of supplier rating. Consequently, the Board did not have a data bank of supplier performance. It was observed that supplier's performance was being ascertained from field offices on a case-to-case basis as and when required during finalisation of tenders.

### **Placement of orders**

**3.2.10** During 1998-2003, the Board placed 117 orders for meters of which 114 orders valuing 199.74 crore were executed. The Board also placed 154 orders for kit kat fuses, plastic seals and metal meter boxes of which 137 orders valuing Rs.22.66 crore were executed. Out of the said purchase orders, purchase orders valuing Rs.181 crore were test checked in audit.

A test check in audit revealed that system of procurement was marred by the inefficiencies such as delay in finalisation of tenders, non placement of orders at the lowest rate, non comparison of previous tender prices, non comparison of inter-state rates and bulk purchase at rates higher than local purchase rates leading to avoidable extra expenditure of Rs.4.38 crore, as discussed in the following paragraphs.

### ***Inordinate delay in finalisation of tenders***

**3.2.11** As per norms laid down by the Board, purchase orders are required to be placed within 100 days from the receipt of indent. An analysis of 24 out of 33 tenders (finalised during 1998-2003) scrutinised in audit revealed delays ranging from 37 to 600 days, as tabulated below:

Number of tenders	Period of delay (in days)		
	1 to 180	181 to 365	Beyond 365
24	5	16	3

Delay in finalisation of tenders ranged from 37 to 600 days.

The Board should avoid such delays as it leads to delay in implementation of the schemes.



### ***Non placement of orders at the lowest rate***

**3.2.12** The stores procedure code provides that where the lowest cost firms were ignored for reasons other than technical specifications; the reasons thereof should be recorded. Further, as per the Board's convention, once a party was selected as the lowest cost firm for placement of order, all other approved parties had to match end cost with the lowest cost firm. The purchase policy adopted by the Board in October 2000 made it compulsory for all the approved firms to match with the lowest cost.

A test check of tenders revealed erroneous rejection of the lowest offer in one case and non-insisting of matching with the lowest firm in two cases, as discussed below:

#### ***Erroneous rejection of the lowest cost firm***

**3.2.13** The Board invited (May 2000) tenders for 30 lakh plastic seals and proposed to procure 43.5 lakh seals at an estimated cost of Rs.76.56 lakh. The lowest regular firm who had quoted Rs.1.76 *per* unit was not considered due to alleged supply of 2.1 lakh defective seals in the previous order of September 1999 and a notice for supply of duplicate seals having been received by the Board from the Commissioner of Electricity duty (August 1999) against the supplier, which was found erroneous subsequently.

Orders on suppliers other than the lowest firm were placed (July 2000) for 4.35 lakh seals at the rate of Rs.2.10 *per* unit and for 39.15 lakh seals at the rate of Rs.2.21 *per* unit. It was only on 1 August 2000, after nearly 12 months from the date of notice that the Board called for explanation from the lowest firm. The Board knew at the time of putting up the proposal (July 2000) that the defective seals of the lowest cost firm had already been attended to by the firm. Further, on receipt of reply from supplier on 7 August 2000, against its enquiry of 1 August 2000, the Board realised that the notice of duplicate seals had never been communicated to the supplier and that the duplicate seals did not belong to the supplier. Subsequently, in November 2000, the Board placed orders for two lakh plastic seals at the rate of Rs.1.76 *per* unit on the lowest cost firm.

**Erroneous rejection of lowest cost firm resulted in loss of Rs.19.10 lakh.**

Due to ignoring the lowest firm erroneously, as its defective seals had already been replaced and the alleged supply of duplicate seals did not belong to the firm, the Board incurred an avoidable expenditure of Rs.19.10 lakh. No responsibility for the lapses has been fixed by the Board. The Board/Government replied (July /August 2003) that the lowest firm had been ignored on account of notice of duplicate seals and supply of defective seals in previous tender. Reply was not acceptable for reasons already brought out in the paragraph.

#### ***Placement of orders at quoted rates without matching lowest cost***

**3.2.14** The Board invited (November 1997) tenders for the procurement of 5.18 lakh single-phase energy meters for meeting the requirements for 1998-99. The Board approved (July 1998) placement of orders for 1.19 lakh

**Placement of orders at quoted rates without matching with the lowest rate resulted in extra expenditure of Rs.41.89 lakh.**

meters (25 per cent tendered quantity) of assorted ratings on 11 parties at their quoted rates ranging from Rs.364.44 to Rs.435.19 per meter. On the plea of obtaining better quality, rates of all the firms were not brought down to match with the lowest cost firm. Further, all the eight firms which actually supplied meters against the orders were not able to pass the quality tests of ERDA\*. These meters were, however, accepted on the grounds of urgency. Additional orders for 2.10 lakh meters were placed on the same eight parties in July 1999 by matching the lowest cost, as non-matching with L-1 cost in the main orders had not benefited the Board. As a result of placing main orders for 1.19 lakh meters at quoted rates without ascertaining the superiority of the high priced meters, the Board incurred an extra expenditure of Rs.41.89 lakh.

The Board/Government replied (July/August 2003) that the decision to offer 25 per cent of approved quantity at quoted rates was for the purpose of encouraging manufacturers to ensure better quality. However, the exercise did not yield expected results. Reply was not acceptable as there was no justification for giving higher price without establishing superiority of quality.

#### ***Non placement of orders at lowest price***

**3.2.15** The SP section proposed (December 1998) to procure 44 numbers of standard electronic portable low tension (LT) accuecheck meters at an end cost of Rs.58.96 lakh for testing and calibrating energy meters for use by the newly created 44 checking squads. The proposal was based on invitation of quotation from a single previous supplier viz. P.I. Industries. The only other previous supplier, Duke Arnics Ltd. was not considered even for invitation of quotations. This was in violation of the stores purchase procedure code, which required invitation of tenders through advertisement for all purchases above Rs.0.25 lakh.

**Non-placement of orders at the lowest price resulted in extra expenditure of Rs.29.29 lakh.**

The Chairman of the Board, while approving the proposal (December 1998), scaled down the purchase to 15 meters from P.I. Industries at the rate of Rs.1,28,334 per meter and directed that rates from other state electricity boards should be ascertained. Upon deliberation, it was decided (May 1999) to procure the material through competitive bidding. Accordingly, quotation was invited from Duke Arnics also. In February 2000 the purchase of 15 numbers of accuecheck meters from Duke Arnics Ltd. at Rs.72,192 per meter and 14 accuecheck meters from P.I. Industries at Rs.1,25,692 per meter was approved. Matching with the lower cost was not insisted on the grounds of additional facilities available in the meters supplied by P.I. Industries. Further, additional orders for 25 accuecheck meters were also placed on P.I. Industries in March 2001 at the higher rate. The Board thus incurred an extra expenditure of Rs.29.29 lakh<sup>s</sup> due to not inviting quotation from Duke Arnics Ltd. at the time of initial purchase of 15 accuecheck meters and not insisting on matching with the lower cost in the main order of 14 accuecheck meters and additional order of 25 meters.

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\* Electrical Research and Development Agency  
\$ 15 X Rs.56,142 = Rs.8.42 lakh, 39 X Rs.53,500 = Rs.20.87 lakh Total = Rs.29.29 lakh

The Board/Government replied (July/August 2003) that considering higher failure rate of Duke Arnics, tender was not initially invited from the firm and considering the additional features and quality of P.I. Industries, matching of cost with Duke Arnics was not insisted upon. Reply was not acceptable as the records clearly indicated that the performance of both parties was satisfactory. Further, the additional features were not part of the technical specifications as a result thereof both parties were technically acceptable and a high price based on unspecified features was not justifiable.

### ***Non placement of repeat order***

**3.2.16** The Board reserves the right to place repeat orders up to 50 *per cent* of the ordered quantity on the same terms and conditions, within four months of the date of original order. Repeat orders could be made even after four months based on the willingness of suppliers.

The Board approved (August 2000) purchase of 0.41 lakh three-phase four wire energy meters along with metal meter boxes against the tendered quantity of 1.03 lakh. Orders on eight firms were placed in September 2000. In April 2001, based on the urgent requirement of Chief Engineer (Distribution), a proposal was put up for placement of repeat orders at the rate of Rs.914.80 per meter, based on confirmation of the suppliers for 0.16 lakh meters at an end cost of Rs.2.20 crore. The proposal was, however, delayed and cancelled in July 2001 as the price bids of new tenders had been opened in June 2001. The rates quoted in the new tender were 51 to 58 *per cent* higher than the rates in the proposed repeat orders. The urgent requirement of 0.16 lakh meters was met by placing advance purchase order for 0.15 lakh meters on a party which had quoted in the new tender at a negotiated rate of Rs.1,361.17 *per* meter even prior to the Board's approval for the new tender. Had the repeat orders at the lower rate of Rs.914.80 *per* meter been placed, extra expenditure of Rs.66.96 lakh could have been avoided.

**Non placement of repeat order at lower rates resulted in extra expenditure of Rs.66.96 lakh.**

The Board/Government stated (July/August 2003) that new tender was with revised specifications, hence, proposal for repeat order was cancelled. Reply was not acceptable as the reason on record for cancellation of the repeat order was the delay in the processing of the repeat order and consequent opening of new tender. Records also indicate that while placing the advance order in the new tender the repeat orders pending approval were not linked and consequently, to avoid duplication the proposed repeat orders were cancelled.

### ***Non comparison of rates with previous tender and market trend***

**3.2.17** While finalising a tender the prices paid in the previous tender for the same item and existing trends are generally compared and analysed to ensure purchase of meters at most competitive rates. A test check of tenders revealed extra expenditure in two cases due to improper comparison and analysis.

### ***Non comparison of rates with previous tender***

**3.2.18** The Board approved (November 2001) purchase of 0.16 lakh LT static meters and 160 meter reading instruments (MRIs) from four parties. Though

there was a recessionary trend in the prices of meters, a comparison of the prices of this tender with the previous tender (1999) revealed that the MRIs which were supplied free of cost (one for every 100 meters) in the previous tender were charged @ Rs.62,514.30 per unit in this tender as tabulated below:

Rating of LT static meter	Unit end cost (tender of 2001) (In Rupees)	Unit end cost (tender of 1999) (In Rupees)
100/5 ampere with CT	8,864	9,149
200/5 ampere with CT	8,450	8,837
MRI	62,514.30 (per unit)	Free of cost (one for every 100 meters)

**Non-comparison of rates with previous tender resulted in payment of a price for MRIs previously supplied free of cost and consequent extra expenditure of Rs.78.14 lakh.**

During the processing of the tender (2001), matter regarding providing of MRI free of cost as per provision of last tender (1999) was mooted but not approved by the Chairman (June 2001) on the ground that it was difficult to ask for financial benefit, six months after opening of tender. Since in the past tender, one MRI was supplied free of cost for every 100 static meters, the same condition should have been incorporated in the present tender itself. Thus non incorporation of condition for supply of MRI free of cost, in the present tender, resulted in extra expenditure of Rs.78.14 lakh to the Board.

The Board/Government stated (July/August 2003) that during the finalisation of the above tender, the Board had asked suppliers (September 2001) to provide resin cast CTs instead of ring type CTs, though the former was costlier, without any increase in tender price. As the firms had agreed to this, the Board had benefited to the extent of Rs.1.99 crore. Reply was not acceptable as the unilateral decision not to insist on supply of pro-rata MRI free of cost was taken in June 2001 when the issue of supply of resin cast CTs was not under consideration. Further, there is nothing on record to show that when the firms agreed (September 2001) to supply resin cast CTs at the cost of ring type CTs, it was in lieu of MRIs being supplied at a cost.

***Extra expenditure due to bulk purchase at rates higher than local purchase rates***

**3.2.19** The purchasing power at circle level was rupees three lakh for a single order and at division level it was rupees one lakh. Local purchase at circle and division level mainly consisted of single-phase and three-phase metal meter boxes (MMBs). MMBs were also being purchased through centralised purchase at Head Office. Comparison of the rates paid in four circles and one division for these boxes with rates paid by Head Office during corresponding period revealed variations in inter-circle rates and rates of circle and Head Office. The circles were purchasing a large quantity of these MMBs locally at much lower prices than the rates of Head office's bulk purchases. The higher rates of Head office purchase as compared to the local purchases led to extra expenditure of Rs.2.02 crore, as tabulated below:

Year	Local purchase			Head office purchase		Excess paid* (Rs. in lakh)
	Name of circle/ division	Quantity (in nos.)	Average price (In Rs.)	Quantity (in nos.)	Lowest price matched (In Rs.)	
<b>3φ<sup>@</sup> metal meter box</b>						
2000-01	Sabarmati	5,271	339.00	41,120	455.00	47.70
	Rajkot	1,700	234.21	59,975	389.00/ 429.36	3.15/ 48.50
2001-02	Sabarmati Rajkot	614 850	326.00 234.21	31,970	376.01	15.99
<b>1φ<sup>§</sup> metal meter boxes</b>						
2000-01	Sabarmati	31,691	80.86	3,84,375	97.46	63.81
	Godhra	3,815	72.90	1,38,600	97.46	23.01
	Rajkot	9,370	96.00			
	Surendranagar	5,229	74.40			
<b>Total</b>						<b>202.16</b>

\* Excess paid has been calculated based on the rates paid by Sabarmati circle.

The Board needs to conduct an analysis of local purchase and Head Office purchase of MMBs so as to determine the reasons for such variations and take suitable decision for increased delegation of powers for these purchases so as to avoid bulk purchase at higher rates.

The Board/Government stated (July/August 2003) that suppliers are tempted to quote lesser price in local purchases as they are assured of prompt payment, excise duty benefit, limited transportation cost and cheaper tender procedure. If this be true, there was no reason for the Board to continue the bulk purchase at a price disadvantage.

### Performance of meters

**3.2.20** As per notification issued by the Central Government in January 1992, the life of an energy meter is 15 years. The Board, however, did not maintain history card of each meter to ascertain whether a meter that had failed within the guarantee period or completed its full life. However, in the orders placed from the year 2001, the Board had adopted a practice of inscribing the tender number and date of purchase on the meter itself so as to ascertain the useful life of a meter and instances of failure within guarantee period. The Board also did not maintain a supplier-wise data bank of performance. As a result, the benefit of constant monitoring of performance could not be derived.

As and when required, performance details, either of a particular supplier or of a particular tender were called for and decisions were taken. Resultantly, the performance analysis was in most cases limited to the circles, which submitted the required information and it represented the information available on a particular date. Deficiencies observed in audit on the performance of meters are discussed in the following paragraphs:

<sup>@</sup> 3φ three-phase

<sup>§</sup> 1φ single-phase

### ***Delayed replacement of defective meters***

**Number of defective meters pending replacement had increased in respect of single-phase meters over the last five years.**

**3.2.21** There was no specific procedure for declaring a meter as faulty. A meter was declared faulty by the meter reader on physical examination in case of meters found creeping or stopped and on noticing less consumption compared to load. Besides, the O&M and vigilance staff also detected slowness and malpractice during installation checking.

The table below gives year-wise details of defective meters added, replaced and pending at the end of the five years.

(Number in lakh)

Year	Type	Total no. of metered connection	Opening balance of defective meters	Additions during the year	Replaced during the year	Closing balance of defective meters	Percentage of defective meters to total meters
1998-99	1 φ	58.73	4.01	3.24	3.06	4.19*	
	3 φ	1.95	0.02	0.24	0.23	0.03*	
<b>Total</b>		<b>60.68</b>	<b>4.03</b>	<b>3.48</b>	<b>3.29</b>	<b>4.22</b>	<b>6.9</b>
1999-00	1 φ	61.09	*4.42	3.28	3.34	4.36	
	3 φ	2.00	*0.02	0.23	0.24	0.01	
<b>Total</b>		<b>63.09</b>	<b>4.44</b>	<b>3.51</b>	<b>3.58</b>	<b>4.37</b>	<b>6.9</b>
2000-01	1 φ	61.45	4.36	6.71	4.86	6.21	
	3 φ	4.23	0.01	0.31	0.30	0.02*	
<b>Total</b>		<b>65.68</b>	<b>4.37</b>	<b>7.02</b>	<b>5.16</b>	<b>6.23</b>	<b>9.5</b>
2001-02	1 φ	63.59	6.21	6.78	5.12	7.87	
	3 φ	4.48	*0.01	0.28	0.29	---	
<b>Total</b>		<b>68.04</b>	<b>6.22</b>	<b>7.06</b>	<b>5.41</b>	<b>7.87</b>	<b>11.6</b>
2002-03	1 φ	64.93	7.87	5.11	6.43	6.55	
	3 φ	4.89	---	0.41	0.40	0.01	
<b>Total</b>		<b>69.81</b>	<b>7.87</b>	<b>5.52</b>	<b>6.83</b>	<b>6.56</b>	<b>9.4</b>

\* Closing balances do not tally with opening balances as per MIS data provided by the Board.

The percentage of defective meters to total meters progressively increased from 6.9 in 1999-2000 to 11.6 in 2001-02 and decreased to 9.4 in 2002-03. The Board had not analysed the reasons for increase in defective meters. As the division and sub-division did not maintain detail of defective meters the period from which defective meters were awaiting replacement was not directly determinable.

### ***Loss of revenue due to delay in replacement of defective three-phase LT meters***

**3.2.22** As per stipulation laid down by the Board, when a meter is defective, the consumption during defective period should be charged on the basis of average consumption of the preceding three billing periods and the meter should be replaced as expeditiously as possible. Supplementary bills should be preferred on comparison with average higher consumption for three months after replacement. A test check of records of low-tension three-phase meters in 16 O&M divisions during April 1998 to October 2002 revealed that one to 46 months were taken in replacement of defective meters.

**Delay in replacement of defective meters resulted in loss of revenue of Rs.81.22 lakh.**

Review of the billing of these cases during defective period indicated that average consumption of energy as stipulated was levied till replacement. However, the average higher consumption recorded by meter after replacement was not compared with the average levied during defective period and the resultant differential higher consumption was not charged. This deprived the Board of possible revenue of Rs.81.22 lakh for 35.35 lakh units in respect of 332 consumers as detailed in *Annexe-20*.

The Board/Government stated (July/August 2003) that the consumption after replacement was being compared with the previous six months' consumption prior to replacement and if there was an abnormal rise a supplementary bill was issued to the consumer and thus the Board was not at much revenue loss. However, details of supplementary bills in the cases pointed out were not furnished. Even by accepting management's plea of billing based on past six months consumption, a sum of Rs.33.46 lakh for the period exceeding six months could not be claimed.

### **Energy audit**

**3.2.23** Energy audit aims at accounting for energy received and sent out at each stage of power system to determine separately the technical losses (occurring due to inherent characteristic of conductors and equipment used in the system) and commercial losses (occurring due to pilferage of energy, defective meters, meter reading errors and unmetered supply of energy and energy not accounted for).

In pursuance of the directives of Gujarat Electricity Regulatory Commission (GERC) (October 2000) to undertake detailed study to ascertain the losses including bifurcation of losses into technical and commercial losses as well as the measures to reduce and ultimately to eliminate the losses, a study was entrusted to the consultants *viz.*, Tata Energy Research Institute (TERI). The analysis of the results of the study indicated that the total losses in GEB corresponding to the year 2000-01 was estimated to be 28.8 *per cent* comprising of 7.9 *per cent* technical and 20.8 *per cent* commercial losses. It was reported by the consultant that there was little scope of reduction in technical losses as they were within the permissible limit. However, there was scope of reduction in commercial losses.

For reducing the distribution losses the Board took up (October 2000) action plan for providing metal meter boxes, sealing installation, checking of CT operated meters, replacement of non-working/defective meters and installation checking.

The Board reviews the circle-wise, feeder-wise monthly information on industrial/urban feeders having distribution losses of more than 30 *per cent*. As on 31 March 2002, there were 347 feeders having losses of more than 30 *per cent*. The Board had decided (August 2002) on measures to fix up responsibility at different levels for feeder-wise reduction of distribution losses. A scrutiny of the information revealed that of the 347 feeders, 291 feeders were still having losses of more than 30 *per cent* as on 31 March 2003.

The position of distribution losses of these 291 feeders as on 31 March 2003 was as under:

Total	30-40	40-50	50-60	60-70	70-80	80-90
291	98	117	57	14	4	1

A review of the details of pending works as on 31 March 2003 for reduction of losses in these 347 feeders revealed that the percentage of pending works to the total quantum was 27.36 per cent in providing of MMBs, 20.62 per cent in sealing of meters and 20.91 per cent in replacement of non-working meters. During 2002-03 the overall distribution loss was 30.83 per cent in urban feeders and 12.10 per cent in industrial feeders as against the target of less than 30 and 10 per cent, respectively.

Further follow-up action was awaited for reduction of distribution losses in feeders.

***Loss of revenue on account of transmission and distribution (T&D) losses in express feeders***

**3.2.24** The Board had been effecting supply to single HT consumer through high tension/extra high tension express feeders directly from sub-stations. As the express feeder involves only a single HT consumer, as per the norms of the Board, the maximum difference between energy sent out from sub-station and energy billed on the HT consumer should not exceed 3 per cent. The Board had also stipulated various measures such as calibration of meters, checking of meter, verification of CT/potential transformer (CTPT) ratio at consumer end and at sub station end and also providing identical CT ratio and accuracy class meters so that error due to measuring instrument could be avoided or minimised.

**T&D losses in excess of norms in 17 express feeders resulted in revenue loss of Rs. 1.52 crore.**

A test check of 67 express feeders in eight O&M divisions for the period 1999-2003 revealed instances of T&D losses in excess of 3 per cent in 17 feeders resulting in loss of revenue of Rs.1.52 crore as detailed in **Annexe-21**.

The excess loss (Rs.36.95 lakh) in three feeders in Bavla O&M division was stated to be due to length of feeder lines and lower capacity of conductors. In respect of 11 KV Transpack feeder, the excess loss (Rs.37.36 lakh) was due to deployment of less accurate meter and in respect of 11 KV Jolly and Apar feeders, the excess loss (Rs.7.19 lakh) was due to defective CTPT unit and meter at consumer's premises during the period. In respect of remaining feeders reasons were awaited.

The Board/Government replied (July/August 2003) that monitoring would be enforced which would yield T&D loss of less than 3 per cent.

**Conclusion**

**There were delays in replacement of defective meters by quality meters and installation of meters in agricultural premises as envisaged under accelerated power development reform programme. System of**



**procurement of meters was marred by delay in finalisation of tenders, non comparison of rates with previous tender and inter-state rates, non placement of orders at the lowest rate and repeat order resulting in extra expenditure to the Board.**

**The Board did not also maintain supplier-wise data bank on performance of meters. Defective meters were not replaced promptly resulting in undercharge of revenue from the consumers. Non monitoring of corrective measures to reduce transmission and distribution losses resulted in loss in excess of norms in high tension express feeders.**

**The Board should streamline the procedures of purchase and prepare a comprehensive plan for replacement of defective meters in a time bound manner to maximise revenue collection through correct metering. Action needs to be taken to reduce the distribution losses.**